

**Rural Highway Planning Survey
and
Highway Transportation Study**

By H. S. Fairbank

The Rural Highway Planning Survey and Highway Transportation Study hereafter described are proposed to be carried out with funds to be appropriated from all or several of the following sources:

1. Works relief funds allotted for "white-collar" projects.
2. Works relief funds apportioned to the States for road construction and planning.
3. Appropriations by the States.

General Purposes

The general purposes of the survey and study are:

1. To locate, map, and determine the relative utility of all rural roads as a basis for (1) the selection and establishment of primary and secondary highway systems in all States, and (2) the development of sound fiscal and administrative policies to govern future work of highway construction and maintenance by Federal and State governments.
2. To obtain accurate information needed as a basis for just and reasonable regulation and taxation of highway vehicles and traffic.
3. To determine the character and volume of the present movement of commodities by highway, exclusive of purely local distribution, as a basis for the coordination of transport facilities.
4. To provide information needed for possible modification of methods now employed in the development of agricultural marketing statistics made necessary by the increasing movement by highway, a movement heretofore regarded as negligible.

FILED IN RECORDS

Classes of Information to be Obtained

The information required is of several classes. In part it is identical with or closely similar to information sought in other studies now being conducted or proposed by other Federal agencies for accomplishment with works relief funds. Such instances are noted in the following description of the contemplated work; and it is suggested that the procedures of the several studies be adopted, as far as possible, to provide the information required for all purposes without needless duplication of effort. The general methods to be employed and the cooperation of other public agencies required in assembling each class of information are also noted.

The several classes of information required are as follows:

1. Information leading to the production of complete road and bridge inventories and maps.
From records and existing maps, supplemented as necessary by driving over the roads in automobiles equipped with special odometers and compasses to determine the location in rural areas of all roads, sidewalks, railroads, railroad stations, aviation landing fields, navigable waterways (natural streams and canals), public piers and wharves, bridges and ferries (free and toll distinguished) grade separation structures at intersections of railroads and highways and highways and highways, rural free delivery and star mail routes, public bus routes, school bus routes, and common carrier truck routes.

All changes in the character of highway surfacing to be recorded and, as to each surfaced section, the type, width and condition of the surface to be noted.

The type, width and, as nearly as practicable, the safe loading and condition of all bridges to be recorded.

At all grade crossings of highways and railroads the conditions necessary for a safety rating to be observed.

A study of the life history of highway grades, structures, and surfaces to be made as a basis for estimation of the economic service life of these parts of the highway investment.

On the more important roads, where high-speed movement should be provided for all conditions of location, sight distance, etc., affecting traffic safety to be observed and recorded.

The information obtained to be plotted, as far as possible, on large scale maps (not less than 1 inch = 1 mile and probably larger.) All information to be classified and tabulated for convenient use.

This work requires the active cooperation of all State highway departments and local highway authorities. Advice received through the Central Statistical Board indicates that the Bureau of the Census, Board of Surveys and Maps and the Federal Emergency Relief Administration are known or thought to be interested in a project for the preparation of urban and rural base maps. As this project would parallel closely the work herein proposed, coordination is desirable.

2. Distribution of rural population, dwellings, churches, schools, etc. from existing records, supplemented as necessary by other inquiries, to determine the distribution in rural areas of population, dwellings, churches, schools, stores, hotels, stadia, race tracks, and other places of congregation, in respect to existing roads.

It is understood that the Bureau of the Census has proposed the making of an unemployment census. If this project is carried out it would be desirable to obtain the information herein described in connection therewith. All dwellings, and other structures visible from the road can be readily noted and mapped in connection with the road inventory and mapping operation described under (1) above. It is believed that the notations thus made will be useful as a check upon the accuracy of the reports by enumerators employed by the Census Bureau.

It is believed that the information described would also be of interest to the Post Office Department which, for several years, has been engaged in the production of maps of rural free delivery routes, showing the location of the dwellings, churches, schools, etc. served, and has still to cover approximately half of the counties of the United States.

At the request of the Department of Agriculture the Bureau of the Census has recently made tests of methods designed to produce substantially the information herein described.

3. Situs of ownership of motor vehicles.

From State registration and public service commission records, supplemented as necessary by other inquiries to determine the place and character of ownership of all motor vehicles, classifying motor trucks and busses by size, and determining the character of business in which they are employed. The place of ownership of all motor vehicles to be classified as in a city or town (to be named) or as rural (in which case the location is to be determined in respect to the road system.)

A preliminary incomplete classification can be made, with the cooperation of State motor vehicle authorities, from the registration records. Full details in respect to motor trucks and busses will be obtained in connection with the transportation survey described under (7) hereafter. If the Census Bureau unemployment survey is

carried out, it will be desirable to obtain supplementary and verifying information in connection therewith.

4. **Classification of agricultural lands.** A classification of rural lands in respect to their availability for economical agricultural production is essential to a determination of sound policies of future secondary road improvement. This information will be supplied by land classification surveys proposed and in progress under the direction of the Department of Agriculture and National Resources Board.
5. **Preliminary short traffic surveys.** For the purpose of eliminating the least traveled roads from further more detailed traffic studies, and also to ascertain the character of the vehicular movement on such little used roads (especially the character of motor truck usage) sample one-day traffic counts to be made at numerous selected points on all roads believed to fall within the category described, all passing vehicles to be enumerated and trucks to be classified by rated capacity. On the basis of these counts and the evidence of the relative importance of roads supplied by the determination of the location of dwellings, schools, churches, motor vehicle ownership, etc. made as described under (2) and (3) above, all sections of road serving less than a stipulated traffic density and property and population interest to be excluded from the detailed traffic surveys described under (6) below.

