

Business Men's Conference on Urban Problems
Chamber of Commerce of the United States
Washington, D. C.
September 11-12, 1947

BMC-16

Remarks of: H. S. Fairbank
Deputy Commissioner
Public Roads Administration
Washington, D. C.

Before: Afternoon Session - 2:30 P.M.
Hall of Flags, National Chamber Building
Thursday, September 11, 1947

Panel: Traffic Congestion

RELEASE 3:00 P.M., THURSDAY, SEPTEMBER 11, 1947

The construction of an expressway permanently eliminates nearly all of the correctible causes of traffic congestion.

There are no grade crossings or traffic lights on an expressway to halt traffic at frequent intervals. Halting traffic congests traffic.

There are no parked vehicles to encroach upon the space for moving traffic and by the hazard of their presence slow the speed of vehicles.

There are no pedestrians on expressways; hence the hindrance of vehicular movement caused by their presence is completely absent.

There is no left turning of vehicles on an expressway. Consequently, the snarling effects of that difficult maneuver are completely eliminated.

Since there is no direct access to adjoining property from an expressway and no halting of vehicles before buildings, there is complete freedom from all the congestive conditions associated with the presence of such street-abutting property.

It is unthinkable that an urban expressway will have less than four lanes; and the minimum of two lanes for each direction of movement should invariably be separated by a median strip, commonly a turfed central area, which

serves as an effective divisor of the traffic streams of opposite direction.

The minimum of two lanes for movement in each direction permits free passage of slow, by faster moving vehicles, and the separation of directions of movement permits passing maneuvers to be executed at will without hazard of collision with oncoming vehicles seen or unseen.

On a well designed expressway a marginal space or shoulder is provided to the right of the traffic lanes for removal of disabled or other halted vehicles, clear of the paths of moving vehicles. There are no tie-ups from such stopping.

Entrances to, and exits from an expressway are spaced at long intervals, never less than a quarter-mile, and generally at half-mile or longer distances. Entrance and exit are usually effected at the right.

There is ample notice of the approach to clearly identified exit points. At a sufficient advance distance the roadway is widened at the right to include a clearly marked exit, or deceleration lane, into which departing vehicles can be directed and slowed down in good season for the exit by ramps of convenient alinement and slope either into a bordering frontage roadway of local usage or directly into the traffic stream of an intersecting street.

For entrance, similar ramps conduct vehicles from cross street or frontage roadway into an entrance or acceleration lane at the right of the express roadway, and of sufficient length to permit entering vehicles to gather speed and merge safely with the expressway traffic.

By those provisions the obstruction of through movement on the expressway by departing and entering vehicles is reduced to a minimum.

Traffic moves on an expressway. That is what the traffic is there for; and the expressway is designed to afford it every facility to do so.

The movement occurs in an orderly stream, rid of all practicable hindrance and obstruction. That is why one four-lane, divided expressway will carry with ease and convenience, and at speeds at least twice the normal for ordinary streets, eight times the traffic that can be accommodated in the presence of parked vehicles on an ordinary city street of 44-foot width, and five times the traffic a street of 40-foot width will accommodate without parking.

The full, moving-traffic capacity of an expressway remains, unreduced by any post-construction changes of its environment, because an expressway is insulated from its surroundings.

And, added to all these permanent advantages of traffic facilitation, an expressway effects a permanent reduction of the highway accident toll, by eradicating the probability of head-on, and intersecting collision of vehicles and collision of vehicles with pedestrians, and by reducing, as much as road design can, the probability of accidents of other causation.

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BMC--11

Address of: Thos. H. MacDonald
Commissioner
Public Roads Administration
Washington, D.C.

