

HIGHWAY PLANNING SURVEYS AS A BASE FOR FUTURE WORK

By J. N. ROBERTY

State Manager, North Dakota Highway Planning Survey

The principal data collected and tabulated by the basic highway planning surveys are an almost inexhaustible reservoir of information such as is necessary for a sound solution of the basic problems underlying the efficient administration of highway systems but the data alone are of little value unless they are used in the solution of the problems in which they are concerned

Now that the collection and tabulation of the data included in the basic surveys are nearing completion in most States, a review of the uses that have been or are being made of planning survey data should be a criterion of the nature and value of the future work that may be expected in obtaining maximum value of the data collected

When the highway planning surveys were started on a Nation-wide scale in 1936, few, if any, states had reliable inventories of all highway facilities and almost as meager were data on traffic For this reason, the highway and transportation series of maps and the traffic flow series were the most appreciated of all of the early work done The public and even administrators appreciate and will use graphical presentations of facts when they will not study and analyze statistics

Nearly every state has relied upon planning survey data for the logical selection of the Federal Aid Secondary system.

Few of the planning surveys have progressed enough to permit the solution of the most vital highway problem—the determination of the solvency of the highway enterprise and the planning of a sound long-time program for the efficient expenditure of probable future revenues. Such a plan is the surest safeguard against raids on highway funds by short-sighted, hard-pressed legislators

The uses that are being made of highway planning survey data as indicated by the reports of so many states indicate that even the incomplete studies have many values and that the surveys are gradually finding their place in a more intelligent planning of the greatest public business in America

The report contains several tables in which are tabulated by states the uses made of planning data survey, these are listed under, (a) primary, (b) every day, and (c) unusual uses and special studies

The principal data collected and tabulated by the basic highway planning surveys consisted of (1) a complete inventory of all rural highway facilities with such dimensions and measurements as are necessary for a general determination of the adequacy of the facilities for present and probable future traffic, (2) determinations of traffic density and characteristics at enough points to permit satisfactorily accurate estimates of traffic character and density on all rural highways, (3) determination of the amount that the residents of each population group use the roads and streets of each system, (4) determination of the amount that the residents of each population group pay toward the support of

each system of roads and streets, (5) determination of construction and maintenance costs by surface types by traffic density, (6) determination of the annual income received during past years and estimated future income, (7) determination of the taxes levied, collected and expended for each purpose by each governmental unit authorized to levy taxes, and (8) determination of the motor vehicle taxes paid by each type of vehicle by ages and by population groups and the annual mileage travelled by vehicles of different ages and types.

These data form an almost inexhaustible reservoir of information such as is necessary for a sound solution of the basic problems underlying the efficient

Administration of highway systems but the data alone are of little value unless they are used in the solution of the problems in which they are concerned.

Now that the collection and tabulation of the data included in the basic surveys are nearing completion in most states, a review of the uses that have been or are being made of planning survey data should be a criterion of the nature and value of the future work that may be expected in obtaining the maximum value of the data collected.

Uses that have been or are being made of the highway planning survey data may be grouped into three general classifications: (1) use by the state highway departments of the data collected and compiled by the basic surveys, (2) use by the state highway departments of special studies, and (3) use by private business enterprises and by other state and national governmental agencies of both basic and special data. Uses such as fall in the last classification are in reality by-products of the work, but they are too numerous and too valuable to let pass without mention.

When the highway planning surveys were started on a Nation-wide scale in 1936, various states differed widely in the stage of development of their state highway systems and, consequently, were facing somewhat different problems. In some ways, however, all states were in much the same situation. Few if any had reliable inventories of all highway facilities and almost as meager were data on traffic as seen from a statewide viewpoint. For this reason, the highway and transportation series of maps and the traffic flow series were the most appreciated of all of the early work done. The public and even administrators appreciate and will use graphical presentations of facts when they will not study and analyze statistics. The fullest use of graphical methods should be used in the presentation of planning survey data.

