

U.S. 25-U.S. 42 REPLACEMENT BRIDGE
OVER THE OHIO RIVER BETWEEN COVINGTON, KENTUCKY AND CINCINNATI, OHIO

Logan L. Ratliff
Federal Highway Administration
Washington, D.C. 20590

State and Federal Coordination

The topic I will address today is too narrow in one sense and too broad in another. State and Federal coordination in its full implication includes matters which go beyond the engineering aspects of any project and involves officials that have broad overview rather than project outlook. On the other hand, in any specific project such as the one we are discussing, State and Federal coordination in itself is not enough. There are many other organizations and persons involved in a major construction project whose cooperation and coordination are essential if the project is to be successfully carried to completion. In the U.S. 25-U.S. 42 replacement bridge which we are discussing, the following partial recitation of organizations involved will illustrate this point: The Federal Highway Administration, the States of Kentucky and Ohio, the Cities of Cincinnati, Ohio and Covington, Kentucky, the U.S. Corps of Engineers, the U.S. Coast Guard, the C&O-B&O Railroad, the Union Light Heat and Power Company, the Federal Water Quality Administration, and the consultants retained by the Kentucky Department of Highways.

In November of 1969, a management team composed of representatives of the majority of the organizations just mentioned was formed to act as a coordinating and expediting body for the project. This group has met frequently to consider, and to make, decisions necessary for the advancement of the work. My part in that management team may best be presented by quoting from the letter addressed to me by Mr. R. R. Bartelsmeyer, Deputy Federal Highway Administrator.

"Accordingly, you are hereby designated and authorized to serve as Project Manager for the Federal Highway Administration for the cited project to provide a highway bridge across the Ohio River to replace the existing but closed to service bridge across the Ohio River between Cincinnati, Ohio, and Covington, Kentucky, Kentucky FAP Route 3 and Ohio FAP Route 37.

"You will represent and speak for the Federal Highway Administrator and make final commitments on technical matters and courses of action that require such determination on the part of the Federal Highway Administration in the advancement of Federal-aid highway projects."

I am sure that all those present here today are aware that there are administrative procedures set up for handling Federal-aid highway work which set forth the steps and phases by which projects may be constructed. These procedures are time-tested and effective for the orderly flow of the greater amount of all such work; however, there occasionally arises a project where the public interest requires expediting and speeding these procedures. You will note that this does not imply any elimination of steps or

procedures, only expediting and speeding. An analogous situation would be the line in the bank, which we are all familiar with, where in order to make a deposit one waits his turn, but where occasionally a situation arises that it is necessary for one person to move to the head of the line rather than to take the time to wait. There is no elimination of the recording and financial transactions, but only an expediting and speeding up.

The primary advantage of a management team is the ability which the team has to make fast decisions. There are several obvious techniques which can be made use of in coordination of the various review steps. This review coordination was done during the design phase of the bridge, and arrangements were made to have simultaneous review of plans by the State and by the various levels of the Federal Highway Administration. The review of shop plans is another phase where an apparently simple procedure can result in large time gains. When the producer of the shop plans submits simultaneously to the State and to the agent of the State, in this case consulting engineers, that will do the actual detail review, several days turnaround time is saved in each submission. For one submission this is not critical; however, when there are 30, 40 or even 50 submissions of shop plans, the several days saved on each submission can become an extremely important time saving.

One advantage of having a Federal Highway Administration project manager from the Washington office is the availability in the Washington office of expert knowledge in many different fields. As I recite later some specific instances of decision matters, you will soon realize that the scope covered by those matters is far beyond the expert knowledge of any one individual. However, by having immediate access to experts in many fields, it was possible to obtain needed data and information upon which to base fast decisions.

Illustrative of some of the problems where the speeding-up process was effective are the following. During the early history of the project, the thinking in general was to replace the existing but condemned 2-lane bridge with another 2-lane bridge. It became apparent early in the management team considerations that a 2-lane replacement would be an unwise investment of public funds since the traffic capacity of a 2-lane structure would be reached within a relatively short time. The consideration then was how to increase traffic capacity and two options were considered: (1) A 4-lane structure and (2) a 3-lane structure with a reversible center lane which was feasible due to the highly directional character of the traffic between Cincinnati, Ohio, and Covington, Kentucky. A 4-lane structure could not have been built on the existing location due to right-of-way considerations and approach conditions, particularly on the Ohio side. It was concluded that a 4-lane structure on a new location somewhat upstream from the existing bridge was not feasible due to the intensively built-up area along the Ohio

River waterfront of Cincinnati. The 3-lane structure was investigated carefully and it was determined that it was not only feasible but offered considerable savings since it was possible to build such a structure on the existing location, making use of a common pier with the C&O Railroad at one point. The decision was accordingly made in a very short time to proceed with the 3-lane structure. As you are all aware, a 3-lane bridge is a rare animal and under normal procedures the decision to build one would probably have consumed considerable time.

The decision having been made to use a 3-lane structure, the next question was the deck geometry, i.e., lane widths and clearances both horizontal and vertical. Again, the decision as to these dimensions was made rapidly.

In order to build the 3-lane structure, it was necessary to go over a portion of an existing warehouse on the Ohio side. The question of vertical and horizontal clearances at this overcrossing became critical since they controlled both lateral and vertical position of the replacement bridge. The decision regarding these clearances was again made in a very short time with full consideration of not only existing standards, but standards which were tacitly in effect since they were to be issued in the near future. This is a case of where the special knowledge available in the Washington office was most helpful.

