New Perspectives of the Office of Program Demonstrations, UMTA

Remarks made at the annual meeting of the American Transit Association, September 23, 1970 in Boston, Massachusetts by Dr. Robert A. Hemmes, Assistant Administrator for Program Demonstrations, Urban Mass Transportation Administration.

I want to describe the changes being made in the Office of Program Demonstrations of the Urban Mass Transportation Administration (UMTA) for the purpose of achieving better relationships with transit operators and suppliers, the industry, and the public in general.

We are authorized to undertake our program by virtue of the UMTA Act of 1964. My Office administers Sections 6, 10 and 11 of the Act. Section 6 authorizes us to undertake research, development and demonstration projects for new facilities, equipment, techniques and methods. And it furthermore provides us a rationale and a means for undertaking these projects. We are charged with assisting in the reduction of urban transportation needs and the improvement of mass transportation service.

Our first task was called for in the Act: a study of "new systems of urban transportation that will carry people and goods within metropolitan areas speedily, safely, without polluting the air, and in a manner that will contribute to sound city planning."

This study was completed in 1968 and reported to the President for submission to the Congress. It has become known as the "New Systems Study" or "Tomorrow's Transportation."

On the basis of the study and our charge, a number of projects were established by our Office. Last January we had about a dozen people including secretaries on our staffs and 120 projects. In some cases we had a single project manager monitoring fifteen or so projects involving up to $7 million per year.

As most UMTA watchers know, the consequence of this was such an administrative overload that little or no attention could be given to the evaluation of new, unsolicited proposals--or the creation of new directions, goals and objectives. The processing of progress payments, answering the mail, meeting the public, internal conferences, etc., competed for the available time with the result that little progress could be made in accomplishing any of these activities. Communications between the public and UMTA became extremely limited in our Office of Program Demonstrations (formerly Office of Research).

We were up against it--too many projects, and too few people to administer the money available. Changes were called for.

In order to help conceptualize the objectives of the Act, a schematic structure was created, translating the words of the Act into functions and tasks:

	R	D	D
BUS			
RAIL			
NEW			
ESP			

The columns of this matrix represent our functions of research, development and demonstrations. The rows of the matrix represent our tasks. The rows and columns are a natural differentiation of the projects and functions required to meet the objectives of Section 6.

Research is the activity performed in changing cognitive concepts into well-defined paper studies. Development is the activity necessary to change the well-defined paper study into an operating prototype capable of being tested: and Demonstration is the activity that marries a developed and tested prototype with the urban environment.

The rows representing our tasks are the modal hardware groups--bus, rail and new systems. The fourth row is a small category--planning, evaluation and support. Activities in this category are those that apply to all of the modal categories and could be arbitrarily allocated to them, but we find it more useful to separate them out so as to keep support activities visible.

The matrix serves a three-fold purpose: it suggests how to balance our functional and hardware activities; it suggests how to structure the budget; and it suggests how to organize the office. Projects may be thought of as flowing from left to right across the rows through the functional phases.

This is a goal-oriented system, which means that the movement of projects through our office has a purpose not only consistent with the Act, but which we perceive to be reasonable objectives within the resource constraints of both federal and local governments.

Our goal is to deliver a spectrum of alternatives to the urban areas of the nation, each of which is a candidate for local selection to solve local problems. It is anticipated that implementation locally will require the federal financial assistance provided for in the Transportation

Act in the form of a federal capital grant. This means that our projects, upon completion of demonstration, must, in general, be eligible for a capital grant. For example: the Act has constraints on the award of a capital grant. It must be made to a legally constituted public body; it may be made for equipment and facilities; and this subsidy is for acpital costs only and not for operating expenses. The equipment or facilities must be part of a comprehensive regional plan. In all cases where potential labor displacement is involved, careful provisions must be made for protection of labor, and the Act requires a clearance by the Department of Labor for each such capital grant. And the public body must participate in the funding by providing at least one-third of the amount from local sources.

Although these constraints are not imposed on research, development and demonstration projects, it would be imprudent to initiate projects which could not meet these requirements at the completion of their demonstration.

The nature of the demonstrations we contemplate undertaking needs some amplification. A demonstration is not merely an exhibition. A demonstration is an experiment to acquire information. In any well-defined experiment, it is necessary to state clearly what information is being sought prior to commencing the experiment.

For example: an exhibition might be running a new automatic vehicle or a bus along a guideway or an exclusive lane and allowing the public to observe it and ride in it. A demonstration, on the other hand, measures attributes.

Before the demonstration starts, the attributes to be measured must be explicitly stated in a form that will permit their subsequent scaling and recording.

For example: we may wish to demonstrate and measure the following attributes: revenue generating capabilities; operation and maintenance costs; operational characteristics such as acceleration, braking, maneuverability on curves, capability of climbing grades, vibration, noise, safety; ridership appeal; comfort and convenience; economic impact, reliability, etc.

The demonstration must be structured so that each of these attributes may be scaled and measured.

The conclusion reached from the measure of the attributes is facilitated by an experimental design. For example, an after-the-fact observation is all that is necessary to measure reliability, but other attributes such as economic impact may require a "before" and an "after" look.

Other attributes may require more sophisticated experimental designs such as the addition of a control site at which a "before" and "after" observation is made to wash out exogenous variables such as seasonal variations of ridership.

The cost of these observations may be more than the value of their measurements if we make too many of them. Yet, we need enough observations to establish confidence in the measurement, and the additional knowledge gained for each observation should at least offset its cost.

In order to be one hundred percent certain of an effect, we would have to observe forever at infinite cost, somewhere between this extreme and that of making no observations is the right number as determined by the experimental design.

In order to gain the managerial advantage necessary to accomplish meaningful research, development and demonstration, we have implemented a new procurement policy. The essential elements of our new procurement process are: use of systems management engineers and integrating contractors, and more use of the procurement contract as opposed to the grant contract.

We are often cited as having changed our rules by those who do business with us. It is true - we have changed the rules. So let me summarize the changes in this Office between January and now: in January we required that projects be submitted by public bodies who were willing to share one-third of the project cost. We now will consider unsolicited proposals from public or private source and will fund up to 100% of the cost if it is in the national interest.

In January our emphasis was on demonstration projects to serve local needs. Now we are recognizing and using the research and development categories as well as demonstration. Now we are not responding primarily to local needs - for that is the purpose and function of the capital grants program. Now we are taking the initiative and undertaking projects that have primarily national relevance instead of parochial application.

In January our projects were managed on an individual basis. Now we are aggregating them under broad headings and we will manage them

through a systems manager and integrating contractor who acts as our agent. The Commerce Business Daily of September 11, 1970 carries our solicitation for these systems managers.

In January there was a strong emphasis on the New Systems Program. We now realize that we must improve existing bus and rail systems during the development years of new systems.

We are sorry that these changes have discomforted some of our associates, but hope to clarify our position with this public presentation.

Our purpose is to serve the national interest, and to that end I have restructured our research, development and demonstration projects and instituted the above procedural changes. I will welcome your comments and suggestions on how to continue to improve this program.