

AFTERNOON SESSION
Thursday, March 19, 1987

LOCAL ROADS MANAGEMENT WORK SESSION

***OTTO INGRAM** is Deputy Secretary / Commissioner of the Department of Rural and Municipal Aid of the Kentucky Transportation Cabinet. His involvement with rural roads spans more than thirty years during which time he has held positions as county judge, state representative and deputy commissioner of highways. Judge Ingram is a graduate of Morehead State University.*



Moderator **Otto Ingram**, Commissioner
Department of Rural and Municipal
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Up to this past General Assembly of 1986, we had attempted to do something about the funding of rural roads. They, like the major arterials, toll roads, and the interstates, have had a problem of maintenance and reconstruction and in several areas need improvement, especially bridges.

We are faced with a dilemma about what we're going to do with the bridges. Nobody wants to put a school bus loaded with children over a bridge with a sign up that says, "limit ten tons," and as a result that's working a hardship on our local units of government.

We have gone to the General Assembly, and we worked hard, and everybody helped us, and we are appreciative of that. We failed miserably the first round. We saw where we made our mistakes, and we corrected those mistakes, and went back to the General Assembly. With the assistance of the city councils, the city mayors, the county judges, the fiscal courts, and our own department and the Federal Highway Administration, and most of all our citizens we made our needs known. They have recognized our needs in the Department of Transportation and the Commonwealth. They came to our assistance, and we were able to enact the five cent motor fuel tax.

The last time that we enacted any increase to motor fuel tax was back in 1972. As we stand here in early 1987, it's questionable whether we will see another increase in that motor fuel tax in the next decade. Therefore, we must turn our attention towards how we can get the best dollar and the best maintenance and the best service delivered to our traveling public from the money that we have at the present time.

We hope to find some unique way, some way that we can deliver a better surface out there, a wider road, a better bridge, to have better gathering roads for the primary system that are county roads and rural secondary.

Do you close a bridge, do you repair it, or do you replace it? You either repair it, you either replace it, or you close it, and if you've ever closed a bridge out there where ten families get their groceries, ten families go to the doctor, where the milk route

runs, and where the school bus runs, where they go to church, and where they visit, you have big problems.

Mr. Freddie L. Goble is the bridge engineer in the 12th district in Pikeville, and he is located in the eastern part of the Commonwealth, where there are three inches of rainfall in twenty-four hours, in which the rainfall comes down the mountain side, and takes everything with it. It does tremendous damage. He's been an engineer helper, he's been a construction inspector, and he's been an asphalt plant inspector. He's been out in the field as a roadman and levelman, and he has done route locations and design studies, environmental impact statements, systems planning, mappings. He's been with public relations, holding public hearings and meetings. He is a graduate of Prestonsburg High School, and Male Vocational School at Morehead University. He has completed University of Kentucky extension courses, and holds Highway Engineers Educational credits with the state of Kentucky.

Bridges: Rehabilitate, Replace, or Close

Freddie Goble, Bridge Engineer
District #12
Kentucky Department of Highways

There's a place in Kentucky where twenty-five families make use of a three-ton weight limit bridge with school bus traffic and coal trucks over it. They have written the county officials, the county judge, and they haven't heard anything yet. Then they get a letter from the Highway Department saying, "We're sorry but so-and-so bridge is on a county road and is, therefore, the total responsibility of the fiscal court in your county." It is the county's responsibility to address the problems and needs of their county road system. But the counties most of the time are short of funds too, and therefore they cannot very well address all of the needs. They might get the most critical, but there ends up being anywhere from eight to ten critical bridges or items that need to be addressed.

I would say that five to ten percent of the calls to my office are from county officials, and/or citizens who say, "Well, you tell me it's county, and the judge tells me it's state." That's probably the best example I know of passing the buck. But the problem still exists, and something should be done. That's what I am going to address.