As far back as 1934, the reports indicate that such states as Pennsylvania, Michigan, Oregon, Washington, Connecticut, Massachusetts, and several others had completed a mileage of primary highways equal to the mileage now designated as the total mileage of their present primary state highway system. As early as 1925, California reported a mileage of primary highways completely surfaced or graded and drained equal to the mileage now reported as comprising the mileage in the primary portion of the state's highway system. That was 10 years before the planning surveys really got under way.

Such states as the ones just mentioned were evidently not in serious financial condition as regards the financing of their primary state highways as they were beginning to take on large mileages of secondary highways.

The era of the planning surveys came at the end of and in some cases several years after the end of the growth period of the states' primary highway systems. Many state administrators had been for several years adjusting and revising their primary systems without the use of the scientific data now available from the planning surveys and having gone thus far with decisions based largely on personal judgment, they are slow to utilize more exact methods in solving problems that have been arising for several years and have been solved by personal opinions rather than by proven facts.

The fact must be recognized, however, that the personal judgment of administrators long experienced in highway matters of their own states have a keener intuitive knowledge of the sound economics of the problems involved than they are sometimes given credit for. Usage of planning survey data in such states will develop only as clear answers to perplexing problems can be shown to administrators.

Table 1 is a tabulation of the uses made of planning survey data in various states as indicated by replies received from a request sent out for that information. Oregon is probably the leading state in the completeness of the use of the planning survey data. Pennsylvania, in an equally advanced stage of highway development, has apparently failed to recognize and use the valuable data at its disposal to an extent that should be expected. Connecticut, although possessing a system of primary highways that has been very stable for a number of years, is utilizing planning survey data and methods to assure itself that maximum efficiency has been obtained in highway routing and in the expenditure of funds. The most plausible explanation of such contrasting situations is that in some instances the pertinent information has been plainly presented to the administrators and in the other cases it has not. Planning survey data are not and will not be used where the fundamental facts and their significance are not clearly presented to those who need them to make sound decisions.

Most planning surveys are not quite ready as yet to present an answer to the most vital questions that they should solve. At the beginning of Table 1 are listed five of the most important things that should be known about a system of state highways. Only comparatively few of the states have used planning survey data as yet in arriving at answers to the problems they present. As planning survey data are used to make these determinations, and where the job is well and convincingly done, planning surveys or their equivalents will become recognized as essential parts of efficient highway departments and such data as have been collected by the planning surveys will be recognized as essential data that must be kept sufficiently current to indicate important trends.

The fact that so few states are enough

advanced in their studies to enable them to present answers to the really fundamental questions is not an indication that planning survey data are little used at present or that present uses are not the proper preliminary steps in the solution of the major problems.

Nearly every state has relied upon planning survey data for the logical selection of the Federal Aid Secondary system. Correlative with this use has been the use in conjunction with the expansion or cutting down of the states primary system of Federal Aid highways. This has been done in a few states

Such revisions as have been mentioned here have been based almost exclusively on data presented by traffic flow maps and are not to be confused with route changes resulting from careful density and origin and destination studies of local situations. Even the use of traffic flow maps is fairly good insurance against the more serious errors in route selection

It should not be expected that a considerable volume of planning survey data is required in the solution of every problem of highway location. In the report of the Public Roads Administration on "Toll Roads and Free Roads", it was definitely shown that there is not a need in this nation for a system of transcontinental highways running from coast to coast by the most direct routes. There is, however, need for better highway facilities between our principal cities. What can be said for the Nation as a whole can be said for almost every single state in the Union. The heaviest travelled routes in any state are and will continue to be the shortest and best routes between the principal cities of that state or adjoining states and little planning survey data are needed when these routes are under consideration. It requires only the traffic flow maps to permit a quick and fairly accurate conception of the relative merits of such routes. The use that is developing for

planning survey studies on routes of this nature is special origin and destination and traffic studies where these main highways enter the larger cities. Here guess work and private opinion have largely surrendered to the fact finding processes of the planning surveys. The solution of knotty routing problems around municipalities will lead to a wider use of planning survey methods in route analysis. In fact, considerable route analysis has already been done and results have been universally satisfactory to administrators. Eleven of 30 states reporting indicated that special traffic and origin and destination studies have been used in the checking of the proper location of important routes.

