Perhaps the subject which I have chosen requires an explanation. When Mr. Hailey invited me to appear on your program, he suggested that I speak on the importance and necessity of county and rural feeder roads to the economy and usefulness of a state highway system.

Since these county and rural feeder roads are the beginning and ending of so much highway travel, I chose the shorter title, "The Alpha and Omega of Highway Transportation".

In a sense our whole highway system is the alpha and omega of all transportation. Whether we transport goods by air, rail or water, the first and last part of the trip is made by truck over the highway, road or street. However, I am only to talk about one particular part of our highway system.

About 80% of the rural dwellers of the nation live on our county or local rural roads. Wherever they travel or transport their goods, their trip begins and ends on the local road.

Euripides, the Greek poet and philosopher said, "A bad beginning makes a bad ending". I am sure that the segment of your rural population which must still contend with primitive roads would agree with the old sage.

In the era of the horse drawn vehicle we took for granted these primitive roads, but in this modern era of the motor vehicle, we have come to recognize that they are an economic waste.

In the life span of most of us we have seen the transition in transportation from the horse drawn vehicle to the motor drawn vehicle. In 1915 there were 26.5 million horses and mules on the farms. By 1951 the number had decreased to 7,000. Shortly after World War I the first tractors appeared on the farm and by 1930 our U. S. farmers were using 920,000 tractors.

In 1951 the total number of tractors on farms had reached four million. The number of trucks on farms has also increased from 900,000 in 1930 to 2.5 million. Other farm machinery which has been designed to eliminate hand labor methods has come into general use on the farms.

The farm has truly been mechanized and this mechanization has increased the productivity of farm labor. In 1950 we farmed 254.4 million more acres of land than in 1910. However, it required 5.4 billion fewer man hours of labor.

There have also been other factors which increased the productivity of our farm land. Through experimentation we have found new methods, improved breeds of livestock and poultry. We have learned how to rehabilitate and conserve our soils and through these processes we have increased our efficiency in the agricultural industry. These factors have resulted in an increase in value of the gross farm product to the tune of 5.6 billion dollars from 1910 to 1950.

Almost 90% of farm products now reach their markets by highway and practically all agricultural products make their initial movement from farm to market over roads or highways.

With the ever increasing production, we also have an ever increasing flow of traffic on our county and local roads. This trend will undoubtedly continue. A recent report by the President's Materials Policy Commission is a long range analysis of the materials problem to insure the continued economic growth of this country. The Commission anticipated a 40% rise in the demand for farm products in the period from 1950 to 1975.
This estimate is based on a 28% rise in population to 193.4 million people, plus an increase in per capita food consumption which accompanies an upward trend in per capita income. Farmers will use more and better machines to secure greater production per labor hour. They will apply the latest technological advancements in agriculture to get the maximum yield from each acre. They will be very conscious of the very important part their local roads play in their production activities. With the use of efficient methods in his farm production, the farmer will not be apt to tolerate inadequacies in the roads that serve him. The demand for all-weather roads will continue to increase. He will demand that the mud holes and the roughness be eliminated from his roads. He will not accept them because bad roads hinder travel to and from the farm and they not only damage his equipment but also the perishable products which may be carried in the vehicle.

There is an average of 22 rural dwellers for each mile of local road in the nation. Kentucky averages 42 rural dwellers for each mile of local road.

The farm income in Kentucky averages $8,700 per mile of local road compared to the national average of $6,200 per mile. You have 19,725,000 acres of farm land divided among 218,476 farms. In 1950 Kentucky had 119,881 cars and 55,032 trucks registered on these farms. This was 22.4% of cars and 39.3% of trucks registered in the state.

There are 1.2 miles of local roads in your state per square mile of area. Kentucky has a rural population of two million people which is about 70% of the total population.

Approximately 46% of your local rural roads are surfaced. This would indicate that a large percentage of your rural people are still struggling with unimproved roads.

Such roads are a deterrent to progress in agricultural development. Your rural mail service and schools and rural educational program is handicapped by unimproved roads.

