

## TRANSPORTATION STUDIES FOR CITIES UNDER 50,000 POPULATION

by

James W. Fehr  
Director, Division of Planning  
Kentucky Department of Highways

My presentation this afternoon concerns urban transportation studies in cities under 50,000 population. However, before discussing these studies, I think it necessary to place them in their proper perspective by talking first of a larger segment of the total statewide planning program.

The objectives of comprehensive planning programs are to:

1. Identify existing and future deficiencies and needs;
2. Establish priorities for programming improvements; and,
3. Develop a coordinated and continuing statewide highway planning program in order to provide a framework for executive decisions which, with available funds, will provide a highway system that will give the maximum amount of service.

The statewide highway planning program that we have developed to meet these objectives is outlined in Figure 1. The Division of Planning of the Kentucky Department of Highways is organized into seven sections, two of which are the Rural Section and the Urban Section. The Rural Section concerns itself with the planning of highway improvements in rural areas and the Urban Section is responsible for studies and recommendations pertaining to highway improvements in urban areas. While I primarily want to talk about the urban program this afternoon, in order for you to understand the total picture I first want to briefly mention the rural program.

For the past three years we have been gathering data on approximately 11,000 miles of roads, the State Primary and State Secondary Roads, for the purpose of calculating ratings indicating the sufficiency of all sections of these 11,000 miles. Incidentally, these 11,000 miles were selected as the State Primary and State Secondary Systems after about five years of study and were adopted about a year ago. This was another of the many facets of planning and was performed chiefly by another of the seven sections,