One sure way of bringing to the attention of the administrators or program planners, the ready utility of the survey data is by showing plainly on maps the location of traffic hazards such as sharp curves, short sights, steep grades, and narrow or weak bridges. When these data are plainly indicated on traffic flow maps, they give so much information of a pertinent nature all in one picture that their value cannot escape recognition. Fourteen of the 30 states reporting on the use of planning survey data indicated use of maps for this purpose.

Following the graphical presentation of modernization needs of the highways themselves comes the determination of hazard ratings at rural and urban railroad grade crossings. There is need for logical weighting of the value of elimination of all types of traffic hazards. No one type of traffic hazard is worthy of special allocation of funds. The elimination of the most serious hazard of one type in a state would not be justified if by so doing funds were denied a more serious hazard of another type. All types of hazards should be considered at the same time and a hazard rating determined that will be inclusive of all types of hazards.

Many of the everyday uses of the planning survey data are on problems peculiar to the individual state. Gasoline tax refund problems, toll bridge problems, inter-state bridge problems, high speed ferry studies have all been mentioned by individual states but have not been listed in Table 1 because they were not sufficiently general problems or uses.

The collection of annual fiscal data for the state, counties and municipalities is an activity that has been of as much value to practically all other departments of state government and many Federal agencies as to the highway departments themselves. It is an important line of defense in repelling attempted inroads on highway funds. The initial collection of fiscal data was a formidable task but those states that are continuing with this phase of planning work are simplifying the task by securing uniform reporting and performing a fine service in teaching officials of minor units of government how to make out an intelligent and balanced report on finances. This activity of the planning survey might be looked upon as more properly the field of some other department of government but until the time comes when accurate and intelligible reports so broad in scope and so clear in import can be obtained elsewhere the planning surveys will undoubtedly find it advisable to continue this phase of the work.

Not all uses of planning survey data have been mentioned. The most common uses have been noted in Table 1 but important ones mentioned by individual states were omitted or the table would have been unwieldy in length.

The unusual uses noted by Louisiana are truly a great compliment to the personnel of the planning survey but are not recommended as activities that should be attempted in each state. The planning surveys were conceived as fact finding bodies and when they have plainly presented pertinent facts to the

highway administrators, their primary function has been fulfilled. Trying to assume administrative powers may result unfavorably for the surveys and such contingencies should be avoided. The development of the planning surveys into the program planning division of the highway department is a natural step and it is encouraging to find this type of development or transition actually taking place.

While the scope of the basic surveys was very broad, the very nature and cost of collection of some special data were such that it would be unwise and unnecessarily expensive to attempt to gather it in all States. Traffic capacity studies and the effects of grades on the speeds of vehicles are among such studies. It is not to be expected that highway planning forces will be utilized for such studies in many states but the importance of these studies makes their mention necessary.

Few of the planning surveys have progressed sufficiently to date to permit the solution of the most vital highway problems—the determination of the solvency of the highway enterprise and the planning of a sound long-time program for the efficient expenditure of probable future revenues. Such a plan is the surest safeguard against raids on highway funds by short-sighted, hard-pressed legislators. Before solvency can be satisfactorily determined and a long range program soundly established, it is first necessary to decide what the real cost

functions of the state highway enterprise are, and to make a logical determination of total costs under this concept.

In arriving at a decision as to the type of enterprise we have in a state highway system, and the cost items that comprise the total cost of operation, we cannot resort to the tables of data compiled. We must clearly analyze the cost functions of different types of enterprises and activities of government and then see into which type of enterprise the highway enterprise falls.

The state highway systems are not operated for profit and, therefore, are not comparable to a public utility organized and operated from the profit motive. An enterprise that has no profit motive in it should not be analyzed on the same basis as an enterprise in which profit is the motive for its existence. There is need for clarification of public thinking along this line and as the planning surveys must settle the question in their own minds before they can determine the true costs of owning and operating their systems, the coming year's work of many planning surveys will be interspersed with logic and fundamental economic considerations.

The uses that are being made of highway planning survey data as indicated by the reports of so many states indicates that even the incomplete studies have many values and that the surveys are gradually finding their place in a more intelligent planning of the greatest public business in America.