Before: Afternoon Session - 2:30 p.m.
Hall of Flags, National Chamber Building
Thursday, September 11, 1947

Subject: The Federal Aid Highway Program and Its
Relation to Cities

RELEASE 2:30 P.M., THURSDAY, SEPTEMBER 11, 1947

The most compelling drive behind engineering research and engineering operations is the pressure exerted by social and economic problems. As problems in these fields become too extensive in their scope or too acute in their adverse effects to be longer ignored, various phases are placed in the laps of the engineers for solution, frequently with the public tongue in cheek. Possibly our engineering attack has been characterized by the adoption of limited objectives, or at the other extreme, the proposal of grandiose schemes so elaborate that they fall under their own weight. Yet, such is the technological competence of the United States that, once in motion, the engineering techniques move quickly beyond the equally important concomitants of administration and financing. This is particularly true in the field of highway development. No one will question the rapid progress that has been made in the development of materials, in engineering design and construction methods. The amazing plethora of equipment that has come into daily use for the building of highways is only equalled by the fantastic production of automotive equipment to operate over them. Before these engineering techniques can come to the relief of the cities to aid them in their traffic dilemmas and the redesign of the historic, but outgrown city pattern, there must first be available the necessary administrative authority, including legislation and continuing financial support.

This discussion is designed to examine new Federal highway legislation and its potentials for real assistance to the cities whose traffic problems are literally suffocating them and whose relief requires major operations.

The Federal-Aid Highway Act of 1944 holds greater promise of aid to the cities than any other recent national legislation, because it supplies the two essentials of a definite long-term administrative pattern and financial assistance reasonably comparable to the work that can be actually accomplished under existing conditions. To evaluate this new legislation it is necessary to review the concepts of the earlier legislation and those which are embodied in the current Act. The Federal-Aid Highway Act of 1944 alone, among all highway legislation in the countries of the world, aims at the achievement of an integrated development of the major classes of streets and highways to effect an ultimate national traffic network. In this, its principal characteristic, it abandons the limited objectives of the Federal Highway Act of 1921 and all State legislation of the earlier period.

to recognize, and provide for, the revolutionary changes that have occurred in a quarter of a century in the character of highway improvement needs.

In 1921 the preponderant need, clearly recognized as such, was for the creation of a principal rural highway system. The Federal and State highway laws of the same period centered upon this single objective, a cooperative and sustained attack calculated to achieve maximum mileage service in the shortest possible time. The Federal and State Acts alike embodied these salient principles: The designation of limited systems of main inter-urban, rural highways, and the allocation of earmarked funds for use in the improvement of the limited systems designated.

Thus, at the very outset of the remarkable activity in highway development that distinguished the two decades from 1920 to 1940, the two conditions vital to the success of that activity were firmly established by law. These conditions, as already indicated, were:

1. A definite objective; and
2. An assurance of continuing financial support.

Individuals narrowly concerned with the interests of cities on the one hand, and persons shortsightedly regarding rural interests on the other, with some show of superficial warrant, might have condemned the exclusions of these first modern highway charters. Nearly all the laws enacted not only did not provide for the improvement of streets in cities, but actually by specific exception prohibited expenditure of the funds they created for any work inward of the fringes of cities. And, all alike, they excluded from the systems of main rural highways by far the larger portion of rural road mileage, and that, the part most intimately located in relation to rural homes.

The fact is that in the earlier years at least, scarcely a voice was raised in opposition. City people, well satisfied generally with the condition of their streets, cheerfully paid in road-use taxes the lion's share of the cost of the inter-urban rural highways, which actually they desired above all else. And rural people in general accepted the practicable improvement of the longer part of their several routes to town as the more important part of the interminable task of road building to everyman's gate.

The soundness of the pioneer policies was abundantly attested by their results. In less than three decades, while the flow of motor vehicle traffic grew from a trickle to a flood, a system of primary rural highways evolved from virtual impassability to a state approaching a reasonable degree of adequacy for the needs of the world's greatest highway movement. Meanwhile, however, there was an increasing appreciation of the shortcomings deliberately incurred when the policies were originally adopted, and a gradual relaxation of the religious strictness of the exclusions.

Expenditure of Federal highway funds in cities became permissible by amendment of the Federal Highway Act in 1933, and likewise, provision was made for the expenditure of Federal funds in the improvement of secondary or so-called farm-to-market roads. Permission to expend State highway funds on connections of the State system in cities has been gained by State enactments generally post-dating the Federal law amendment; as yet, however, in a number of States, no State fund is provided for expenditure on rural roads not included in the primary State highway system.

