Secondary Roads Are Important Too

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There is an old fable about a stag that was very proud of his antlers. He used to stand at the edge of a pool and look down in the water to admire his image. As he indulged in admiration of their reflected glory, he was repeatedly distraught as his gaze also took in the reflection of his forelegs, which he considered spindly and ugly. One day, a mountain lion crept to the water's edge and the stag bounded away. His escape would have been perfect, too, if his antlers had not become entangled in a thicket. As he pawed feverishly, not knowing whether he could disentangle himself before the lion caught him he thought: "Alas! how foolish I have been! I have been ashamed of my legs and have considered them unimportant. Now I perceive that a stag's life depends upon them."

Highway engineers often indulge in recitation of figures showing the high proportion of the vehicle miles of rural traffic carried by a small percentage of the total rural mileage. In explanation of the importance of main rural roads, it is said that one percent of all rural roads carries 20 per cent of the rural traffic. It is said that the state primary highway systems, comprising 11 percent of the total rural mileage, carry about two-thirds of all rural traffic. These relationships are true. It is also true that the stag's crowning glory was his antlers, which well deserved admiration. But the stag made the mistake of attaching importance to his antlers and to his legs on the basis of the single item of appearance. We must not make the mistake of attaching importance to our various systems or classes of roads on the basis of the single item of vehicle miles carried.

What are secondary roads anyway? There is a Federal-aid Primary System and a Federal-Aid Secondary System which, together, include about one-fifth of the three million miles of rural roads in the United States. These federal-aid systems embrace most of the state primary systems and state secondary systems, which, together, include
about 14 percent of the total rural-road mileage. More than half of all the rural-road mileage is under county control, and in several states the county roads are classified in systems of principal county roads and secondary county roads. About one-fourth of all rural roads are under control of towns, townships, or other local units of government. Reference is sometimes made to tertiary systems. So far, I have never heard of quartic or quinary systems.

Before we try to define a secondary road let’s toss in one other oft-repeated term, “farm-to-market road.” This term is sometimes considered synonymous with “secondary road.” If any road lays claim to the term “farm-to-market,” certainly our main roads would warrant this classification, for it is on these roads that the greatest number of rural dwellings are found per mile of road. Not only is service provided to rural dwellings along the main roads themselves, but service is provided by the main roads to people who reside on other roads of various classifications on down the scale. These other roads form a collecting system for farm products and a distributing system to reach each farm gate. Let us talk about this in another way. As farmers travel to market, they travel over a route which may include sections of township roads, county roads, and state roads. Regardless of administrative classification, the roads over which they travel provide increasing farm-to-market service with each farm gate passed, and the last mile of the route to market serves the greatest number of farmers. Main state highways converging on markets thus carry more farm-to-market travel than any county or township roads functioning as tributaries to these state highways.

**Value of Tributary Routes**

This may sound as though I am looking at tributary routes as the stag looked down on his spindly forelegs. Far from it! My first aim has been to blast the myth that “farm-to-market roads” exist as a separate class of highways. Now that I have done this and have acknowledged the main points advanced by those who wish to adorn and admire the antlers, I would like to consider the value of the tributary routes in the same practical manner as the stag was finally forced to consider the worth of his forelegs.

A study of highway travel characteristics made in 1940 for 24 states (of which Indiana was one) showed that although the paved and dustless roads aggregating 10 percent of the total rural mileage carried more than 70 percent of the vehicle miles, this 10 percent of the rural roads provided direct service to less than 25 percent of
all rural dwellings. If 75 percent of the rural dwellings are on the remaining gravel, earth, or unimproved roads, I believe that a figure not far different from 75 percent would represent the portion of the total rural products which originate along these tributary roads.

Another study made in 1943 based on prewar data showed that 36 percent of the truck traffic on all rural roads in 40 states was moving from one urban point to another, and 64 percent of the truck traffic was moving either between rural and urban points or between two rural points. For main rural roads alone, 52 percent of the truck traffic was moving between rural and urban points or between two rural points.

From the first study showing that 75 percent of the rural dwellings were found to be on roads which were tributaries to the paved and dustless roads, and from the second study showing the proportion of truck traffic moving from or to rural points, it would seem that at least one-third of the truck traffic on the paved and dustless roads is generated by rural activities dependent upon the existence and utilization of gravel, earth, or unimproved road for access to and from markets.

An examination of available origin-and-destination data for passenger cars indicates that even higher percentages of passenger-car traffic moving between rural and urban points or between two rural points are generated by rural activities.

I believe that on the basis of the information available we can say that the importance of roads tributary to paved and dustless roads is such that they generate at least one-third of the traffic on our paved and dustless rural roads, and that our nation depends upon these tributary roads for generating movement of perhaps as much as three-fourths of all commodities produced and consumed in rural areas.

Figures are also partially available on the service provided by only the graded and drained or unimproved tributary roads. In 24 states the 1940 study showed that 65 percent of the total rural-road mileage was either graded and drained only or unimproved. These roads served only about 10 percent of the travel expressed in vehicle miles, but 46 percent of all rural dwellings were located on these roads. Applying the same reasoning as before, it could be said that the importance of unsurfaced and unimproved tributary roads is such that they generate at least one-fifth of the traffic on our paved and dustless roads, and that our nation depends upon these unsurfaced roads for generating movement of perhaps as much as two-fifths of
all commodities produced and all commodities consumed in rural areas.

