

and service problems and needs. These service plans will add to the comprehensiveness of the evaluation program by identifying local factors that were not easily recognizable in the operating data collected and used in the preceding analysis.

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Abridgment

Use of Service Evaluation Plans to Analyze New York State Transit Systems

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Recent state legislation mandated that the New York State Department of Transportation develop a transit service evaluation plan reporting requirement to be used along with transit performance measures in the evaluation of the state's major transit systems. This paper describes the development of the service plan submission and summarizes the results of the plan submittals for the first year. The results of the two reporting groups of transit systems (public authorities and county sponsors) are compared on each of four topics (use of goals and objectives, operating performance evaluation, service coordination, and service problems and needs). It is concluded that the service plans provide a basis for relating transit system performance to local service objectives and operating conditions and also for improving the performance monitoring of New York State's major transit systems.

A number of recent studies have advocated the use of transit performance measures to evaluate the efficiency and effectiveness of publicly funded transit service (1,2). Many of these studies as well as the American Public Transit Association (APTA) have recommended that performance evaluations must be made in light of the goals and objectives of the transit system and the local conditions that affect service (3). The New York State Department of Transportation (NYSDOT) began a performance evaluation program in 1979 under a state legislative mandate to certify the performance of transit operators that participate in the state operating assistance program (1). The operating and financial data used

to evaluate performance were obtained through annual surveys of transit operators. However, these data alone did not reveal the complete transit operating picture.

In recognition of the need to obtain other non-statistical information from state-sponsored transit services to supplement the department's existing performance evaluation program and to relate operating performance to local goals, objectives, and special conditions, NYSDOT implemented a service plan reporting requirement for 1980 (4). This paper describes the development of the transit service plan submission for the initial year, presents a comparison of the plans received by the two distinct groups that submitted responses, and recommends ways in which the service plans can be used by NYSDOT and local governments.

BACKGROUND AND DEVELOPMENT OF QUESTIONNAIRE

The 1980-1981 New York State transit operating assistance appropriation legislation requires the department of transportation to certify as to the economy, efficiency, and effectiveness of each major public transportation system (those systems that annually carry more than one million passengers or operate more than one million vehicle miles of ser-

vice) that receives state operating assistance funds. A major system could be a regional public transportation authority or a county or municipal sponsor of one or more publicly or privately operated transit services. Seventeen of the state's 62 systems qualified as major systems in state FY 1979/80. These 17 systems carried 99 percent of the passengers, operated 98 percent of the vehicle miles, and received about 99 percent of operating funds in the state. These major systems were required to submit a service plan to the department to be used in conjunction with the performance evaluation measures in the certification process.

The objectives of the service plan submission for the first year were to enable the department and the regional authorities or sponsors of transit service to better monitor and evaluate the performance of the state's major systems and to develop an understanding of local or regional transit service objectives, problems, and immediate needs. Many of these same objectives are cited as components of a management performance audit in a recent report by Smerk and others (5).

The service plan requirement for the initial year contained a series of questions to be answered by each major system. The questionnaire distributed to public authorities (who both own and operate the transit service in an urbanized area and receive state operating assistance funds directly) differed slightly from that sent to county sponsors whose transit service is provided through contract with one or more private (or occasionally public) carriers and who act as a conduit for state assistance to these operators. Both questionnaires covered the following general topics:

1. Transit service objectives--What are the local objectives for providing transit service? and To what extent are local objectives achieved?
2. Transit system and route performance evaluation--Is system and route evaluation done? What measures are used? and How often is it performed?
3. Transit service coordination--Is there coordination with other local services and with intercity services? and
4. Transit service problems and needs--What are they? and What are short-term service plans?

The resulting information will be used by the department to develop an overview of existing transit services and service objectives in the state, to determine the extent to which service evaluation techniques are established and used, to obtain an overview of current coordination of transit services, and to determine transit problems, needs, and short-term plans for service improvement.

DESCRIPTION OF MAJOR SYSTEMS

There are five regional (multicounty) transportation authorities in New York State that serve the largest urban areas--New York City, Buffalo, Rochester, Albany (capital district), and Syracuse. All operate local bus services and several also operate their region's rapid rail, commuter rail, airport, and port facilities. These authorities receive federal and state operating and capital assistance directly and also receive local subsidies from counties within their jurisdiction.

