

Federal Bridge Inspection and Rating Program

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INTRODUCTION

This paper is directed toward the federal bridge inspection and rating program. No one group comes in more direct contact with the growing problem of bridge maintenance than county commissioners. With limited budgets and large numbers of critically deficient bridges, it is the county commissioner who is faced with the seemingly insurmountable task of rating, maintaining and replacing these structures.

Here in Indiana, there are over 14,000 bridges on the county network, of which 75 percent are one-lane bridges with less than 18 feet of horizontal clearance; $\frac{2}{3}$ of these structures are less than 50 feet long. I obtained this information from the very excellent HERPIC publication by Jean Hittle titled, *Inventory of Indiana County Bridges*. This book presents a complete statistical breakdown for each of the state's 92 counties, and I commend the publication to you highly. You are most fortunate to have such an organization as HERPIC for your ready guidance and counsel.

The wide prevalence of major bridge deterioration due to the lack of adequate maintenance came into national focus with dramatic suddenness when on December 15, 1967 the so-called "Silver Bridge" over the Ohio River at Point Pleasant, West Virginia collapsed, taking with it 46 human lives and inflicting untold property damage. This grave incident triggered prompt congressional action aimed at insuring that no such holocaust would ever recur.

NATIONAL BRIDGE INSPECTION STANDARDS

The Federal-Aid Highway Act of 1968 required the Secretary of Transportation to prepare national bridge inspection standards and further required that the Secretary establish a series of training programs aimed at training bridge maintenance engineers at all levels of government service.

The bridge standards were published in the *Federal Register* in September, at which time, comments of interested parties were solicited. Comments were received up until the first of this year and then were

carefully evaluated. These evaluations resulted in some minor modifications in the original standards. The revised standards will soon be published in the *Federal Register* and adherence to these standards will then become the law of the land.

The standards will pertain to all bridges located on any of the federal-aid highway systems. The standards are sub-divided into general categories of: (1) inspection procedures, (2) frequency of inspections, (3) qualification of inspection personnel, (4) form of inspection report, and (5) collection and recording of inventory data.

With regard to the second requirement of the 1968 act, that of setting up training programs, training programs have now been conducted in each of the nine regional offices of the Federal Highway Administration. In Region Four, which includes Indiana as well as Illinois, Kentucky, Michigan and Wisconsin, the symposium was conducted in January and was attended by 70 persons representing 27 separate federal, state and local government agencies. Mr. Hittle attended these sessions as did representatives of Allen, Tippecanoe, Lake and Knox Counties.

It was not the intent of the symposium to train bridge inspectors but rather to train personnel to establish subsequent inspector training courses within their respective government agencies.

THE BRIDGE INSPECTION PROGRAM

In March 1971, you were given the opportunity to attend, or to be represented, at one of several one-day training programs conducted at the State Highway Commission Research and Training Center in West Lafayette. Although a one-day session could surely do little more than whet your appetite for bridge inspection, it at least has made you aware of the federal requirements. Hopefully, each county within the state was represented at one of these training sessions. It is further hoped that you purchased the two training texts; one, the *AASHTO Manual for Inspection of Bridges*, the other the *Bridge Inspectors Training Manual—1970*. These texts are considered basic to any future bridge training program. In fact, the *National Bridge Standards* require completion of a training program based on the *Bridge Inspectors Training Manual* in addition to specified experience and education requirements.

I understand the major portion of the training session held at the research and training center was devoted to the mechanics of filling out a bridge inspection report, or to use the federal vernacular, a Structure Inventory and Appraisal Sheet. The importance of this phase of the

program cannot be over-emphasized, not only because the availability of the specified inventory and appraisal data is required by the *National Bridge Standards*, but more importantly, because accurate collection, recording and analysis of the necessary data will enable priorities to be established for the repair of structures. Priorities will be based upon each structure's serviceability, safety characteristics and essentiality for public use. The data could also be made available for any concerned party should the need arise. A photograph, or photographs, of each structure is considered an essential to any inventory appraisal data submittal.

It is recognized that adequate bridge maintenance is of major concern in the provision of a serviceable highway network. The big question is, with a limited budget, how to initiate an effective bridge inspection program. Such a program must begin with a complete inventory and appraisal in order to establish priorities for repair or replacement in an orderly sequence.

At this stage, you may well be thinking what I have said so far concerns only your 3000 federal-aid bridges, but what about your 11,000 county bridges that are not on a federal system; how are inventory and appraisal programs provided for these bridges? You may go even further to say that it is these bridges which are in the direst need of repair and replacement. Your concerns are both valid and understandable. However, there is a source of federal funds which may be of assistance to you as you formulate your bridge inspection program.

Jean Hittle recently wrote our office questioning the availability of highway safety funds which could be used in bridge inspection activities. Undoubtedly, he has informed you of his letter and of the subsequent reply which acknowledged that under certain conditions, safety funds can be used for bridge inspection activities on roads not on the state highway system; notice that I said *state* highway system. The breakdown was not set up on a federal-aid—non-federal-aid basis as had been anticipated. The logic behind this decision is simply and soundly that the various state highway departments have developed the necessary resources to carry out an effective program of bridge inspection, but counties and municipalities do not have these resources. Therefore, the highway safety funds will be allocated to those with the greatest need.

It must be acknowledged, however, that there are many other uses for highway safety funds than for bridge inspection activities. Each state through the Office of the Governor establishes its own priorities for use of these funds. In Indiana, the Governor's representative in these matters is Thomas D. Coleman, director, Department of Traffic

Safety and Vehicle Inspection in Indianapolis. I understand that the establishment of a bridge inspection program in Indiana using highway safety funds has been given approval by the Governor. A work program to implement this activity is currently being reviewed by FHWA but approval of the state's program is virtually assured.

Well, there, briefly, is the status of the bridge inspection program and of highway safety funds to help augment the program on other than state bridges.

RECENT LEGISLATION PERTAINING TO BRIDGES

I will briefly mention some recent legislation pertaining to bridges.

The 1970 Federal-Aid Highway Act contained two sections of legislation directly aimed at reducing the number of critically deficient bridges.

Section 109 expands the current legislation regarding the expenditure of emergency relief funds by permitting the reconstruction of bridges which were permanently closed to all vehicular traffic during the time of December 31, 1967 and December 31, 1970 because of imminent danger of collapse due to structural deficiencies or physical deterioration. In other words, let's rebuild these bridges before they fall down, taking with them life and limb.

Another program is covered under Section 204 of the 1970 Act. This is known as a Special Bridge Replacement Program. This section authorizes a comprehensive bridge replacement program for critically deficient bridges over waterways or other topographical barriers. In other words, for those structures other than railroad and grade separation bridges.

Each of the previously mentioned sections pertains to structures on the federal-aid system only. However, to re-emphasize the importance of adequate collection of inventory and appraisal data, funds for these bridge programs will be allocated from our Washington office based on national priorities which will be established from inventory and appraisal data submitted by the respective states.

You can see there is much ground to cover—the dilapidated old railroad bridge or grade crossing, the ramshackle pony trusses in your counties carrying school buses every day—these must be repaired or replaced. And so it goes. However, while there is much work yet to be done, much progress has now been made. None of us can accurately predict the course of future legislation. I am confident, however, that the current interest in bridge repair and maintenance programs will be reflected in more generous bridge legislation programs in the future.