

**TRANSIT COOPERATIVE RESEARCH PROGRAM**

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**The Federal Transit Administration**

**TCRP Synthesis 6**

**The Role of Performance-Based Measures  
in Allotting Funding For  
Transit Operations**

**A Synthesis of Transit Practice**

**Transportation Research Board  
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# Synthesis of Transit Practice 6

## The Role of Performance-Based Measures in Allocating Funding for Transit Operations

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## TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213--Research for Public Transit New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration--now the Federal Transit Administration (FTA). A report by the American Public Transit Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, the National Academy of Sciences, acting through the Transportation Research Board (TRB), and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end-users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. TCRP results support and complement other ongoing transit research and training programs.

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the Transit Development Corporation, the National Research Council, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

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## **PREFACE**

A vast storehouse of information exists on many subjects of concern to the transit industry. This information has resulted from research and from the successful application of solutions to problems by individuals or organizations. There is a continuing need to provide a systematic means for compiling this information and making it available to the entire transit community in a usable format. The Transit Cooperative Research Program includes a synthesis series designed to search for and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in subject areas of concern to the transit industry.

This synthesis series reports on various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on measures found to be successful in resolving specific problems. The extent to which these reports are useful will be tempered by the user's knowledge and experience in the particular problem area.

## **FOREWORD**

*By Staff  
Transportation  
Research Board*

This synthesis will be of interest to transit agency general managers, financial officers, policy and planning personnel, and others concerned with the economic and budget aspects of providing transit service, as well as funding officials and policymakers in organizations such as departments of transportation (DOTs) and metropolitan planning organizations (MPOs). This synthesis explores current practice and trends regarding the linkages between financial assistance, service provision, and performance measurement. It provides an overview of selected transit agency funding programs, as well as some current information from state DOTs.

Administrators, practitioners, and researchers are continually faced with problems on which there is much information, either in the form of reports or in terms of undocumented experience and practice. Unfortunately, this information often is scattered and or not readily available in the literature, and, as a consequence, in seeking solutions, full information on what has been learned about a problem frequently is not assembled. Costly research findings may go unused, valuable experience may be overlooked, and full consideration may not be given to the available methods of solving or alleviating the problem. In an effort to correct this situation, the Transit Cooperative Research Program (TCRP) Synthesis Project, carried out by the Transportation Research Board as the research agency, has the objective of reporting on common transit problems and synthesizing available information. The synthesis reports from this endeavor constitute a TCRP publication series in which various forms of relevant information are assembled into single, concise documents pertaining to a specific problem or closely related problems.

This report of the Transportation Research Board examines the role of performance measurement in financing transit service. Specifically, the role of state government in assisting local transit service is discussed, as well as the challenges in the use of performance measurement. Survey results from both funding agencies and funding recipients are presented along with selected case study examples of methods used to apportion transit operating funds.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, available information was assembled from numerous sources, including selected public transportation agencies. A topic panel of experts in the subject area was established to guide the researchers in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now on hand.

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The Principal Investigators responsible for the conduct of the synthesis were Sally D. Liff, Manager, Synthesis Studies, and Donna L. Vlasak, Senior Program Officer. This synthesis was edited by Kathryn Harrington-Hughes.

Gwen Chisholm Smith, Senior Program Officer, Transit Cooperative Research Program, Transportation Research Board, provided valuable assistance to the Topic Panel and the synthesis staff.

Information on current practice was provided by many transit agencies. Their cooperation and assistance were most helpful.



# THE ROLE OF PERFORMANCE-BASED MEASURES IN ALLOCATING FUNDING FOR TRANSIT OPERATIONS

## SUMMARY

This synthesis explores if and how performance assessment is being used as a way to distribute financial assistance to local transit systems by state and regional bodies. It explores current practices, as well as the issues and concerns of those on either end of the funding pipeline. The synthesis is largely based on a survey of selected state departments of transportation, regional financing bodies, and local transit authorities. A literature search was also conducted, as well as detailed follow-up discussions with a number of those responding to the survey.