The department of transportation is involved in transit planning in these areas through a number of mechanisms, including the following:

1. Metropolitan planning organization activities such as planning work programs and development of transportation improvement programs;

2. State operating and capital assistance program administration, evaluation, and development of assistance recommendations to the state legislature; and

3. Federal operating and capital grant review and approval.

A sixth transit authority in the Utica urban area is considered a regional authority for this analysis because its organization and relationship with NYS DOT more closely resemble that of a regional transportation authority than of a county sponsor.

Transit service in nonauthority areas of New York State is provided through local service contracts with public or private transit operators. These operators are eligible to receive state operating assistance if sponsored by a county or municipality in which service is provided (6). Only that portion of transit service provided within the sponsoring county or municipality is eligible for state assistance, and the local government is required to match a portion of state funds. The nature of this relationship resulted in the development of a slightly different set of questions for the county sponsors because they are not directly responsible for transit operation in their area in the same sense as is a regional transportation authority. The questions probed the extent to which the counties are in control, or aware, of various aspects of the transit services provided in their county and receiving state (and local) funds through county sponsorship. All but one of the counties that qualified as a major system is in the metropolitan New York City area; that county is Broome, which sponsors the Binghamton area transit operator.

County-sponsored transit services are basically of two types. Two counties, Nassau and Broome, actually own the large portion of the transit operations in the county (essentially one local, fixed-route service), and the remaining counties contract with a number of private operators for transit services. The services provided include local, fixed-route, commuter, intercity, and demand-responsive services.

COMPARISON OF AUTHORITY AND COUNTY SPONSOR SERVICE PLANS

The service plan submissions for the first year provide considerable insight into several aspects of each authority's and county's transit operation, such as use of performance evaluation techniques and service coordination. The results obtained from the questionnaires reveal a number of interesting differences between public authorities and county sponsors of transit service. The following sections briefly summarize the authority and county responses to each group of questions. Note that only 16 of the 17 major systems are compared because the combined service plan for the Metropolitan Transit Authority (MTA) (New York City metropolitan area) covered commuter rail and subway-bus service rather than treating each service individually.

Goals and Objectives

Both the public authorities and county sponsors have similar goals and objectives for providing transit service. The level of detail of the service objectives developed differs between the two groups and also among operators in each group. Responses to the questionnaire are as follows:

Question	Regional Transportation Authorities (N = 6)		County Sponsors (N = 10)	
	Yes	No	Yes	No
Has service objectives	5	1	10	
Satisfied with achievement	4	2	5	1

The response of county sponsors to the question about the existence of service objectives illustrates that service objectives often appear in service contracts with private operators. Note that four county sponsors did not answer whether they were satisfied with achievements. The lack of a response cannot be used to infer any other answer to the question asked.

Counties that have more active county transportation departments or recent county transportation plans have more refined and explicitly stated transit service goals and objectives that are similar to those of most authorities. The results in the table above show that both groups reported general satisfaction with the achievement of objectives to date. Those that were not satisfied stated the cause and potential solution of why achievement was unsatisfactory.

System and Route Performance Evaluation

Questions on transit performance evaluation were of particular interest because of recent NYSDOT work in this area. This is one area of considerable difference between authority and county responses, as is evident from Table 1. Whereas most authorities and counties evaluate their entire system performance, fewer counties did route evaluation or used performance measures (indicators).

Most regional authorities monitor system performance at least annually. The monitoring consists of collection and analysis of both overall operating and financial statistics and efficiency and effectiveness measures. Performance evaluation seemed a particularly relevant topic; all authorities studied either local transit service standards or data-collection improvements. One authority is currently developing route performance evaluation techniques and is planning on developing computer programs for use in monitoring performance.

Table 1. Comparison of performance evaluation questions for regional transportation authority versus county-sponsored service plans.

Question	Regional Transportation Authority Evaluations (N = 6)			County Sponsors Evaluations (N = 10)		
	Detailed	Moderate	Little	Detailed	Moderate	Little
Is system performance evaluated?	4	1	1	5	1	4
Is route performance evaluated?	3		3 ^a	3	2	5
Are performance indicators used?	4		2 ^a	2	4	4

^aOne operator is currently developing an extensive management information system and route monitoring program.

Table 2. Comparison of service coordination questions for regional transportation authority versus county-sponsored service plans.

Question	Regional Transportation Authority Service Coordination (N = 6)			County Sponsors Service Coordination (N = 10)		
	Most Are	Few Are	Did Not Address	Most Are	Few Are	Did Not Address
Are services coordinated with other local services?	5	1		7	3	
Are services coordinated with elderly and handicapped services, not including social-service agencies?	2	4		1	3	6 ^a
Are services coordinated with intercity services?	3	1	2 ^a	3	4	3 ^a

^aDid not address this question when responding to questionnaire. This cannot be used to infer any other answer to the question asked.

