

Implications of Recent Highway Planning Studies

G. DONALD KENNEDY

Vice President, Automotive Safety Foundation
Washington, D. C.

The wartime moratorium on new highway construction had serious adverse effects upon our highway transportation system. It set back four years the replacement and reconstruction program. It imposed a heavy strain on maintenance facilities everywhere. It prevented the undertaking of urgently needed improvements on many of our major arteries of traffic.

But "It's an ill wind that blows nobody good." The moratorium provided a "breathing spell" for highway officials, during which they were able to expend more time and effort than they had before in taking stock of their problems and making plans for the future.

As a result, highway planning received great impetus during the war years. Although an enormous backlog of deficiencies in the highway plant has accumulated, programs for meeting them, and for meeting the requirements of expanded road use in the future, are today on a more solid and a sounder basis than ever before.

In all road jurisdictions, major progress in planning was achieved during these years, as for example:

Nationally, there was enacted the Federal-Aid Highway Act of 1944, in which Congress gave recognition to the size of the problem by enlarging the federal-aid authorizations for the post-war period. That Act—which earmarked funds for projects in cities, authorized the designation of a national system of interstate highways, and made substantial provisions for assisting the development of farm-to-market roads—has become a milestone in our highway transportation history.

The Congress passed the 1944 legislation largely on the basis of presentations made by the states, through the American Association of State Highway Officials. At that time, the president of the Association was your distinguished fellow Hoosier, Mr. Samuel C. Hadden, of Indianapolis, whose personal leadership and abilities continue to make an outstanding contribution to America's highway progress.

Every state was represented in the hearings conducted by the House Roads Committee, and the testimony offered indicated impressive progress which the state highway departments have made in recent years in the collection of facts and the formulation of sound highway programs.

Cities, too, both large and small, have begun to recognize the vital part which highway planning must play in their future growth and prosperity. During the years just before the war urban areas everywhere found themselves confronted with critical traffic problems. Volumes of movement had increased to the point where the gridiron street pattern was choked and congested. Accident losses were high. Parking facilities were grossly inadequate. The 1939 report of the U. S. Public Roads Administration, entitled, "Toll Roads and Free Roads," offered dramatic factual evidence that the metropolitan area, which is the focal point of highway movement, has become its major bottleneck.

The curtailment of motor vehicle mileage during the emergency temporarily relieved the situation. In a great many communities, however, the planning job went forward in that period, with the cooperative assistance in most cases of state and federal agencies. In other cities, the problem was tackled after the war ended, when the resumption of highway use brought back intolerable traffic delays, congestion, and accidents. Probably more attention has been given in our cities to the highway problem during the last five years than during the whole previous quarter of a century.

CURRENT DEVELOPMENTS

Highway planning in general, therefore, has been enormously accelerated. But progress is by no means uniform throughout the country. Our highway system is a complex structure, administered by thousands of agencies in all levels of government. The significance of recent trends can be more readily perceived, therefore, if we focus on some of the specific developments.

One of these is the perfection of the origin-and-destination study technique for long-range city highway planning. It is obvious, of course, that any community seeking to provide facilities adequate to meet future traffic requirements must base its program on facts indicating what those requirements will be. It is not enough merely to know the pattern of today's movement. How much will the volumes of traffic increase? What will the commercial and industrial growth of the city demand in the way of highway communications to foster that growth, and contribute to better living conditions in the community? What types of facilities will be needed, and where should they be, so as to encourage

the stabilization of land values and promote the orderly expansion of the community?

The large outlay of funds involved in the purchase of right-of-way and the construction of expressways in built-up areas makes it imperative that these questions be answered factually, and on a long-range basis. No city can afford to spend more than it will need. But neither can it afford the tremendous cost of premature obsolescence in expensive projects, or the even greater burden resulting from inefficient and unsafe transportation.