But, whereas the States have been slow to provide funds under State control for the improvement of city streets and secondary rural roads, a tendency,

emerging earlier, to apportion increasing parts of the State-collected road-user taxes to government subdivisions for expenditure on city streets and local rural roads, has developed more rapidly. This situation evidences a lack of appreciation of the moderating and unifying role which the State may desirably perform to assure an expenditure of the road-user revenues of maximum benefit to road users generally. It evidences, on the other hand, a far less desirable tendency to apportion road-user revenues by legislative edict, without benefit of a general plan, as a resultant of competing claims advanced by the State highway department, the counties and municipalities of the State. The consequences of this tendency to date are reflected in the disposition of road-user revenues in 1946. The record for this latest year shows a total of \$1,410,539,000 allotted for road and street purposes including debt service, of which \$997,877,000, or 70.7 per cent was allotted for expenditure by the State highway departments; \$350,547,000, or 24.9 per cent, was allotted to counties and lesser subdivisions for expenditure; and \$62,115,000, or 4.4 per cent, was directly allocated for expenditure by municipalities. Making full allowances for the known fact that some part of the revenues available for expenditure by the State highway departments and the counties is expended on city streets, the obvious inference from these figures is that the cities have not received much recognition in the competition for the direct allocation of road-user revenues.

Into this situation the Federal-Aid Highway Act of 1944 comes as a new dispensation, radiant with promise, for the cities especially. Of the \$500,000,000 total Federal appropriation authorized for each of the first three post-war years, \$125,000,000 is earmarked exclusively for expenditure in "urban areas", defined as areas including and adjacent to municipalities of 5,000 population or more. These funds, representing an even 25 per cent of the total appropriations authorized, are made available for expenditure solely upon the Federal-aid highway system selected to serve the urban areas. "Urban area" is a new legal concept which disregards the boundary lines of governmental subdivisions and encompasses municipal and suburban satellite areas in a single district defined by traffic. It recognizes the expansion of the city as a fact accomplished.

This Federal "earmarked" fund is a substantial contribution to the financial resources of cities. The \$125,000,000 annual authorization, distributed evenly among all the urban areas in which it may legally be expended, would represent an expenditure per capita of the included cities of \$1.80, on the basis of the 1940 population. This \$1.80 per capita is made available for construction only of the principal thoroughfares included in the Federal-aid urban highway system. If \$1.80 per capita does not seem an impressive provision to aid in the construction of principal city arteries, then let us compare this figure with the total current expenditures of the same cities for construction, maintenance, administration and interest payment on all roads and streets under their jurisdiction, on the basis of the same 1940 population figures, which is approximately \$3.65 per capita. The Federal contribution for construction of main arteries only, evenly distributed in each year, is therefore approximately 50 per cent of the amount the cities are spending of their own funds, for all road and street purposes. And this assumes that the Federal funds for each year will be evenly distributed among all eligible urban areas, which, of course, is not the case. Applied, as it actually will be, to durable construction in urban areas differently selected in each year, the Federal contribution will represent, to the areas benefitted in each year, an addition to the year's expenditure of city funds far above the 50 per cent ratio of the even distribution. Although the actual rate of expenditure has not yet equaled the authorized amount, the new specific Federal aid to urban highway construction is reasonably scaled.

Yet the funds particularly earmarked for urban-area expenditure by the

1944 Act do not measure the total of benefits that will accrue to cities under its provisions. The Act also authorizes annual appropriations of \$225,000,000 for expenditure on the primary Federal-aid system, either within or without cities. Undoubtedly, a substantial portion of the funds as authorized will be expended for purposes of direct benefit to the cities.