For the purposes of this synthesis, the many definitions of performance measurement that are commonly used have been condensed as follows:

**Performance measurement is the assessment of an organization's output as a product of the management of its internal resources (dollars, people, vehicles, facilities) and the environment in which it operates.**

In simple terms, performance-based funding links financial assistance to improved performance. Performance can be defined in terms of the key programmatic goals the funding agency seeks to accomplish--what policymakers think is important. Sometimes this entails the traditional measures of efficiency and effectiveness. Less frequently, it can mean something more specific to the funding agency's view of the world--the degree of local financial contribution, for example. Performance-based allocation generally assumes the establishment of goals, standards, criteria, and/or guidelines against which local transit results can be assessed, as well as a reliable data reporting system to support the program. Typical groupings of performance measures include cost efficiency, cost effectiveness, service utilization and/or effectiveness, vehicle utilization and/or efficiency, service quality, labor productivity, and service accessibility.

Views of performance-based allocation, specific measures to be applied, and how results are calculated vary tremendously. At the same time, the role of the funding body--state or regional--also varies considerably, from a direct, ownership position to arms-length grant programs. State interests in ensuring transit service also vary, but often relate to providing citizens with mobility, facilitating economic development, and achieving environmental goals.

Two questionnaires were used: one for funding agencies and one for funding recipients. The survey results show how performance measures are related to financing transit.

For the most part, state funding organizations have established measures to use in assessing or monitoring local transit systems. The criteria usually relate to ridership and cost efficiency, while quality-of-life factors are rarely referenced. Few organizations provide financial assistance based exclusively on performance factors. When performance is used, it is often combined with nonperformance components. According to the survey results, funding agencies most commonly rely on formulas made up of factors that do not consider performance. Others rely on formulas made up of factors that combine performance related (e.g., passengers per total vehicle miles) and nonperformance related elements (e.g., population). Next most common are programs of discretionary grants with some sort of upper limit. Almost all funding agencies typically maintain performance data on transit systems and use the information for program management and planning purposes exclusively or in connection with grant activities, as indicated above. There is widespread feeling that allocations based strictly on performance measures result in inherent inequities.

Although half of the *funding entity* respondents believe performance allocation can result in performance improvements, *few funding recipients* agree. The state departments of transportation that currently do not use performance factors in making local grants and that do not intend to do so anytime soon cited the lack of political support, low funding levels, and satisfaction with existing methods as their reasons. The factors most commonly used in performance-based allocation systems were ridership per population and ridership per expense.

Case studies were conducted for the funding allocation systems used by three states. The three states--Pennsylvania, Indiana, and Texas--were selected primarily because of the diversity of their approaches.

In the past, Pennsylvania used a system of allocation with a strong performance component. Performance improvements resulted in a bonus that increased the state share of subsidy. This system has been replaced by one that relies to a much more modest degree on performance factors. Pennsylvania Department of Transportation staff have expressed concern that performance related systems can neglect the real issues of need and of differences in local funding capacities. They view performance rather than base subsidy as a more appropriate means of distributing *incentive* funding.

Indiana supports local transit systems with a guaranteed minimum level of aid. Additional funding is awarded according to a formula that places a great deal of weight on local financial assistance.

The Texas Department of Transportation (TxDOT) recently departed from a formula allocation that relied on demographic and performance factors. The new funding mechanism is based on a percentage of available state funding. Performance information is tracked, but it is generally reviewed separately as a program management function.

Key conclusions of this synthesis are as follows:

- There continues to be a great diversity of opinion and approaches to the use of performance-based funding systems for public transportation by states and regional funding entities.
- There is a lack of clear-cut goals established for transit in many states.
- Some funding organizations find themselves struggling with conflicts between their concerns for quality and quantity of transit service provided and the need to respond to legislative and taxpayer demands to constrain expenditures.
- There is widespread agreement among state departments of transportation and regional funding bodies like metropolitan planning organizations (MPOs) that local transit system performance should be tracked. Fewer agree that the results should guide financial subsidy decisions, and even fewer are doing it. Some of the related findings, candidly expressed by professionals in funding and recipient agencies, include the following:
  - It is difficult to reach consensus on what constitutes good performance, especially in light of the broad-based goals for transit funding assistance.
  - It is difficult to determine whether performance-based financial assistance should go to the good performers or the poor performers who may have greater financial needs.

