

Indiana's Highway Program for 1960

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Almost everyone is interested in the activities of the State Highway Department and how it accomplishes the tremendous tasks with which it is charged.

In discussing Indiana's highway program, I would like to mention the major divisions of the Highway Department.

Up until the last session of the legislature there were three divisions under the Highway Department—Construction, Maintenance, and Audit and Control. The last session of the Legislature created the Division of Right-of-Way and the Division of Procurement and Supply.

In the various bureaus under the aforementioned divisions, the department has a staff of approximately 460 registered engineers and graduate engineers, 325 engineering aides, and about 2,600 maintenance employees. Indiana has the smallest number of engineers in relation to the amount of federal aid allotment of any state in the nation. Augmenting the engineering staff in the preparation of plans and planning is a sizable number of consulting engineering firms. Our force of registered engineers and engineering aides increased in 1959 over the previous year only about three per cent.

DEVELOPING A PROJECT

In order to understand the multiplicity of details necessary to get a program underway, it might be interesting to compare the amount of detail required to place a project under contract now, with that required a few years ago. This is apparently inherent in a large undertaking involving the expenditure of huge sums of money.

Years ago the State Highway Commission would select a project, make a survey, develop plans, acquire the necessary right-of-way, advertise for bids, and award a contract. The only areas that had to be approved by the Bureau of Public Roads were the plans and the award of the contract. Now with a large program and a large proportion of federal funds involved, it is necessary to have the approval

of the Bureau of Public Roads at each stage in the advancement of a project from its inception to final completion of a construction contract.

First, a route location study is made. Then the project is programmed with the bureau for preliminary engineering, right-of-way, and construction. A field survey is made and plans are developed to the stage where a public hearing may be held. After the public hearing is held and certified to the bureau, approval for development of final plans is given. Right-of-way plans, together with appraisals, are submitted to the bureau for approval before authority to acquire is given. Where utilities and railroads are involved, agreements must be developed and submitted to the bureau, together with plans, specifications, and estimates, before authority to advertise is given. The details from the time of letting to the completion of the construction contracts are familiar to most engineers.

In developing a project, it is necessary to deal with many agencies and public bodies. Some of these agencies are the Bureau of Public Roads, Indiana Flood Control and Water Resources Commission, Corps of Engineers, railroads, utilities, and local units of government.

Thus far in 1960 we have let contracts for 119 miles on the A B C system for \$9,024,546.65, and 32 bridges for \$4,173,132.15. The bridges let in this period on all systems involve 36 bridges over streams, 11 highway grade separations, and six railway-highway grade separations in the total amount of \$13,799,069.13.

We are cooperating with Kentucky on two bridges over the Ohio River on Interstate Routes 64 and 65. The bridge on Interstate Route 64, between New Albany and Louisville, is under contract. The bridge on Interstate Route 65, between Jeffersonville and Louisville, is under design. Indiana is handling the New Albany bridge and Kentucky is handling the Jeffersonville bridge.

The Highway Department has built some experimental sections of highway which are under observation, and research on highway matters is being carried on through the Joint Highway Research Project at Purdue. The Indiana Highway Department is participating both financially and with certain of its personnel in the activities of the Test Road at Ottawa, Illinois.

A large number of small structures on the A B C system have been widened and a large number are now in the process of being widened. This work is handled through the Division of Maintenance and Districts.

It is planned to place under contract in the 1960 calendar year work in the following categories:

Interstate	\$35,000,000
Primary	\$25,000,000.
Secondary	\$17,000,000
Urban	\$14,000,000
Resurfacing	\$ 4,000,000

This totals \$95,000,000, including plans, engineering, and right-of-way.

We are having good participation by the counties in the county Federal Aid Secondary Program. Of the 92 counties, 71 have participated in this program. In the 1960 fiscal year program there are 21 roads, 65 bridges, and four flashing lights at an estimated cost of \$6,849,022.

In carrying forward a program of this magnitude, the Road Bureau and the Bridge Bureau are designing and supervising the design of facilities on the various systems as well as conducting location surveys for work which is planned in the program.

The work of the Bureau of Materials and Tests has been greatly increased. The Right-of-Way Division will acquire rights-of-way for the proposed construction. Our specifications engineer is keeping specifications up-to-date. The Highway Department through its various bureaus has kept abreast of new developments.