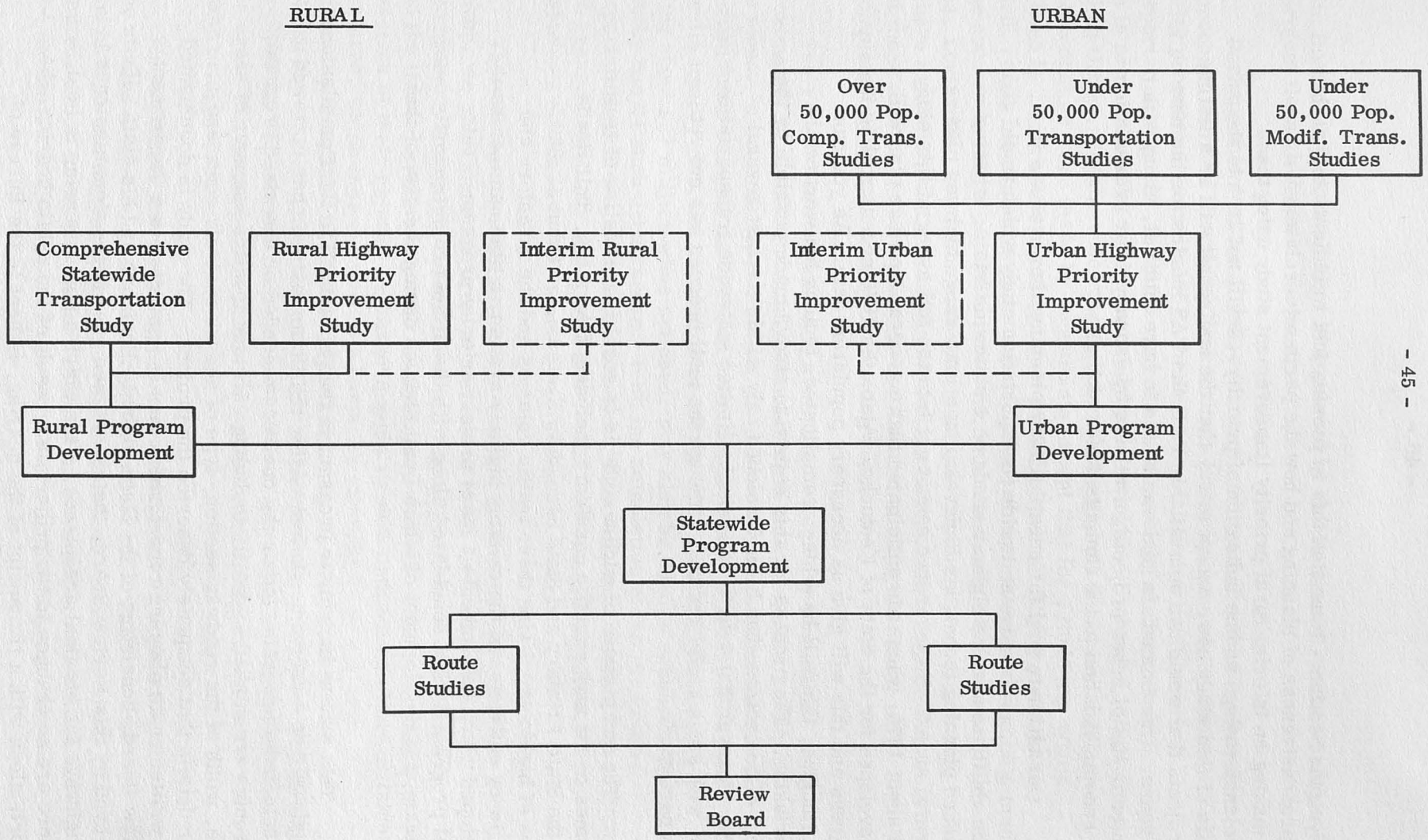


Figure 1. Statewide Planning Program in Kentucky.



the Systems Section. I mention this in passing just to indicate to you the comprehensiveness of planning and how the parts interrelate. We are now making an interim rural priority improvement study using these sufficiency ratings as one indication of priority. I will not go into the details of this study now, except to say that the end result will be a listing of projects that would use up available FAP and FAS monies for the next five years. Our immediate goal was and is to have this list, along with an interim list of urban projects, available by January 1 for presentation as a recommendation to the Commissioner of Highways.

Our ultimate goal for rural highway planning, however, is to perform a comprehensive statewide transportation study which would give us the ability to analyze highway needs on a statewide basis, utilizing advanced planning techniques in developing a long-range highway plan for rural areas. However, we cannot get into the full swing of this study until about 1970, when it is anticipated that a general land-use plan will be developed for the State of Kentucky. Also, the 1970 census will be in progress and this will give us necessary population data. As you can well imagine, this will be a long, complicated, tedious but worthwhile undertaking. The process for this statewide study, made possible by the advent of computers, has been developed only within the last several years. Several States have attempted a limited statewide transportation study with some useful results, although the total process has not yet been perfected.

The end purpose of such a study is to enable forecasting of traffic volumes on all major traffic corridors including Interstate, Toll Roads, and the State Primary and State Secondary Systems, or about 12,000 miles of highways. Using these traffic volumes and the inventory and deficiency estimates of the existing highway system, a plan can then be developed which will indicate a rural project priority program. This rural program is then considered along with the urban project priority program, the development of which I will discuss during the rest of this presentation, to form the statewide priority program.

This statewide priority program is then submitted to the Commissioner of Highways as a recommendation. After the Commissioner has reviewed and selected a program, either the one recommended or a revised program, the routes are studied in detail, including corridor location, number of lanes, width of the roadway section, type of access control, cost, and other details that adequately describe the project. The study is documented in a written route planning report which then is presented to a Department Review Board, consisting of the State Highway Engineer and his staff. If approved by this Review Board, the report then goes to the Commissioner of Highways for his final acceptance, after which a public hearing is held. If there are no changes to the project as a result of the public hearing, the report, along with a transcript of the hearing, is sent to the Bureau of

Public Roads for programming. If approved by the Bureau of Public Roads, the project then advances to the design stage.

Perhaps this enables a clearer understanding of our objectives and the process, and now we can go back and see how we arrive at the urban priority program. In early 1961, the Department started its first urban transportation studies. Within a very short time, eight of these studies were in progress. The cities involved were Lexington, Richmond, Maysville, Bowling Green, Hopkinsville, Owensboro, Ashland, and Frankfort. All of these studies were made by consultants except that for Frankfort, which was done by Department personnel. In 1962 the Federal Highway Act was passed, requiring comprehensive urban transportation studies in all cities in the country having a population over 50,000. Kentucky has four such cities, Louisville, Lexington, the Cincinnati Metropolitan Area involving Northern Kentucky, and the Ashland-Huntington Area. It is expected that all of these studies, except possibly the Ashland-Huntington Study, will be completed or updated during the coming year.

The Federal-aid urban funds available to Kentucky amount to approximately \$2.5 million which, when matched on a 50-50 basis with state money, amount to approximately \$5 million annually. These Federal-aid urban funds can only be spent in urban areas, as defined by the Bureau of Public Roads, of 5,000 population or more. FAP and FAS monies, totaling about \$27 million when matched, may also be used in urban areas. Kentucky has 34 such urban areas. With the completion of the ten urban transportation studies mentioned previously, this will leave a total of 24 urban areas in Kentucky that have a population between ~~5,000 and~~ 50,000, for which we do not have transportation studies.