We would do scant justice to the broad purposes of the Federal-Aid Highway Act of 1944 - even in a conference such as this, - in which the primary concern is addressed to urban interests - if we were to emphasize unduly the direct fiscal benefits of the Act to cities. More importantly, the Federal Act aims at nothing less than the achievement of an integrated development of all the major classes of streets and highways, comprising the nation's street and highway network. Naturally, therefore, it makes specific fiscal provision for the fulfillment of recognized highway needs of rural, as well as urban America. For the meeting of rural needs it provides, in addition to the \$225,000,000 annual authorization for expenditure on the primary Federal-aid system, a further authorization of \$150,000,000 appropriations for each of the first three post-war years, expendable only for the construction of principal secondary and feeder roads. The authorization for primary highways, though available for expenditure on such highways both within and without cities, as previously stated, will doubtless be devoted in major part to the bulk of the primary Federal-aid system which consists of the principal rural highways joining the cities. The funds authorized for secondary and feeder roads are to be expended wholly outside of urban areas, and exclusively upon the most important rural roads of this class, included in systems by joint action of State, county and Federal highway authorities.

All of these systems, for the selection or recognition of which the Act provides - the national interstate system, the Federal-aid system in urban areas, the Federal aid primary interurban system and the principal secondary and feeder road system - when they are completely designated, will combine to form a composite, integrated national network comprising all highways and streets of any real generality of usage. Together, they will probably serve not less than 85 per cent of the total vehicle-mileage of highway transportation; and they will accomplish this large measure of service by the inclusion of not much more than 20 per cent of the total mileage of roads and streets. The large remainder of mileage will consist, in its rural components, of tertiary and purely land-access roads, and, in its urban components, of the neighborhood and residential streets of the cities. With sound reason excluded from the systems to which Federal-aid is extended, this mileage will actually constitute a residual system, alike in its urban and rural components, serving the most local of highway transportation functions.

Designation of the several systems envisaged by the 1944 Act is proceeding with reasonable promptness. To date, more than 350,000 miles, including a substantial mileage in cities of less than 5,000 population, has been selected for inclusion in the secondary and feeder road system.

Of greater interest to the larger cities doubtless, is the designation, announced on August 2, of the complete intercity network of the national system of interstate highways. This network, comprising 37,681 of the 40,000-mile eventual extent of the entire system, includes 2,882 miles in cities, forming the principal extensions into and through the connected cities. The remainder of 2,319 miles has been reserved to permit addition in the larger cities of distribution and circumferential routes, essential as terminal connections of the system. Designation of this further mileage in cities, now under way, requires the close cooperation of city, State and Federal authorities.

The additional designation of interstate highway routes in the cities

will proceed simultaneously with the further selection of routes for addition to the Federal-aid system in urban areas. The latter selection will embrace the former, and in addition will include the routes of substantial importance as arteries within the urban areas. The result will be a large expansion of the existing Federal-aid mileage in the urban areas, and of course a corresponding increase in the scope of application of the Federal urban-area funds.

It is in its requirement of the planning of these systems, rather than in the appropriations it authorizes for a short term of years, that the great fundamental merit of the 1944 Act is to be found. By the fact that the new system selection it requires will accomplish a complete functional classification of all roads and streets, differentiating clearly between the two general classes of arterial and land-service facilities in both urban and rural areas, the 1944 Act is distinguished from the parent Act of 1921, which provided for only a partial classification, and expedient first measure of planning. And by the further fact that the new classification and system selection is to be accomplished by the joint decision of all affected jurisdictions, municipal, county, State and Federal, the resulting new determination is stamped as a truly "federal" highway program. It will be rather a wholly unified or federated program, requiring for its realization the associated action of government at all levels. It will be the Federal program only in the sense that it will define or fix the purposes of future highway contributions of the National Government, with virtual certainty, for years to come, even as lesser purposes and objectives were fixed for more than two decades by the Federal Highway Act of 1921.

The great difference between the new and the old programs, as far as the cities are concerned, is that the cities are to be as closely associated in the new, as they were definitely excluded at the inception of the old program.