The origin-and-destination survey techniques have become important engineering tools, helping to supply the data essential to sound urban highway planning. During the last three years, the Public Roads Administration, assisted by the Bureau of the Census, has been cooperating with state highway departments and the officials of 54 cities throughout the country in perfecting these techniques. They have been so successful that today large amounts of necessary information can be obtained at relatively low cost, and with maximum statistical validity.

In this important pioneering effort, Indiana again has had a leadership position, with nine communities in the state participating in the work. The home interview or internal type of study has been made in three metropolitan areas: Fort Wayne, Indianapolis and South Bend, and Mishawaka. In Gary, Jeffersonville, Lawrenceburg, Lebanon, Martinsville, and here in the Lafayette area, the external type of study, involving traffic counts on arteries surrounding the community, has been conducted.

Fort Wayne offers a notable example of long-range planning, utilizing the O. and D. study data, and providing for the construction of express highways, a belt line, off-street parking facilities, more efficient use of existing thoroughfares, and other improvements. The program as set forth in Fort Wayne's excellent highway report has been approved by the Fort Wayne city council, the Indiana State Highway Department and the Public Roads Administration.

Just before Christmas I had the pleasure of attending the annual meeting in Los Angeles of the American Association of State Highway Officials, where I heard a representative of the federal highway administration describe the work in Fort Wayne. He pointed out that it is the nation's first truly comprehensive urban program developed on the basis of facts obtained through the new survey techniques.

Since 1935 the states have been making highway planning surveys in cooperation with the Public Roads Administration, and the methods and techniques have been improved steadily. That type of research now

is being extended to the metropolitan areas. It is a sound approach to the problem, and the only approach which can give assurance that the needs of the public for highway transportation services will be adequately and economically fulfilled. A widespread use of O. and D. techniques and of other engineering surveys by cities is a desirable and indispensable trend in the period immediately ahead.

From the standpoint of the states, a recent development of major implications is the trend toward legislative fact-finding studies, on which are founded comprehensive, state-wide highway programs.

Outstanding example is California, which has just completed such a study. The California legislature is now in special session, called by Governor Warren, to deal with the state's future highway problems, and it has, as background for its consideration, the extensive studies submitted by a special fact-finding committee, headed by State Senator Randolph Collier.

Since similar undertakings are definitely under way in four other states, with the likelihood that more will follow, I believe that a brief summary of what has happened in California will be of special interest to you.

CALIFORNIA STUDIES

The California legislature two years ago authorized a complete and thorough investigation of the state's highway problems, and appointed a special fact-finding committee to do the job.

This step was taken in recognition of the indispensable role which safe and efficient highway communications play in the economic development of modern America, and in further recognition that the state's present highway system has critical deficiencies which prohibit it from rendering that kind of service.

The Committee divided its work into four parts:

1. It conducted extensive public hearings in all parts of the state, at which were presented facts and viewpoints on highway needs. Perhaps no other legislature in our country ever has been so well informed on road matters as has been the current California Assembly. Representatives of cities and counties and state agencies presented information. So did the users of the highways—groups representing the trucking interests, the owners of passenger cars, business, and industry. A voluminous record of data and opinion was assembled by the committee for its guidance.

2. A historical review of highway revenues and expenditures was prepared.

3. A comprehensive engineering survey was made, to appraise highway requirements, and to outline the program of improvements necessary to meet California's future needs.

4. Finally, a study was made of the revenue sources available to finance the program, including an appraisal of present tax policies and allocation of funds among the several administrative agencies concerned.

The three special studies were made by the employment of specialized personnel, with city, county, and state agencies cooperating in making available factual information and in other assistance. It was my privilege to direct the engineering survey, having been loaned by the Automotive Safety Foundation at the request of the committee. The work was reported in a document entitled "Engineering Facts," which is a pioneering job we hope will be useful in other states.

Of the broad objectives set forth by the legislature, these specific problems were assigned to the engineering phase of the committee's study:

1. To determine the present status of state, county, and local road systems, including the total mileage.

2. To determine what deficiencies in the system must be overcome to make them adequate to meet present demands.

3. To prepare a program of improvement necessary to keep abreast of future requirements.

4. To prepare a schedule of maintenance necessary to preserve the capital investment in the highway plant.

5. To ascertain what improvements are needed to develop areas or resources of California which should be opened to economic opportunity.