There is no law requiring transportation studies in these cities; however, we must know the present and future needs in these cities if we are to properly and fairly determine a priority of projects on which to spend the limited available funds. Such studies will also inform the cities themselves of their existing and future needs, based on accepted planning procedures, which they can use as a basis for expenditure of any city funds on city-responsible streets. It is important to emphasize at this point that the studies define the total highway needs in an urban area and do not reflect the Department financial capability. However, the needs for all urban areas will be rated on a statewide basis to determine the urban highway priority program.

We anticipate that such studies, even though not as sophisticated as the studies conducted in the larger cities, would still require a time period of from six months to one year for completion. Since our staff is limited, which limits the number of planning consultants whose work can be monitored at one time, we expect that it will probably take about



three years to complete the remaining studies, as well as to update several of those that were started in 1961. Obviously, the Department's program cannot sit idle until these studies are completed. Therefore, we have devised an interim procedure for determining urban priority improvement projects, which we have had underway during the past year and expect to have completed next month, with a list available for presentation to the Commissioner of Highways.

The objectives of the interim urban improvement program were to:

1. Identify existing and short-range needs (five years);
2. Compile a list of statewide urban improvement projects, along with project data such as traffic volume, capacity, length, cost, accident history and economic characteristics of the community which affect the project;
3. Develop and apply a method for rating the urban projects giving consideration to and relating all data and characteristics; and,
4. Establish a priority list of immediate and short-range improvements for program recommendation to the Commissioner.

As stated earlier, to achieve the ultimate objectives of determining statewide urban highway improvement needs so that from these needs a priority program can be extracted, transportation studies are needed whether they are comprehensive transportation studies, or modified transportation studies as we are proposing in the smaller cities. I might mention here the names of those 24 cities which are in addition to the ten cities for which studies have been or are being completed. They are, without arraying them in any particular order:

- |                  |                    |                      |
|------------------|--------------------|----------------------|
| 1. Paducah       | 9. Middlesboro     | 17. Russellville     |
| 2. Elizabethtown | 10. Murray         | 18.ynthiana          |
| 3. Corbin        | 11. Somerset       | 19. Franklin         |
| 4. Danville      | 12. Winchester     | 20. Georgetown       |
| 5. Glasgow       | 13. Campbellsville | 21. Harrodsburg      |
| 6. Henderson     | 14. Hazard         | 22. Paris            |
| 7. Madisonville  | 15. Mount Sterling | 23. Fulton           |
| 8. Maysville     | 16. Princeton      | 24. South Williamson |

At the start of each modified urban transportation study, a meeting will be arranged, which will include the Department, the consultant, city and county officials, and the local planning agency to form a committee for coordination of the study. The depth and sophistication of these studies will depend to a large extent on the characteristics of the individual cities under study. Without going into the technical details of how an urban transportation study is conducted, it might be of some interest to point out that we expect that these studies will at least include the following general elements:

1. The basic inventory of major road and street facilities, such as road and street lengths and widths, parking, traffic control devices, existing traffic volumes, and accidents.
2. Social and economic data such as population, employment, vehicle registration, number of households and general land use as to whether it is residential, commercial and industrial. These data will not be collected as part of our study, but are generally available through the local planning programs.
3. Projection of growth and future traffic volumes by ten year increments for 1970 through 1990. These projections will be based on future land use and will be closely coordinated with the Department of Commerce and local planning offices.
4. Knowing the future growth and traffic volumes, studies will be performed to determine needed improvements to increase the traffic-carrying capability, as well as to determine the limits of such improvements in providing for additional traffic capacity, before major reconstruction or new construction is considered.
5. A capacity and deficiency analysis will then be performed to determine future construction needs.
6. From these needs a recommended priority highway improvement plan will be established by ten-year increments.
7. A priority formula, which will be applied to all needed reconstruction or construction projects revealed by all of the transportation studies, will then be applied to the needed projects for the individual city in order to provide a basis for determining a statewide urban projects priority program.

Because of the limited Department personnel available for such studies, we will use planning consultants. The cost of these modified studies will vary according to the size of the city, but we expect the cost



to range between \$10,000 and \$25,000, which would include both the consultant's fee and the cost of Department personnel and equipment used in the collection of some of the data and monitoring of the consultant.

We have discussed these studies in detail with representatives of the Bureau of Public Roads Division and Regional Offices and expect Bureau of Public Roads participation in this cost. Such participation would be with the use of highway planning and research funds. Highway planning and research funds are monies set aside by the Bureau of Public Roads for planning and research purposes, and amount to 1 1/2 percent of the total Federal-aid allotment to the States. They must be matched by the States; currently this matching ratio is 78 percent HPR monies and 22 percent State monies.

We have selected three cities to commence this program as pilot studies and have requested and received proposals from three different planning consultants. We are in the final negotiation stage with one of the consultants and expect to execute a contract within a couple of weeks and begin the study shortly thereafter.