The active cooperation of all State highway departments is essential in this work.

6. **Detailed traffic surveys.**
On all roads not excluded from further detailed study by means of the preliminary short traffic surveys and other considerations as described under (5), to make traffic surveys designed to reveal in detail the character, volume, origin and destination, fluctuation, and purpose of all traffic, such surveys to furnish at least the following data:
 - (a) Average and maximum daily density of passenger car, truck and bus traffic.
 - (b) Hourly, daily, and seasonal fluctuation of passenger car, truck, and bus traffic.

- (c) Classification of truck and bus traffic by rated capacity of vehicles.
- (d) Wheel loads, gross loads, and dimensions of trucks and busses in relation to rated capacity of vehicles.
- (e) Origin and destination of traffic by locality.
- (f) Classification of truck traffic by type of origin and destination, such as: farms, manufacturing plants, stores and business establishments, railroad stations, wharves, air ports, etc.
- (g) Character, volume, and origin and destination of commodities moved over the highways.
- (h) Daily train operation on all railways, intersecting highways at grade.
- (i) Daily train operation and volume of freight and passenger movement on railroad branch lines.

The active cooperation of State highway departments is essential in this work.

7. Tonnage and character of freight transported by highway between the principal trade areas of the United States during the calendar year 1936. This study to be made as part of a correlated study of all forms of transportation during the same period in cooperation with the National Resources Board and other Federal agencies. Allotment of \$3,500,000 will be requested by the National Resources Board for this purpose. Information additional to that required for the purposes of the correlated study of transportation is needed to complete the picture of local highway movements within trade areas and city limits. This can be obtained at slight additional expense in connection with the correlated study and with the traffic surveys described under (5) and (6) above.

8. Determination of past incidence and amount of highway taxation and desirable changes in existing tax policies. From available records, to determine the amounts and sources of revenue available for road purposes over a series of years, the purposes for which it has been collected and disbursed, the relative amounts collected from urban and rural taxpayers, the relative burden of such payments in relation to the wealth, income, and road usage of the two groups. On the basis of such information to indicate inequalities of burden that require correction by revision of the system of taxation:
- a) by shift from real property to road-user taxes.
 - b) by revision of the schedule of motor vehicle taxes, based upon consideration of the relative road costs engendered by vehicles of various types, weights, etc.

Advice received through the Central Statistical Board indicates that the Federal Emergency Relief Administration is known or thought to be interested in a project involving the compilation of financial statistics of States and small units of government. As this project would parallel closely the work herein proposed, coordination is desirable.

The cooperation of State and local highway authorities and fiscal officers is necessary.

Estimated Cost of the Work Proposed

As some of the classes of work proposed have never been done before, accurate estimation of the cost is difficult. The following are the nearest approximations it is possible to make at this time.

1. Road inventory and mapping and study of economic life of highways	\$ 1,800,000
2. Distribution of dwellings, churches, schools, etc.	200,000
3. Situs of ownership of motor vehicles	1,400,000
4. Preliminary traffic surveys	1,500,000
5. Detailed traffic surveys	7,000,000
6. Tonnage and character of freight transported between trade areas	3,500,000
7. Incidence and amount of highway taxation and related road usage	<u>1,400,000</u>
Total	\$ 16,800,000

Of the above total estimated cost allotment of the \$3,500,000 estimated for the study of tonnage and character of freight transported between trade areas has been requested by the National Resources Board. If the unemployment survey proposed by the Bureau of the Census is carried out, and information in regard to the situs of ownership of motor vehicles can be obtained by the same enumerators, which is desirable, the cost will be greatly reduced and the item of \$1,400,000 included in the above estimate would be eliminated. The cost of the

work proposed, exclusive of these operations that may or could be performed under other allotments, is, therefore, \$16,800,000 less \$4,900,000, or \$11,900,000; which includes \$3,200,000 (for items 1 and 7 in the above itemization) that would be spent for a purpose closely related to objectives of other studies in which other Federal agencies are known or believed to be interested. Deducting this further amount would leave a remainder of \$8,700,000 for purposes peculiarly interesting from the angles of highway planning, regulation of highway traffic, and coordination of highway transport with other means of transportation.

Assuming the correctness of the estimate of \$16,800,000 for all work proposed, it is believed that not to exceed \$1,000,000 may be raised by State appropriation. It is suggested that the balance be made available as follows:

By reservation of $1\frac{1}{2}$ percent of Works relief funds allotted for highways	\$ 4,500,000
By allotment of Works relief funds available for white-collar projects	<u>11,300,000</u>
Total	\$ 15,800,000

As there can be no certainty of the accuracy of parts of the estimate, and as it will be necessary to develop satisfactory methods for much of the work by trial operations in limited areas before expanding the project to a national scale, it is recommended that an initial allotment of \$1,000,000 be made from funds available for white-collar projects for such preliminary experiments.

Character of Personnel Required

It is the intention so to develop the methods to be employed in the work proposed as to use a maximum of white-collar personnel taken from relief rolls. Technical qualifications required for the proper performance of parts of the work will necessitate selection of persons having such qualifications. To the greatest extent possible it will be the purpose to employ for such work persons on relief rolls and persons who, though not on relief, are actually unemployed and in need of employment, including recent graduates of the engineering colleges. For a relatively small number of principal supervisory positions it will be necessary to employ persons possessing special knowledge and experience in the fields of study involved, and these will in instances be persons already employed.