Our Bureau of Photogrammetry and Electronic Data Processing is one example of new methods being employed in the Highway Department. Our data processing section has been in operation approximately two years—developing road and bridge programs and solving design, construction, right-of-way, and traffic analysis problems. Basic equipment is the I. B. M. 650 Magnetic Drum Data Processing Unit. Around 25 programs have been developed and are in use, one-half road and one-half bridge.

Present personnel have a backlog of requests for problem solutions particularly from construction forces. All bids are now checked and tabulated by the computer section—roads, bridges, and traffic.

The photo lab has been doing all types of aerial mosaic photographic and graphic arts processing and reproduction work. An aircraft (state highway owned), modified to accommodate aerial camera equipment, has been engaged in extensive aerial survey work. Approximately 750 miles of single strip photography has been flown, principally of interstate system, for route location studies, and also photos covering 216 square miles of the South Bend area have been obtained for origin-

destination studies by the Planning Division. It also has performed extensive aerial photography for the Indiana Flood Control Board and some minor photography for USBPR. Numerous ground photograph assignments have also been performed for right-of-way, public relations, and traffic.

The stereoplotting section (map and plan preparation stemming from aerial photography) is working on 30 miles (three projects), furnishing design units with planimetry and cross-sectional information and earth work quantities for design by photogrammetric processes, and providing the same information on some borrow pits and interchanges.

The Photostat Department prepares from 3,000 to 5,000 photostatic copies of various sizes and subject matter per month.

The highway picture is constantly changing; new concepts are being employed in bridge design, design of highways and interchanges, signalization, and signing.

Our Planning Bureau becomes increasingly important for long range programs. It is responsible for road inventory, traffic counts, origin and destination surveys, route location studies, highway needs studies and a sufficiency rating report, a revised estimate of the entire interstate system, and many other functions. Numerous studies for future improvements are also being made.

The last legislature passed a law requiring the Highway Department to prepare a long-range program. Before June 30, 1960, and annually thereafter the department shall adopt from its long-range plan and publish a plan of construction to be accomplished within the following two fiscal years. The law further states that in arriving at and making such determination the State Highway Department shall utilize all studies, data, and information made available to it by Purdue University. The Study of Highway Transportation in Indiana made by the Joint Highway Research Project in cooperation with the State Highway Department of Indiana will be of great value in developing this program.

The relocation of utilities and pipe lines is a major activity in the program for this year. Where a utility occupies a public right-of-way, it is not eligible for reimbursement for changes to its facilities; however, in our expanded program with highways on new locations, it is necessary for us to arrange and pay for changes to facilities of the utilities on property on which they have easements or which is owned by them. Through the years 1957, 1958, 1959, and up to March 1,

1960, we have expended about \$691,000 for changes to the facilities of utility companies.

We now have agreement-estimates totaling over \$1,983,000 on file in various stages.

The program for resigning and bringing up to modern standards the signs on about 2,000 miles of highway is progressing. In addition, the Bureau of Traffic Engineering will be called upon to help in the solution of many traffic problems.

The Maintenance Division will probably have a budget of approximately \$20,000,000 in carrying out of its many activities.

Let me review briefly Indiana's position in the national picture.

Indiana ranks tenth nationally in interstate highway construction underway. This involves 139 miles for a construction cost of \$62,927,932.86 and 190 bridges for \$48,879,009.32 for a total construction cost of \$111,806,942.18. Indiana ranked 32nd in interstate roadway having completed 24.7 miles, and 12th in construction underway or bids received for primary, secondary, and urban highway work.

This is quite a change from several years back when the late Sam Hadden returned from Washington and rather ruefully informed us that only Puerto Rico was in a worse position than Indiana in the obligating of federal funds.

There was, of course, a good reason at that time because there had been no increase in the gas tax rate since 1929, and inflation and highway need had greatly exceeded the ability of the available state funds.

The commission has made it a policy to cooperate with local units of government. Through public hearings the public is informed of proposed highway improvements. Meetings are frequently held with county commissioners and officials of cities and towns to discuss common problems. This has proved very helpful in securing local cooperation.

The carrying out of a program of this magnitude is one which requires the close cooperation of all bureaus and divisions of the department. The district engineers and their staffs play an important part in the program at all stages.

As our program has expanded since the passage of the 1956 Highway Act our operations have become more complicated. The law requires highway departments to do more things, making it necessary to deal with more organizations. Thus, the whole picture has become exceedingly complex.