Recall the three-ton bridge with twenty-five families with a school bus and coal trucks using it, and three inches of rainfall. We are going to have some bridges that are going to hit the creek because of this.

One of the responsibilities of the District Bridge Engineers in each of the highway districts is to inspect county bridge structures. It's a part of the NBIS, or the National Bridge Inspection Standards. Local governments' abilities as far as qualified road foremen are very important as far as what's going to be done to a bridge once you find the problem. A lot of times bridge repairs can be dangerous in themselves. It is important to have qualified people: foremen, crews, contractors, local engineers, or county engineers. They are the best solutions to the problems as far as technical assistance. The critical bridges that we have on the county road systems in the state of Kentucky are known to each county judge.

There is going to have to be a program within the next five years to replace those critical bridges. I'm talking about bridges usually less than twelve to thirteen tons. Our department bridge section has told me bridges of anything less than 12.5 tons are really unsafe for school bus traffic.

We have in several counties in eastern Kentucky anywhere from 60 to 100 of these unsafe bridges. We have a lot of bridges that are three-ton, four-ton, and five-ton, that are being used by coal trucks and school buses. Of course, the three-ton bridge is the most critical because the NBIS says that a two-ton bridge or less must be closed. By closing, I mean barricaded. Three-tons is barely over the limit, so as far as being in existence or remaining in service, it is a very critical area which we need to address. That's going to be a problem within the next five years, and if we don't address it in Eastern Kentucky, then we are going to see some catastrophic failures.

The reasons that we must do something with these bridges is that you can't get to interstate highways across a three-ton bridge or a two-and-a-half-ton bridge when it is closed. You can't drive on interstate highways unless you can access them. It won't be too long before we will have a very nice Interstate Highway System that is not going to need any maintenance on it, because you can't get to it. People don't realize the importance of bridges until they are gone. They don't stop and look under them everyday as bridge inspectors do and are qualified to do. In most cases, a bridge is a lot like a pothole. As long as it is fixed then nobody is concerned about it. Bridges are very critical, especially those with one lane wood floors, steel I-beam spans, or weight limits of less than twelve tons.

I mentioned that with repairs you need qualified people. The need for professional engineers at the county level is very important in my opinion because I think they could help solve a lot of the problems. Most of the technical assistance needed by the county could be provided by them.

The thing that bothered me about seeing some of these bridges that needed work done on them was the attitude of those responsible for the repair of the bridges. The people responsible for repairing the bridge would just throw their hands up and say, "I don't know, I don't have \$25,000 to rebuild that bridge. What can I do with it?" I said, "You're going to have to find some money; because if you don't, it is going to fall." Of course, it was easy for me to locate the critical construction, because I have to inspect them all anyway. That is a part of the National Bridge Inspection Standards.

It's the responsibility of the District Bridge Engineer to inspect county bridge structures on a routine basis, either once a year for standard bridges, or once every two years for routine bridge inspections.

This National Bridge Inspection came about in 1984 or 1985. At that time the Federal Highway Administration initiated a Bridge Posting Project through the Department of Highways or Transportation, in which all bridges at a weight capacity of two tons or less would be closed. Either they would be closed or that county would not be in compliance to receive federal funds for road projects or bridge projects. It didn't take into consideration how many families were on the road, or if the road or bridge had a detour around it that would be feasible to use for the families while it was closed.

The closure would be done to a specification. The specification was that at each end of the bridge, there would be guardrails erected with guardrail posts, and steel beam guardrails at both ends with signs: "Bridge Closed, No Passage." In our district there happened to be twelve of them in the seven county area. A lot of other districts had worse.

That really did bother me, because I was getting phone calls. I don't know who initiated the program at first, and I'm not saying that they are right or wrong. I had to deal with it. A lot of the judges were getting phone calls also. The people would say, "I have heard you are going to close my bridge.", and the county judge would say, "yes". And the people would say, "What are we going to do, and how are we going to get out?" Frankfort would say, "Well, that's your bridge and you are going to have to do it. It's your responsibility not ours."