- Funding agency decisionmakers remain skeptical of the reliability of data provided by many local authorities; there is concern that information can be skewed deliberately or inadvertently to meet benchmarks.
- There is doubt as to whether performance measurement systems can truly be sensitive to the differences among transit systems; at the same time, external factors beyond the control of transit managers can also unbalance the playing field.
- The influence of politics at state and local levels remains formidable, sometimes driving funding or operational decisions regardless of performance results.
- Funding agency staff are reluctant to apply the financial penalties to local transit systems that might be dictated by performance-based decisions.
- Performance-based funding may not respond appropriately to the competing pressures on public transit systems to take a hard-nosed business approach to service while also fulfilling their social mission.
- When performance components are used in subsidy allocation formulas, they tend to be combined with nonperformance factors or factors not traditionally viewed as performance characteristics, such as local financial contribution levels.
- Two movements seem to be occurring among state departments of transportation that include performance measures in their allocation formulas:
  - Performance measurement is being used to provide an incentive level of funding rather than as a determinant of base allocations.
  - Performance-based measures are being eliminated from their allocation systems entirely.
- Some state departments of transportation and MPOs have considered performance measurement and performance-based allocation of financial aid. But they recognize that developing appropriate measures and allocation mechanisms that are responsive is no small task. At a minimum, it requires the active participation of transit systems and local and state legislative bodies.

Further research on the methods used to allocate transit operating funds, particularly performance-based systems, is recommended. The research should explore the applicability and appropriateness of different types of performance measures to different types of transit systems; and it should examine successful and less successful efforts by transit agencies to control or reduce operating expenses, while maintaining a locally appropriate level of transit service.

## CHAPTER ONE

## INTRODUCTION

The measurement of performance has always been an important concern in the transit community. While abundant research is devoted to ways to measure performance, a whole different set of issues arise with respect to the use of performance data. How to use performance information in a way that compares transit systems but that still recognizes the vast differences among them in geography, vehicle fleet, modes of service, population, land use and density characteristics, and even meteorological conditions remains open to question. These issues are of particular concern as states and other public funding entities search for ways to provide equitable financial assistance to local transit operations.

As urban transit moved from being a creature of private enterprise to one of public service, the influx of public dollars imposed new pressures to demonstrate that taxpayers were indeed getting a return for their dollars. As the gap between fares collected from customers and total annual expenditures grew over the past two decades, transit systems increasingly have had to demonstrate fiscal responsibility and accountability.

Although the level of federal transit investment for capital purposes has generally risen, federal involvement in operating costs has remained relatively constant in absolute dollars, and inflation has reduced the actual buying power. Further, with limited degrees of success, presidential administrations since 1980, including the present one, have recommended the elimination or reduction of U.S. Department of Transportation operating aid programs for public transportation. State governments, regional entities, and local governments have stepped in to cover the decline (See Figure 1.) In particular, this represents the importance of operating assistance, especially to small- and mid-sized communities

As the level of nonfederal contributions to transit rises, state, regional, and local agencies are challenged to justify the benefits of these expenditures. They must answer questions about what these dollars are buying and about whether they are buying what the government set out to achieve with its transit programs in the first place. Without dedicated funding, funds for state and local subsidies must increasingly compete with other demands on government for social service, education, other public works, and economic development investment.

In the course of these funding debates, the use of performance-based allocation methods as one means to justify transit financial assistance is frequently noted. More specifically, the question is raised as to how these data can be used to determine how much each recipient should actually get. Transit performance measures may offer the opportunity to manage and monitor more effectively, as well as to provide necessary information for public accountability.

The literature includes many definitions for performance and for performance measurement. For the purposes of this report, those definitions have been amalgamated into the following:

**Performance measurement is the assessment of an organization's output as a product of the management**

**of its internal resources (dollars, people, vehicles, facilities) and the environment in which it operates.**

The arguments over transit performance measurements in general and the role performance measures should play in the allocation of transit operating funds in particular are complex, with strongly held views on all sides. The debate has emerged in professional conferences and journals, within Congress and state legislatures, and across the boardrooms of transit agencies and metropolitan planning organizations (MPOs). It has evoked dissenting views from management and labor; local, state, and federal officials; and academicians and practitioners. But even within these individual groups, there has been no uniform agreement about the appropriate form and role of performance measures.