While we are on this matter, let us go still one step further and say that similar figures indicate that the importance of unimproved tributary roads is such that they generate one-eighth of the truck traffic on our paved and dustless roads, and that our nation depends upon these tributary roads for generating movement of perhaps as much as one-fourth of all commodities produced and consumed in rural areas.

In turning toward available figures for measures of importance of secondary roads, I have had to avoid reference to existing system classifications, and have used classifications based upon degree of improvement. Sixty-five percent of the paved and dustless roads are on state systems; twenty-seven percent are on county systems; and eight percent are on town or township systems. This reminds us that roads included in any administrative system of secondary roads include routes providing widely different traffic service and requiring widely different degrees of improvement. Secondary roads in Connecticut or Massachusetts may not infrequently justify four-lane highways. Secondary roads near metropolitan areas in many states may frequently justify high-type pavements, and in some cases may require more than two lanes. A relatively small proportion of our total unimproved-road mileage is included in any officially designated secondary system.

**WHAT ARE SECONDARY ROADS?**

Near the beginning of this paper, I asked what secondary roads were. Perhaps now, after defining the function of tributary roads reaching outward from markets on and on beyond limits of successively lower and lower types of improvement, we can answer that question.

I consider secondary roads to be the more important tributaries to a main road system, such tributaries being incorporated into a system over which the administrative body which selects the system has jurisdiction in matters of improvement or maintenance. This system designation has the advantage of helping to channel funds made available for road improvement to those tributaries which serve the greatest number of people per dollar spent. It helps to prevent dissipation of limited funds for road work on scattered projects of a type which serves only Joe Doaks and ten neighbors. By selecting the most important of the tributaries reaching out to serve farm areas as routes of a secondary system, highway administrators establish a basis for selection of projects which will serve not only Joe Doaks and his ten neighbors, but all the others in the same area who also
are seeking improved ways to market. From the local viewpoint, this practice provides the answer that wholehearted cooperation on the part of all rural residents should bring about, for it results in prior improvement and maintenance of roads serving 100 rural residents before it permits improvement and maintenance of roads serving any 10 or 20 of these same rural residents who live at points more remote from market.

Define secondary roads my way, or define them any other way you choose, even to include all the roads not on primary highway systems. Any way you define them, sufficient weight of evidence is to be found in the figures I have presented showing traffic generated by tributary roads to remove any doubt of their importance in the normal peacetime economy.

SECONDARY ROADS IMPORTANT IN WARTIME

Whatever we recognize the importance of secondary roads to be in peacetime, we can add a little more in appraising their importance in wartime. When gasoline was rationed during the war, highway traffic became segregated into essential and nonessential classifications and a showing of essentiality was necessary for obtaining gasoline coupons. It is generally recognized that the rural people had to maintain during the war a higher proportion of the normal peacetime travel than did urban residents. The Automobile Manufacturers Association analyzed rural automobile use in 1941 and concluded that 67 percent of all farm-car mileage was essential. Only 53 percent of the automobile travel of other classes of car owners was found essential. This factor makes secondary roads increase in relative importance during wartime.

In considering future national defense, military people must contemplate the effect of new weapons of war. The effect of the atomic bomb has been prominent in their thinking during the last couple of years. It is still probably too early to determine its effect on military operations, but some preliminary views have been expressed which have a bearing on our highway systems. One idea has been expressed that we will never again have huge troop concentrations of the type which characterized World War I and World War II. The atomic bomb will rule out such concentrations as occurred in the Normandy invasion and will require independent operation of numerous small fighting units. Supply of these forces must be as flexible as the forces themselves must be capable of shifting about. This concept indicates a reduced importance of our principal railroad and highway networks.
and adds defense importance to secondary roads. I think it is a realistic concept!

Both in wartime and in peacetime, secondary roads also serve as alternate or relief routes under emergency conditions when main roads are blocked by damaged or flooded roadways and bridges. Right now they and other classes of roads are also serving as relief routes in another sense. Many people in Europe and other parts of the world are being kept alive by food, clothing, and other products supplied by the United States. Without our earth or unimproved roads along which 46 percent of our rural dwellings are situated, or without gravel roads along which another 30 percent of our rural dwellings are found, the food and other supplies of rural origin would not be available for export, and large numbers of people would be starving.

Relative Importance

So the forelegs of the stag are important! However, before we swell up too much with pride in the importance we can attach to secondary roads, let us recognize that their chief importance overshadowing anything else is that they are a part of a transportation system which depends upon coordinated and cooperative effort to function. Do we argue over whether a steering wheel, or an axle, a fan, or a motor is the most important part of an automobile? The car must have all to function, and highway transport must have roads of varying degrees of improvement and administrative classification, all designed and built to standards which favor no type or class of road in relation to its service requirements.

Most of you know, I believe, that the Federal-Aid Act of 1944 provides for establishment and improvement of systems of secondary roads as a cooperative undertaking of federal, state, and county or other local government agencies, and on a long-range basis. This program is promoting cooperation, improvement of administrative practices, and a clearer and better understanding of the country's economic capacity to extend improved highway facilities to reach an increasing number of farm gates.

All methods of accomplishing these results in all phases of highway transportation are matters in which this Road School is greatly interested. The Public Roads Administration wishes you a most successful session.