The welfare of the thousands of children in the state who travel to school by bus each day depends upon the condition of the road. Consolidated schools are able to function most successfully in those areas served by safe all-weather roads.

I often come in contact with people in Washington who have the mistaken belief that county roads are financed almost exclusively from state highway user taxes. The fact is local rural units of government in 1951 raised 488 million for highway purposes. This was mostly property tax and amounted to 11.4% of all highway revenue for 1951.

If local units of government are to continue to contribute, it will be necessary to keep responsibility for local highway programs in local hands.

Roads provide the only means of transportation for many rural people. Generally, there is a direct relationship between the status of road improvement, the development of rural communities and the extent to which agricultural resources can be utilized. Not only do farmers desire to live along improved highways, but with the increased mechanization of agriculture, the need for improvement of more roads becomes imperative. Data accumulated through surveys indicates that improved roads have been a major feature in increasing farm values. In the last 50 years, farm property values have risen from $20 billion to $90 billion.

Relative volumes of traffic on present and projected highways are important indications of the type of facility required; but the social or economic importance of a road to the people it serves cannot always be measured in that way. A highway may carry only ten or a dozen vehicles a day, yet it is absolutely necessary that this highway be available at all times for the movement of the families living on it. It forms their sole contact with the world outside.
There is a tendency for traffic to increase when a highway is improved. A study of traffic on 234 post-war Texas Federal-aid secondary projects totaling 1700 miles reveals an increase in traffic after improvement. On the mileage which carried under 100 vehicles per day before improvement, there was an increase in traffic of 107% in the first year, 146% in the second year, 174% in the third year and 255% in the fourth year.

On the mileage where the number of vehicles averaged between 100 and 199 per day, the increase in traffic was 57% the first year, 93% the second year, 113% the third year and 128% the fourth year. On mileage carrying between 200 and 399 vehicles per day, the increase in traffic was 22% the first year, 28% the second year, 41% the third year and 47% the fourth year. This would indicate that the traffic increase would be greater on the lower count traffic roads.

If traffic is a factor in determining the importance of these local rural roads, the survey would indicate that they become more important after improvement.

Thus far, I have given you facts and figures pointing to the economic importance of these roads. I hardly believe you need to be convinced of their importance. If you live on them, you know they are important.

Before I conclude, I should like to take the liberty of deviating from my subject to suggest some steps which you might take to provide better traffic service on these roads.

Based on my observations and the experience of those states which have been making good progress, I would like to offer the following suggestions:

(1) The adoption of a State-aid plan to counties similar to the Federal-aid to the states. In this plan, state collected revenues are matched by county funds and are applied to a selected system of county or local roads for cooperative development. Such projects are subject to state approval but are county managed and supervised by a competent highway engineer employed by the county.

(2) There should be a selection of a network of roads within the county supplementing the State-aid system. It would have the next highest priority for improvement and would be designed to serve the people in rural areas.

(3) There may be local roads within a state which from an economic standpoint can not justifiably be improved or maintained. Such roads should be abandoned.

(4) State legislatures should remove unrealistic limitations on the road revenues which local agencies are permitted to obtain by local taxation or to provide substitute sources for the needed revenue.

Since the initiation of the Federal-aid secondary program, some of us have had the conviction that the benefits of the program should not lie only in the improvement of a limited mileage of local roads each year but other benefits of greater significance might be accomplished through the wise administration of this program by drawing together the state highway departments and their counties in cooperative enterprise.

With the awakening of county officials to the importance of sound engineering as an essential administrative tool in local road building and with the acquisition of such services, counties would be in a better position to carry on a general improvement program of their entire system of roads. As far as the Federal-aid secondary road program is concerned, public satisfaction has been greater and state administration much simpler in those states which had a State-aid or State-county cooperative program previously in operation. In those states, the program has been handled as a local program by the county boards and county engineers with the states acting as agents of the counties in dealings with the Federal government.