There are a number of dimensions to the debate. Issues center on the ability of agencies to do the following:

- Provide accurate definitions of good performance,
- Establish appropriate sets of measurements and standards that accurately depict performance levels,

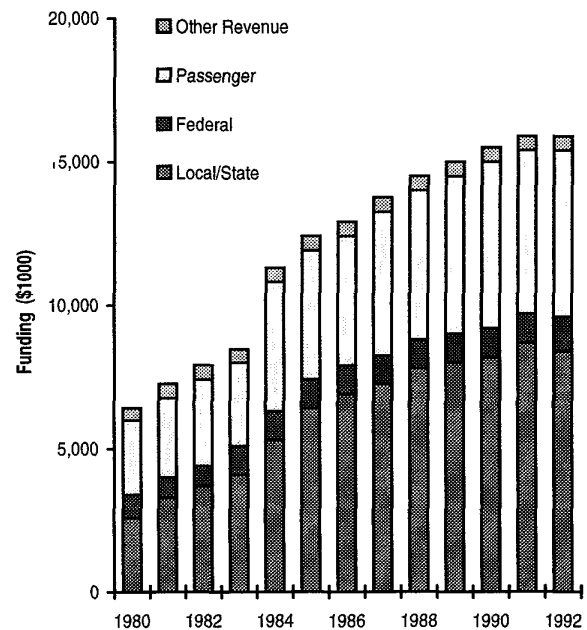


FIGURE 1 *Transit Funding Sources (Source. American Public Transit Association.)*

- Compare transit organizations with vastly differing characteristics,
- Secure reliable data.
- Live with the financial impacts that performance-based programs may yield, and
- Deal with the intrusion of political concerns into the process.

If there is a common theme, it is that any evaluation of a transit agency and its services should consider its individual operations and objectives as well as its external environment. At the same time, it is important to assess the overall performance of the organization by groups of indicators that together paint a more complete picture.

Most do agree that the demands on transit have changed over the past 20 years and continue to change, as have the constituencies. The people who care about transit include not only its customers, but also employers who need to comply with Clean Air Act restrictions, motorists who are no longer allowed to ride alone in their cars on all lanes of the expressway, and people with disabilities who may have never before entered a subway station. At the same time, transit is being promoted as a means for economic development from downtown areas, where it is being used to enhance circulation, to rural areas, where it is being used to move visitors to and through recreational and tourist attractions. These and other new constituencies are bringing new agendas and new yardsticks against which to measure transit performance--usually ambitious, sometimes unrealistic, and sometimes contradictory. Most agree, however, that transit can no longer measure its achievements with respect to how it operated and the goals set out for it a generation ago.

## SYNTHESIS FOCUS

This synthesis focuses primarily on the relationship between states and the public transit systems that they fund. An effort was also made to examine the relationship between regional bodies and local transit providers. This study is designed to provide information about performance-based funding allocation methods used by states. The practical application of these indicators in selected case studies is discussed, and the value and effectiveness of the programs is assessed, from the perspectives of funding agencies and fund recipients.

Information on performance measures and performance-based allocation methods was obtained through a variety of means. First, the existing literature was reviewed. The body of information reviewed reflected the perspectives of academicians; government funding agencies at the federal, state, and local levels; and transit agencies.

Second, a detailed questionnaire was sent to 56 organizations. The recipients included state departments of transportation of varying sizes, transit operators in urban and rural areas, and regional funding entities. Agencies with and without performance-

based funding systems were included in the survey population to learn about the distribution formulas they use and to ascertain why they do not use performance-based funding. Of the 56 surveys mailed, 25 were completed and returned. Telephone follow-up calls were then made to gather information. The results tend to represent the views and procedures of state departments of transportation and local transit systems more so than regional bodies like MPOs. Comments from many of the states and transit systems indicate that regional bodies play less of a role in the distribution of operating funds in most metropolitan areas. There are some notable exceptions to this, such as the San Francisco area.

It is also important to keep the overall survey response rate (45 percent) in mind. The results and conclusions presented in this synthesis are based solely on that response. This effort was never designed to be a statistically valid sample of transit funding organizations and transit operating organizations; rather, this synthesis is based on what these respondents believe and what they are doing.

Third, case studies were undertaken with states that use differing applications of performance-based funding arrangements. Case studies within each state included interviews with both the primary funding agency and one of its grant recipients so that differing perspectives on the same allocation method could be explored.

For the purpose of this synthesis, it is important to stress that the review was confined to performance-based approaches related to operating assistance programs. Although programs that fund both operating and capital needs of transit agencies were considered, plans that provided capital dollars only were not included in the survey results or in the analysis.

## SYNTHESIS ORGANIZATION

This synthesis is organized into six chapters.