Most counties do not currently have performance evaluation programs as sophisticated as those of most authorities. The extent of performance evaluation also differs greatly among counties. Those that own their transit services, such as the municipal systems in Broome and Nassau Counties, do system performance and route performance evaluation periodically. The counties that sponsor private operators do some data collection for system or route evaluation for occasional county transit plans or to comply with data-reporting requirements of NYSDOT or Section 15 of the Urban Mass Transportation Act of 1964, as amended. Westchester County, which has extensive private operator service and an active county transportation department, collects monthly route data from sponsored operators to thoroughly monitor system and route performance. Many counties were generally unaware of the extent to which each sponsored operator evaluates its own system or routes other than evaluations to comply with state or federal regulations. The extent of individual operator performance evaluation will be explored further in next year's annual operator data-collection effort.

Service Coordination

Since the public authorities provide the vast majority of transit service in their respective areas, coordination or duplication with other local services is not a particular problem, as can be seen in Table 2. Five of the six authorities report that most local services in their area are fairly well coordinated. One notable exception to this is the MTA's bus and subway systems, whose services parallel one another in many areas. Although both the bus and subway routes serve identical areas in some instances, their operations appear to serve different travel markets. Subway riders usually are longer-distance travelers; bus riders characteristically make more and shorter trips. In essence, then, the bus and subway systems are providing different services to the public and do not, therefore, overlap as greatly as they first appear to.

Most counties that sponsor a number of private transit operators, or one large public operator, do not encounter service duplication or overlap difficulties. However, some of the service schedules are not coordinated between sponsored operators. Ser-

vice coordination in these counties has come about through past private operator arrangements and county involvement through subsidization.

Both the counties and the authorities report varying success in coordinating specialized transit services in their area or in coordinating these services with the regular fixed-route service. The two groups of systems appear to have reasonable success in coordinating local transit service with intercity and commuter transportation services. Services between counties are generally well coordinated because many of the same intercity operators provide these services in each county. Most authorities and counties attempt to coordinate their services with other modes (intercity rail and air service) where these other modes exist and where transit service to these terminals is not adequately supplied by private operators.

Service Problems and Needs

Answers to questions asked concerning service problems and needs also differ between regional authorities and county sponsors. As is shown in the table below, most authorities and counties agree that equipment age and replacement are problems as is the lack of funds and equipment for additional or new services.

Major Service Problems and Needs	Cited by Regional Transportation Authorities (N = 6)	Cited by County Sponsors (N = 10)
Dedicated funding source	4	0
Equipment replacement	5	5
Trained staff	4	2
Peak overcrowding	3	2
New or additional service	4	6

Nearly every service plan cites the need for overall increases in the levels of federal, state, and local assistance to keep pace with rapidly rising costs. However, only the authority group consistently called for the development of a permanent, predictable, and increasing source of transit funding; often the authorities listed this as the single most important need. Finding and keeping trained staff and relieving peak-period overcrowding were also important needs cited by authorities but rarely mentioned by county sponsors.

CONCLUSIONS AND RECOMMENDATIONS

The service plan submissions for the first year, though they differ greatly in the level of detail, have provided NYSDOT with considerable information on the major systems that provide transit service in the state. The plans reveal the different role public authorities and county sponsors play in providing transit service and the different level of de-

tail used in monitoring the performance of that service. The responses provide a basis on which to begin to relate transit system performance to local service objectives and operating conditions. These local factors are not discernible in routine operating and financial data collection.

The results of these first plans reveal that there appears to be adequate planning of major transit services. Performance evaluation is done reasonably by most systems, though most counties do not currently have evaluation programs as sophisticated as those of the public authorities. Service coordination was one area that was found lacking in both groups. The authorities and counties differed most in the detail of performance evaluation and in service problems and needs.

Through the service plans, the extent of transit performance evaluation and service coordination was determined and specific area shortcomings were recognized. Localities (sponsors) deficient in evaluating their transit systems' performance will be encouraged (and assisted when necessary) to improve performance monitoring techniques. Experiences of one transit system that may benefit other similar systems will be studied and brought to the attention of other local transit agencies. By improving local performance evaluation efforts, potential service problems can be identified more quickly and corrective or preventative action taken. We hope that these efforts will improve the quality of local transit service and ensure the greatest possible transit service payoff per subsidy dollar.

The service plans will be modified in future years to better meet NYSDOT needs for collecting transit system information and to improve the current performance evaluation program.

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