The time when highway needs of the cities might be regarded as of lesser concern than rural needs, is past, and too long past. No finding of the State-wide highway planning surveys is more clearly established than the fact that the tides of rural highway movement have either their origins or their destinations predominantly in the urban areas. No longer tenable is the idea, once prevalent, that cities are places to be avoided or by-passed by through highways. With certainty, we know now that the traffic that moves on these primary rural highways in the vicinity of every city is, in its majority, a traffic destined to, originated in, the city; that this majority rises to 90 per cent or more in the vicinity of the largest cities, and remains substantial in the vicinity of cities much smaller, even down to the town of 5,000 population. It is clear, therefore, that the rural highways must have adequate connection into, and through the cities, if their traffic is to be properly facilitated to its predominantly city destinations, and from its predominantly city origins.

Within the city, the routes that are needed to extend and cross-connect the external primary highways are generally found to coincide with major arteries serving heavy internal movements from residence quarters to the central business section of the city. But while these usually radial connections of the primary rural highways are often the most important arteries of city traffic flow, there usually are other lines of heavy arterial movement, either actual or potential, that can be readily distinguished by origin-and-destination traffic surveys.

With few exceptions, these important urban arterial traffic flows are now inadequately served by ordinary city streets, in which they are mixed with a great deal of local movement, and obstructed at numerous street intersections by traffic lights and cross flows. Substantial volumes of arterial movement between opposite sides of the city now follow existing streets directly through the central business section, and though they have neither origin nor destination there, add their burden

to streets already crowded with essential business movements. Origin-and-destination surveys have shown that this movement in transit through the business section may bulk as large as 50 per cent of all street traffic in the area; probably it is at least one-third of the total business-section traffic in all cities. The apparent need in this connection is the provision of free-flowing, belt arteries, closely encircling the business section, by which cross-city traffic can be conveyed from one radial artery to another without passing through the central area.

In its relation to the cities, the Federal program contemplates, first, a clear definition of these essential lines of arterial movement, and thereafter a sustained application of city and, perhaps, State funds annually available, with Federal aid, over what may well be the long period necessary to develop, in each city, a needed system of highways designed for the special service of arterial traffic. The program will not exclude any needed provision of outer circumferential highways, though it may properly contemplate the location of such routes in such manner as to serve the need for connection between outlying urban sections, as well as the more commonly recognized objective of city avoidance for through-highway traffic.

The task of designating additional urban routes of the interstate and Federal-aid systems is the essential first act of this program. It is a task that can be greatly facilitated by traffic origin-and-destination surveys, and one, indeed, that cannot properly be completed in the absence of such surveys. Federal funds are available, at the disposition of the State highway departments, to defray part of the survey costs, and have already been so used on surveys undertaken in more than 60 cities. Preliminary engineering reports have been made or are to be made in one hundred cities, large and small.

Use of the Federal urban-area funds authorized for construction, which preferably should have followed a more deliberate planning preparation, has necessarily begun because of the pressing need for a start toward traffic relief. We hope to direct the immediate construction expenditure to projects, and types and locations of improvement, likely to accord reasonably with the nature program of later development.

As of August 15, more than 85 per cent of the urban-area funds authorized for the first post-war year had been programmed for specific projects. Also at the middle of August, nearly 50 per cent of the funds authorized for the second year had been programmed; and the time for complete obligation of these funds extends to June 30, 1949. In view of the difficulties attendant upon the launching of a new program, as yet less than two years in force, these accomplishments indicate a satisfactory rate of progress.

Bearing in mind that an important objective of the program is the increase of street capacity and the relief of traffic congestion, we find the character of the projects programmed particularly gratifying.