That's a hell of a place to put a fellow in. All that tells me is that there are not enough people concerned about a school bus hitting the creek. I don't mean that in a bad way, but we have got to do something, and that's about the bottom line of it.

I said, "What am I going to do? We can't close these twelve bridges. What can I do to help?" I started asking people. I did not get very many answers. So, I initiated a little project whereby I would use some of my qualifications and expertise as far as what I knew about bridges. I did it on my kitchen table instead of at work, because I was afraid my supervisor might get mad at me. He didn't want me to work on county bridges because we have enough problems with the state. So, I got started on my own time on a project to help repair these bridges. Well, that's not the way it is suppose to be done. Our plans don't have six months, work in drainage analysis, they don't have eight months in the design department, they don't have twelve months of being reviewed by the construction division. Well, I had a lot of people tell me that this wouldn't work, and very few saying that it would. But in the end the job got done.

Somebody had to do something, and before you get sued, you have to have money, and I don't have any money. I don't even want to talk about liability. If we start talking about liability, we'll be talking about how many bolts are away from the guardrail, and I sure don't want to talk about guardrails.

A county engineer, a consulting engineer, and State Department of Highways cannot provide the service to get local bridges repaired. I don't want the county and local officials to think that the answer to their local bridge problems is to get the Highway Department and bridge engineers to just come down here and fix them all. That's not the way to do it.

The State Department District Offices have plenty more stuff on their system of roads to take care of, and probably more problems than the counties have. They have all of the problems that they need.

Funding is one of the biggest problems that we have. The only thing that made my little outfit work here, as far as the local bridge replacement for the twelve bridges that I happen to be trying to solve the problem on, is that the counties found the money. It was up to the county judge to either look for a grant or look for his own money, or call someone from the Highway Department, or the Federal Government. But it was up to them to get the money. They just happened to be able to get it. It's up to the counties to get the money. A lot of times when you ask people who may have a pot of money somewhere, it's really kind of hard for them to say no. If there's any available at all, they will usually give it to you.

I think we have got to have a cooperative effort between the federal, state, and the local governments to put funds in a local bridge replacement program, whether it requires congressional actions or taxes. We're going to have to do something about our local bridge structures.

Moderator: Otto Ingram

Donald K. Bryant is a graduate of the University of Kentucky, College of Engineering. He's been employed by the Highway Department for a short period of time, and he may want to explain why he left the Highway Department. He has worked at the district office in Madisonville, in the area of design and operation. He's been with the Green River Area Development District and their regional engineering program. He's been on the Planning Commission of Henderson and Henderson County as an Executive Director from 1982 to the present time. He's the County Engineer for Daviess County. He's affiliated with the Kentucky Society of Professional Engineers and he is qualified to discuss bridges in Rural Kentucky.

Donald K. Bryant
Daviness County Road Engineer

Back when the bridge inventory was done, I was working with the Area Development District. We did the actual inventory and the analysis working with the Department of Transportation for our seven county ADD. I knew coming into it just what a county had to work with. We had ninety-nine bridges that were qualified under the program of being basically twenty-foot long clear span. Forty-nine of these bridges were structurally substandard. A good many more really were functionally substandard. They weren't wide enough. But the primary consideration was really the load limits.

When the inventory was first done, I think everybody welcomed it. It was more detailed than anything that we've ever had in the past. Just about anything that you wanted to know about your bridges was included in that inventory. It really didn't hit home until seven months later.

For seven months the Department of Transportation gathered all of the information up from all the different studies that were done and compiled it. Then the mandate came that all those bridges that were substandard that were fifteen tons or less had to be posted. Well, that was fine except when you're talking about half of your system being substandard, and you've got school bus routes where you just can't get there from here. When you get enough of these bridges that are posted down three, four, six tons that are substandard for even school buses, then you have a true emergency. This came in a matter of overnight.