6. To report on the relations existing between state and local governments, and between the state and federal governments, in highway administration.

7. To study control of highway traffic in the interests of safety.

8. To determine improvements for at least ten years in the future.

The concurrent resolution establishing the Collier Committee, as you may judge from this list, was comprehensive. A strong and representative committee was assured by designating as members the president pro tempore of the Senate, the speaker of the Assembly, six members of the Senate appointed by the rules committee, and six members of the assembly appointed by the Speaker. To defray costs, \$120,000 was appropriated.

An advisory committee composed of citizens was established, bringing together on a statewide basis the representatives of both public and private agencies and organizations. County, city, and state highway admin-

istrators participated actively in the work of the committee as members of the advisory group.

Time does not permit this evening a review of the findings which the Collier Committee submitted to the California legislature, and which are now being considered in special session. A few of the major conclusions, however, may be of particular interest in relation to your own program in Indiana.

One of the basic problems, of course, is proper classification of roads within a state, to simplify problems of financing, construction, maintenance, and administration. A major conclusion of the report is that classification should conform to the existing political jurisdictions. Hence it recommends three systems—state, county, and city. In each case, highways or streets of major importance are selected as routes of general traffic service, with the remaining mileage on routes furnishing access to land and homes. Thus the study showed that of the 65,700 miles of county roads, approximately 20,000 miles should form the county primary system and be improved to permanent standards. Streets of major importance, not including those on the state expressway system, total 3,700 miles, with other streets in the state totaling 14,500 miles. The state trunkline system is recommended to include 8,545 miles, with separate designation of an expressway system of 2,940 miles, both rural and urban.

The study recommended design standards for each major classification of road, and also standards for road operation, based on nationally recommended standards, so as to promote national uniformity, and also as a means of assuring maximum economy of construction and maximum safety.

Of particular interest was the compilation of costs on the whole construction program, the first of this kind ever undertaken, so far as I know. Through the cooperation of state, county, and city officials, full cost data were assembled, adjusted to achieve statewide uniformity, and then modified for future years in accordance with a price index which was worked out for that purpose.

Estimates on critically needed improvements as furnished by the counties, by the way, were based on the following criteria: unsafe bridges, inadequate lane capacity, facilities obstructed by regularly occurring floods or slides, inadequate surfacing, bad accident record, and other specified reasons. Other long-range criteria for determining county road improvements were: improvements needed to reduce vehicle operating costs, and the cost of hauling produce, livestock, timber, mining, and other products; those needed to develop natural resources.

The cost estimates were arrived at by using the years 1937 to 1941 as a base and projecting them into the future on the basis of long-time national trends. The result is that a leveling-off of prices is anticipated with the next few years, stabilizing at about 129 per cent of the base period used.

Finally, the engineering report outlined a ten-year improvement program for all road classifications, with construction getting under way in 1950. It called for expenditures on state highway system improvements that year of slightly more than 111 million dollars, compared with 73 million that would be spent if the present program were unchanged. County road system expenditures for 1950 would be 48.5 million dollars, compared with 46 million; major city street projects 50 million, compared with 16 million.

It is too early to say what the California legislature will do about the program. No one would expect that in a single session all the recommendations of a fact-finding committee could be translated into action, or even that they should be. But I am confident that a large and forward-looking program will be authorized, and that additional funds for improvements critically needed will be provided by the state. The citizens and legislators alike in California are determined that their essential highway movement shall be safer and more efficient, to serve the economy and the requirements of better living.

The procedure followed in California is, of course, only one of several ways in which the same purpose can be achieved. Other states may find it necessary or desirable to adopt a different pattern. The procedures are not important; the important thing, as I see it, is for the legislature, the state highway department, the county and city highway administrators, and the road-user groups all to be drawn into a comprehensive analysis of the facts about their highway systems. This brings about a true understanding of the problem by all concerned, and out of understanding comes sound planning and effective public support.