In other states where no cooperative program had been in existence and where there were no engineers at the county level to plan to supervise or to
receive and interpret information on the Federal-aid secondary program, administration on the part of the state was more difficult and the program moved more slowly.

Mr. Thomas H. MacDonald, former Commissioner of the Bureau of Public Roads, declared in his testimony before the subcommittee on appropriations of the U. S. House of Representatives this Spring: "The greatest service of the Federal-aid program is to provide a catalyst to bring the states and their cities and counties closer together in cooperative action. After 34 years of service I think that the role of the Federal government is not to dictate to the states or cities or counties, but through the state legislatures and their highway departments to help their cities and their counties in the administration of this work which is now costing annually about $5 billion."

A. C. Leonard, Chief, Secondary Road Branch, Bureau of Public Roads, in addressing the annual meeting of ARBA’s County and Local Roads Division at the 1953 convention in Boston, Massachusetts, February 9, elaborated on this theme in his talk, the subject of which was "State-County Cooperation in the Federal-aid Secondary Program."

He began by pointing out the dual purpose of Federal-aid Secondary legislation: first—financial aid to the states and counties in the construction of a system of secondary or farm-to-market roads; and second—establishing a framework of state-county cooperation for making available the accumulated know-how of road building to each county.

Two contrasting patterns of state-county road building have been widely followed, Mr. Leonard said. He described them as the do-it-for-the-counties pattern and the help-the-counties-do-it-themselves pattern. It was his belief that the second pattern possessed certain basic advantages. The do-it-for-the-counties plan aims principally at insuring the prudent expenditure of state and federal financial aid by handing the counties completed projects. No opportunity is offered the counties to learn-by-doing. County participation is intended to be passive, except for indicating the projects to be improved and their acceptance when the work is done.

On the other hand, the Bureau of Public Roads official holds the help-the-counties-do-it-themselves form of state-county cooperation to be much different. It aims to use financial aid to the counties as a vehicle rather than an end project—a vehicle for building up stable, technically competent county highway organizations and through them insuring the application of modern techniques and the prudent use of the financial aid.

"The opportunity for the counties to learn-by-doing is not only an aim, it is mandatory if the counties are to avail themselves of the financial aid. The benefits of the financial aid are not confined to the usefulness of completed projects, but the know-how acquired in the building remains in the county available for other county work outside the cooperative program," Mr. Leonard asserted.

The first pattern he characterized as paternalistic while the second was that of a partnership. Counties, under the second, prepare their own plans and supervise construction operations with whatever degree of state guidance is needed in that particular county. This brings about a general practitioner-specialist relationship between the county engineer and the state highway department. The state department feels that its principal contribution to the partnership lies more in constructive guidance than in regulation.

By the same token, it was pointed out that the counties realized that guidance was needed. The necessary administrative regulations are issued with that purpose in mind and are accepted in that spirit. The net result is that county highway organizations are strengthened technically, and in their skills, enabling them to give the public that foots the bill much more for its money than is possible by isolated action.
In conclusion, Mr. Leonard said, "This is the skeleton of the help-the-counties-do-it-themselves pattern. It is not an innovation. It is time tested; has proven eminently successful in several states over varying periods of years. I know of no state that has abandoned the pattern after it was once adopted."

This is a subject which I have often discussed with Mr. Leonard. He and I were friends in Minnesota and I know that his convictions are deep seated and are in part at least, a result of his experience as a county engineer in Minnesota. I pass them on to you with the sincere wish that they might be helpful.

Personally, I am convinced that there is a solution to your local road problem. It can be found in state and county cooperative action.

County officials should secure the services of a good engineer-manager to take charge of their road work. It is just as important to have professional service in this field as in any other.

Your state engineers have the "know-how" for the construction and maintenance of the roads and this information should be readily available. It is most difficult however, to funnel it down to the counties unless there is someone at the county level who understands it.

If you want better local rural roads you can have them. They are the alpha and omega of your whole highway system. On them you begin your highway trip and on them you end it and again in the words of an old adage—"All is well that ends well".