

DEVELOPMENT OF AN ANNUAL RESEARCH PROGRAM

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•FOR many years, the New York State Department of Transportation used an informal approach toward developing an annual engineering research program. Research topics were submitted verbally or by memorandum to the Deputy Chief Engineer (Research), to the Director of Research, or to the research staff. These individuals also identified problems they believed needed investigation. All problems were reviewed, and the cost to solve them was estimated along with the probability of success and potential benefits.

About 3 years ago T. W. Parker, then Commissioner of Transportation, pointed out that, while this procedure was effective, it provided little documentation that could be used to follow a suggestion from its conception to implementation. As a result, a more formal system was evolved that is in use today. In our present system, an annual request for suggested research studies is sent throughout the department. This is supplemented by reminders 2 or 3 times a year in the monthly department newsletter that potential research subjects are not only welcome but needed. As a result, many suggestions are generated that are then evaluated for appropriateness for in-house research and are checked to be sure they are not a duplication of ongoing work or solvable from research already completed.

Because the program managers are the people whose problems we are striving to solve, we (the researchers) work with an individual in each program area. This man is selected by the program manager and designated as a Research Liaison Representative. In cooperation with the Research Liaison Representative we fill out a "research needs statement," which reads as follows:

The information you supply on this form is your principal means of suggesting researchable subjects for the work program of the Engineering Research and Development Bureau. Subjects are selected for formal research on the basis of estimated benefits, urgency of solution, estimated costs, probability of successful completion, probability of implementation, staff capability, available facilities, current staff commitments, and general program balance. The information that you supply will provide a basis for review by the research staff and future consultation with your engineers. Thus, it is essential that your statements be as detailed and factual as possible. Please send your completed Research Needs Statement to the Director, Engineering Research and Development Bureau, Main Office, New York State Department of Transportation.

1. Short Title (try to limit proposed project title to 50 characters or spaces):

2. Submitted By:

DOT Agency:

Date:

3. Problem Definition (concisely describe the background of the problem or subject to be researched):

4. Specific Research Objectives (list specific technical objectives to be accomplished before the study can be considered completed):

5. Benefits (state as accurately, specifically, and quantitatively as possible how the study may increase usefulness or efficiency, decrease costs, enhance safety or beauty, or provide other benefits when anticipated results are implemented):

6. Implementation:

a. What DOT agency will be responsible for implementing results?

b. In what specific form will results be implemented? (Specifications, design practice, construction practice, etc.)

c. What is your estimate (state approximate percent) of the probability of implementing the anticipated results?

- d. What problems do you anticipate in implementing results?
- e. By what date must the project be completed in order for anticipated results to be useful?
7. Resources (include whatever published or unpublished reports, memoranda or other data you know of that may be useful in solving the problem, and what personnel, equipment, or facilities could you provide if required in the course of the study):
8. Who in your organization should be contacted to discuss questions that may arise regarding the content of this Research Needs Statement? At what phone number?
9. Other remarks:

As you can see, a complete and concise "needs statement" can be of great assistance in starting a project. However, background information necessary to define the scope of a proposed project is sometimes difficult to obtain, and Research Liaison Representatives often request research engineers to perform literature searches. This effort has paid off, however, and after a lot of work a booklet entitled "Proposed Engineering Research Program" is prepared and several copies are sent to each Research Liaison Representative.

To acquaint you with the actual results of this process in the New York State Department of Transportation, the introduction to the latest proposed engineering research program will be of interest. The fiscal year 1973 publication states:

This publication outlines the proposed engineering research program which, upon approval, will be conducted by the Engineering Research and Development Bureau during Fiscal Year 1973-74. Its purpose is twofold: 1) to identify both on-going research projects that will continue into next fiscal year, and all new research topics suggested by the Department's staff to date; and 2) to serve as a basis for preparing this Bureau's budget requests for Fiscal Year 1973-74. Input for the proposed program consisted of ideas and suggestions submitted as "Research Needs Statements" by various Department units (Form PHR-73, copy appended at the end of this publication). To encourage widespread participation in identifying important problems warranting investigation, a "Call for Research Problems," dated January 19, 1972, was sent to all Main Office Program managers and to Regional Directors. All responses were forwarded to appropriate program managers for evaluation and assignment of priorities. This review included problems recommended in previous years but deferred because of low priority or for other considerations. Thus, the proposed program reflects an updated appraisal of all outstanding problems as well as new ones. The final selection of projects necessarily considered the current level of staffing within each of this Bureau's six research sections, present workloads, and the effects of existing expenditure ceilings on the progress of current research.

In all, 42 suggestions for research were reviewed, of which 32 described new problems and 10 were resubmissions from previous years. A summary by categories is given in Table 1. Each suggestion is discussed in Chapter IV and the originator is acknowledged.

TABLE 1
SUMMARY OF SUGGESTED RESEARCH SUBJECTS

Subjects Reviewed	Category
15	Formulated into new research projects
2	Integrated into existing research projects
9	Research currently in progress
3	More appropriate for other agencies
11	Research not required; handled through Technical Assistance Program as needed
2	Backlog
42	Total

We in the New York State Department of Transportation are proud of our ability to formulate problems into topics suitable for engineering research. It is my personal belief that every hour spent in defining a problem before undertaking a research project will return the investment many times over in high-quality, implementable research results. Because research costs money, it is always necessary to concentrate our efforts on problems that are important and that have a high probability of being solved.