PROGRESS ELSEWHERE

If I have dwelt in some detail on the California study, it is simply because of my own familiarity with it, and because it represents what I am confident will be a definite trend toward the development of state-wide, balanced programs. But there are many other interesting developments around the country which point the way toward measurable progress in road improvements.

At Memphis, the piers have been completed for another bridge across the Mississippi River. Construction will go forward without

delay. With the bridge across the Ohio River south of us paid off fully from toll revenues, Louisville is taking steps toward improvement of her major traffic arteries.

In Illinois and Michigan striking results have been obtained in the recovery of old concrete pavements by covering them with black top. In New Jersey, "dual dual" highways are being programmed, which is an arresting way of describing parallel expressways, necessary to handle the huge volumes of traffic, and less expensive than would be the addition of multiple lanes.

Preliminary reports have been made on the special study of design elements of the roadway in relation to accidents, which is being conducted by the National Safety Council, in cooperation with the Public Roads Administration. Although the findings to date are limited, they are sufficient to prove the urgent necessity for extending and broadening this particular research, in the interests of safe highway design.

For the country as a whole, the construction program is proceeding at a rate which may be surprising to those who have been aware only of the delays and interruptions due to materials shortages and high prices. During the first two fiscal years of the three-year Federal-Aid program, projects totaling two billion dollars were authorized, including both federal and matched funds. The program committed in the period totals only 750 million, which is considerably below schedule, and far below pressing requirements, but which nevertheless represents a substantial undertaking. Most of the work is being done on the secondary and state primary systems, with the urban picture exceedingly spotty. This lag could reasonably be expected, however, because costs are concentrated on relatively few projects in urban areas, and also because the availability of regular federal-aid funds for city improvements is a new condition, established for the first time in the post-war Act.

Under that Act, the funds apportioned for the first fiscal year of the program are available to each state during the first two fiscal years, which will end next June 30. A bill will be introduced in Congress shortly to extend that period, in order that the equities among the states may be preserved.

There are indications that the uncertainties which have retarded the letting of contracts, especially on the matter of costs, will continue for at least the remainder of this year. The materials situation, however, is improved. Thomas H. MacDonald, Commissioner of Public Roads, reported a few weeks ago that the 1947 outlook is definitely better. Structural steel requirements this year, for example, are esti-

mated at 400,000 tons, which the steel industry advised Mr. MacDonald will be available. Cement is now scarce in some parts of the country, but the supply should be adequate by the second quarter.

Recent developments clearly indicate that as the program gains momentum, sound results will depend more and more upon close administrative relationships among state, county, and city agencies. In my judgment, if there is any one fact which deserves emphasis more than others, it is this one.

Highway transportation is a complex system, involving a great variety of services and road networks. The stern necessity for efficiency compels each state to choose constantly between two courses of action: One course is to absorb existing road authorities for construction, finance, and administration into a statewide agency to simplify administration. The other course is to preserve the separate administrative setup, and depend for results upon the coordination and cooperation of the state, county, and city officials concerned.

As of today, that decision has been made in all parts of the country in favor of the latter course. It is expressed in the 1944 Federal-Aid Highway Act enacted by the Congress, and it has been reaffirmed repeatedly by all responsible highway authorities. As the Collier report to the California legislature puts it, administration of roads should be assigned to that agency which has a major interest in the roads within its own jurisdiction.

This is a principle we can applaud. But it is also one which confronts every road administrator with a greater challenge than ever before. Only by coordinate effort of all three levels of government within a state can a statewide, balanced program be accomplished.

In traveling about the country, and observing the splendid progress being made, I am fully convinced that this challenge will be met. Working together, city, county, and state highway officials in the years just ahead will make the greatest contribution to the public welfare that transportation ever had made in the history of mankind. It will be an achievement out of which will come deep and lasting satisfaction from a worthwhile job well done.