The county had to do something quick, and the county did. They met with the local school officials and the transportation people. They mapped out a plan setting priorities to try to do whatever could be done in a very short period of time to get the school bus routes open to where they could have access to all areas of the county. For one area in particular that was landlocked as far as school bus routing, school kids could not get to their homes or back to school, because the bus could not access that particular area.

The county had a program for bridge repair and bridge replacement which had more or less been an on-going program for years in Daviness County. One particular bridge is over Panther Creek. Now Daviness County is flanked by two rivers, the Ohio River and the Green River. We don't have any river crossings, but we do have Panther Creek that runs across the county from east to west. It forks in the eastern part of the county, a north fork and a south fork, and Panther Creek is sufficiently large. All of our county bridge crossings are minimum three span structures. One bridge was already planned for replacement when the inventory was done, and we had two of these. This was done with state money and a local match.

The bridge over Panther Creek was under construction at the time the inventory was done. Those two bridges alone cost in excess of \$500,000 to replace.

After meeting with the school board officials, sometime in the late winter of 1980 and 1981, five bridges were set up to be reconstructed during the spring vacation. In one week, at an average of one a day, these bridges had the super structure removed. They had planned this a little bit ahead of time, so that they could get precast beams made up and ready to be delivered to the site.

In that period of one week, five of these bridges were reconstructed, using abutments. The wing walled abutments were in place and, with slight modifications, we were able to put superstructures on the existing abutments. On the following Monday morning, these bridges were opened for traffic and school buses to cross them. We didn't exactly follow all of the guidelines in the green book in doing this. But when you try to do this much work in one week, your curing time on your concrete

might be a little less than what is ideal. But when you have an emergency situation then you have to do the best you can with what you've got.

On a typical stringer bridge that had quite a build up of asphalt on it, the county engineer and I attempted to improve the weight limits without doing anything major. With this bridge I told them if they would just get the dead load off, get the asphalt build-up off of the bridge and reconstruct the approaches, then you could reduce the dead load enough on the bridge to bring the load limit up. This would make the bridge safe for a school bus. They went in and took the black top off the bridge. A county truck backed up on it, and the concrete deck underneath fell through. The truck dropped down on the beams. The blacktop was holding the concrete between the beams, and this bridge had to be reconstructed like the rest of them. Sometimes you can cover it up, but your structural problems are still there. Many times you really have to get under them and look close to see what the problem really is.

Substantial funds were made available for bridge replacement throughout the country, and a good bit of this money was earmarked for local bridges. The fiscal courts at that time took advantage of this, and made it a part of their program. They applied for one bridge, and funds were approved for it, followed by a second bridge, both of them again on Panther Creek. The county had to put up twenty percent matching funds, and so all we had to do was put up our part of the money.

The only problem was that federal bridges had to meet federal standards. They are rather expensive compared to some of the things you can do locally, but the main problem with federal procedures are the time elements involved. We had too many substandard bridges, and not enough time to wait three or four or five years until they made the cycle through planning and designing.

The fiscal court submitted a proposal at that time to set up six projects at a total cost under \$1 million estimated cost for six bridges. It was approved. The unique part of that proposal was that using the standard procedure allowed the county to make compliance with all state and federal regulations. It also allowed the county to bid these projects, design the projects, take care of every phase of it.

I think it was met with much skepticism, and understandably so. To my knowledge this had not been done before, and of course there's just so much red tape involved with a project such as this. Everybody was a little bit leery of what we could get ourselves involved with as far as liability. The state officials had to answer to the Federal Highway Administration, so I could see where they were concerned. But the project was approved.

The bridges were built in record time. The actual gross figure on those six bridges was \$509,000. It was cut in half. I don't think the cost savings was really a factor of the county as opposed to the state doing it. We still had to meet the same requirements. The estimates tend to be high, in half of the time or less. Time savings were the real advantage because we had an emergency situation and we had to move on it.