Of the combined apportionments for the fiscal years 1946 and 1947, amounting to \$243,750,000, only \$6,130,450, or 2.5 per cent, has been programmed for improvements which will not provide at least one additional traffic lane. These projects, involving 80.5 miles of streets, are located generally in small towns. Projects involving 296.1 miles, and providing for the addition of at least one, and generally more than one lane, have been allotted \$31,096,993, or 12.7 per cent of the two-year apportionment. High-type improvements, with road-ways centrally divided, but without controlled access, and with only an occasional grade separation at intersections, planned for 137.9 miles, have been allotted \$30,233,162, or 12.4 per cent of the combined apportionment. 62 projects provide for needed protection at railway-high-

way crossings, generally by the separation of grades. To these the allotment is \$19,629,079, or 8.1 per cent of the apportionment for the two years. But, especially pleasing, are 144 projects which will result in the construction of 138.3 miles of new urban expressways, with all intersection grades separated and complete access control. To these goes the largest share of the apportioned funds, an allotment of \$77,412,645, or 31.8 per cent of the total. Properly, these projects are located in the larger cities. Their completion will nearly double the mileage of urban expressways now existing.

There is altogether too much fear of the so-called decentralizing effect of expressways. The type of decentralization now in progress is inevitable, expressways or no expressways. Our cities are expanding, de-densifying, to use the action term. In the expressways now planned we see only the beginning of provisions of the strong, new transportational bonds that are needed to tie the future wider spread of metropolitan areas to the urban centers. Concern may be more constructively directed to the extension of municipal limits to encompass the actual spread of urban aggregations, or (perhaps more properly and) to other measures, financial and legal, administrative and planning, which will conduce in other ways, as positively as expressways within the scope of their potentialities, to the cohesive and harmonious development of the inevitably enlarging metropolitan areas.

Truly the provisions of the 1944 Federal Act define a national program fixing anew the broad purposes of a long period of constructive activity toward an harmonious development of the major street and highway systems, as surely as the Federal Highway Act fixed the purpose of more than two decades of activity toward the development of a main rural highway system.

One thing more is needed. That is a reasonable assurance of the steadfast continuance of financial support needed to carry out the program. For most effective planning of the continuing activity, the finances to be available, as nearly as possible, should be of assured or predictable amount. The Federal-Aid Highway Act of 1944 gives notice of the extent of the Federal Government's contribution for only three years. We are approaching the time when the authorization must be extended for a further period. Desirably, the Federal intent should be expressed in terms of annual authorizations continuing over a period longer than three years, for two compelling reasons. The highway plant has reached such dimensions and accumulated so extensive obsolescence, a large annual reconstruction program is necessary to maintain a reasonable degree of service. Also, the projects that will render maximum service, particularly in urban areas, can only be undertaken on a stage construction basis.

But the Federal Government is only one of many partners in the great enterprise charted by the new program. The other partners, particularly the States and cities, should similarly consider, and assuredly provide for the long-term financial support of highway improvements, the accruing need for which can now be objectively determined. Such a consideration was precisely the purpose of the exemplary investigations of an interim committee of the California Legislature, known as the Collier Committee; and the legislation recently resulting from the recommendations of that committee has gone far in the provision of assured long-term financial support on the part of the State government. The example set by California has already inspired the undertaking of similar highway financial planning in a number of other States, and others will doubtless follow in due course. The methods of these studies on the plane of the States, can be applied by the cities with promise of equally beneficial results in the more positive assurance of necessary financial means for an orderly and sustained attack upon the difficult problem of urban traffic congestion.

In summary, we have in the 1944 Federal-Aid Highway Act, a truly national pattern for administration. Also, a reasonably adequate financing to provide a substantial initial program in each of the major classes of highways. It vitalizes the concept of an arterial traffic circulation system for each urban area and the engineering techniques are available to select these with certainty for the future. A spirit of tolerance and faith on the part of both public and officials will insure successful progress in meeting certain phases of the social and economic problems now characteristic of our municipalities. Each one of the problems which can be met by more efficient internal transportation requires land. Controlled-access arterials, improved transit, better terminals, sufficient parking areas, parks and parkways and all other of such elements that will be characteristic of the re-designed modern city -- must reconvert space now used for less important purposes. It is fortunate, and not a catastrophe, that people are establishing their homes outside the central city areas. The space thus vacated is needed for other public purposes. It is a happy circumstance that living conditions for the family can be re-established and permit the social as well as economic decay at the heart of the cities to be converted to a public asset. It is certain that the cities face a bright rather than a disastrous future if faith and courage are at the helm.

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