Another decision resulting from going over an existing building was the type and extent of fireproofing to be used for the new bridge. As a matter of interest, a fireproofing method was decided upon which is essentially a coating applied similarly to paint in a liquid form, which coating when exposed to heat foams and creates an insulating barrier with at least a 1-hour fire rating. This was considered sufficient since, while it will not guarantee that structural damage will be precluded in the case of an intense fire, it will assure that in such an event there will be ample time to clear from the bridge vehicular and pedestrian traffic so that life will not be in danger.

Another problem which involved a considerable degree of engineering judgement and could have been extremely time-consuming was the decision of whether or not to use the existing joint pier in view of the 7-foot layer of timber in the bottom part of that pier which you have already had described to you by Mr. Havens. All responsible parties, by meeting together and considering the factual situation, were able to reach a decision, based on the investigative work done by the Kentucky Department of Highways, that it was safe and prudent to use the pier.

One of the interesting problems which came up was the question of demolition of the then existing 3 simple span truss bridge which was immediately adjacent to, my recollection is approximately 10 feet, the existing B&O-C&O Railroad bridge. The normal procedure in the demolition of existing structures is to cut some of the main tension members with explosives and drop the steel work which is then recovered from its fallen position. Obviously, this technique could not have been used here due to the possibility of damage to the C&O Railroad bridge and, accordingly, much thought and effort went into devising techniques to drop safely the existing trusses into the river. It was finally

decided, based on a suggestion by the successful bidder, that the trusses would be jacked laterally in a vertical position away from the railroad bridge until they reached a tipping point where they would then rotate and fall into the river well upstream from both the existing piers and from the railroad structure. In connection with that procedure, I am reminded of the story of the minor league baseball player who was drafted by a big league team whose home stadium had a mound in centerfield for the flagpole. The rookie was given intensive coaching on how to go up the mound in order to catch flyballs that were hit in that area. Came the day when he was called on to enter the game, the situation being that there was one out and a man on first, the batter hit a long flyball at the mound and the rookie played it perfectly. He went up the mound, caught the ball, turned around, and coming down fell over his own feet, dropped the ball and the man on first scored. The rookie returned to the dugout after the inning was over, livid and furious, and informed his team mates this club has the worst coaching I have ever encountered. Everybody told me how to go up that mound, and nobody told me how to come down. Somewhat the same situation occurred in the demolition of the existing structure. We were all concentrating on how to put the trusses into the river with no damage as I have previously mentioned, but no one gave very much thought as to what to do after they were in the river and this proved to be a point of considerable difficulty. The tension members of the trusses in particular were packed I-bars sometimes as much as 2 inches in thickness and 14 inches wide. The contractor used cutting torches until he had sparks in front of his eyes. Resulting from his experience on the first two trusses, the proposal was made for the third truss to use explosives to cut the tension members while the truss was in the act of falling into the river. Note that I say cut since the explosive proposed was in essence a linear "shaped charge." This process was agreed to, with considerable concern, and I do mean concern, since all involved had a picture in the back of their minds of 800 tons of steel in the river bed with unfired high explosive charges entangled among the members. Backup detonating systems were placed to prevent that from happening and the cutting procedures worked extremely well. The last illustration of the type of situation where a project manager can be helpful occurred with a right-of-way situation on the Kentucky approach involving the taking of a small amount of U.S. Government land. This situation occurs infrequently in the east and accordingly represented somewhat of a problem. However, in the west where there are large areas of Government-owned land, the problem occurs frequently and well-established procedures were suggested which took care of the matter with no difficulty.

This is the second major project with which I have been associated in the capacity of Project Manager, and I will mention some of the lessons I have learned since they may be of some guidance, should you meet a similar situation in the future.

(1) For expediting procedures to be effective, the project must be of such obvious and apparent public benefit that there is no question as to the necessity for speed-up processes. This is obvious for two reasons:

1. In order to obtain the necessary cooperation and coordination, everyone involved must be convinced of the need for his effort.

2. Such methods can be used only infrequently since they interrupt and to some extent delay the normal progress of other projects underway at the time.

(2) It is essential that the initial step be the formation of a management team which represents all responsible agencies and which is composed of members with both the authority and the ability to make decisions, if necessary on the spot, concerning the project.

(3) Proceed with deliberate haste in all matters concerning law and regulations. Be sure that all items required by law are complied with such as public notice, public hearings, right-of-way procedures, navigation rights, financing, programming, and other points of a like nature.

(4) Be very careful that good public relations are maintained on a continuing basis. The cooperation of many governmental organizations, companies, labor organizations, and individuals is needed to achieve success.

(5) Provide, use, and keep updated a critical path listing or other factual method of continuously

evaluating actual accomplishment versus planned accomplishment.

(6) Where off-the-site manufacture, fabrication or assembly is involved, make very sure that adequate factory, mill and/or shop inspection is being done properly. This is particularly important in heavy structural steel erection where the shop fabricated members must fit or there is considerable loss of time and money.

As the Romans said, "Quis custodiet ipso custodies," who watches those who watch? Shop inspections-in-depth at random unannounced times disclose (1) whether or not the shop inspectors understand the controlling specifications, and (2) whether or not they are applying them. This procedure pays off handsomely.

(7) The last lesson is that some earnest prayer is desirable, since in any major construction project events beyond human control can cause major delays.

It has been a pleasure to be with you and to take part in this conference. Thank you.