1. This introduction composes the first chapter.
2. Chapter 2, "Challenges in the Use of Performance Measures," provides an overview of the purposes of performance measures.
3. Chapter 3, "The Role of State, Regional, and Local Governments in Assisting Local Transit Services," discusses the role of those entities in transit operations and the reasons for that involvement.
4. Chapter 4, "Survey Results," reviews the purpose of the survey, research methodology used, populations surveyed, and nature of the instrument. The chapter also includes an analysis and interpretation of results.
5. Chapter 5, "Case Studies," describes the funding allocation systems in the states of Texas and Indiana and the Commonwealth of Pennsylvania and provides the rationale for each.
6. Chapter 6, "Conclusions and Recommendations for Further Research," offers conclusions from the synthesis, as well as recommendations for further research related to performance-based funding.

## CHAPTER TWO

**CHALLENGES IN THE USE OF PERFORMANCE MEASURES**

The measurement of transit performance has been, and will continue to be, an important concern for funding bodies and transit agencies. As operating costs escalate at faster rates than operating revenue, and as federal operating assistance (in current dollars) declines, the financial burden placed on state, regional, and local government units is becoming heavy. The money state and local transportation agencies spend on transit must yield a return not only in the form of productive and effective services, but also in accomplishing the programmatic goals that drive governments into the transit subsidy business in the first place. Transit performance measures can offer an opportunity to establish this accountability.

Much of the available literature deals with the establishment of appropriate performance measures and what they can be expected to do. In fact, the literature is rich with categorized lists of various performance measures, as well as careful distinctions between efficiency and effectiveness assessments. Because there is such a wealth of material available through other sources, this synthesis generally has avoided this kind of exposition, except in the most cursory fashion. Instead, this report focuses on the use of performance information in practical day-to-day transit support decisions. There is less discussion of that in the literature. As an example, many of the common measures cited by theorists were not used by any of the survey respondents.

It should also be noted that this synthesis avoids any value judgments on "good" performance versus "bad" performance or the use of benchmarks that can be used as norms. This follows many of the comments received in connection with the surveys, which contend that "good" and "bad" or "effectiveness" and "efficiency" can only be defined for a particular transit system or group of transit systems, when local conditions and circumstances are taken into account.

**GENERAL DISCUSSION ON PERFORMANCE MEASUREMENT**

Simply put, the purpose of any performance-based allocation procedure is to give agencies of all sizes incentives to improve performance. Implicit in the concept of performance evaluation is the notion that performance must be tracked against some previously established standard, goal, or guideline, or some other measure of past performance. A system of reward needs to be designed to serve as an incentive to move performance toward whatever is considered a desirable result or set of achievements. This line of reasoning leads to what may be--at least in theory--the most basic reason for state, regional, or local agencies to employ performance-based funding.

There are many reasons for these agencies to assist local transit operations. It may be to offer mobility for those who do not have it or have it in a limited way. It may be part of a strategy to improve environmental quality. It may be a tool in the state's efforts to strengthen economic development. In any event, understanding why a state has enacted a transit subsidy program helps to target

funding through performance assessment of local agencies that are doing the most to achieve the state's transit investment goals.

Given this rationale and depending on the form of the transit operating guidelines and standards, the literature suggests that performance measurement and evaluation may be used for the following:

- As aids for assessing management performance expectations of the transit system in relation to community objectives;
- As mechanisms for assessing management performance and diagnosing problems, such as disproportionate cost in relation to service;
- As methods to allocate resources among competing transit properties, on the basis of relative cost effectiveness or other criteria; and
- As management and monitoring tools to facilitate continued and improved performance by management and personnel, perhaps accompanied by a program of technical assistance.

Performance indicators can serve in one or more of these roles. "The overall significant feature of indicators is the identification and illumination of management actions and results to provide both increased public involvement and understanding and improved efficiency and effectiveness through better management" (1)

Performance in general terms refers to any evaluation or comparison measure. Specific measures that define performance include effectiveness, efficiency, impact, productivity, and quality of service. Each of these measures has certain indicators that are used to signify transit performance for each particular measure.

A review of the literature on transit performance reveals that not all agencies use the same terms for performance measures. Some use the terms *efficiency* or *effectiveness*.

In *Managing Public Transit Strategically: A Comprehensive Approach to Strengthening Service and Monitoring Performance*, Gordon J. Fielding explores the concept of performance indicators to monitor performance.

Fielding asserts that "A small set of diagnostic indicators that track an agency's performance over time, as well as compare it with that of its peers, can be as useful for transit management as the Dunn and Bradstreet industry norms are for private firms." He adds that "These indicators may not capture every activity of an agency, but they do indicate progress in key areas" (2)

Public transit agencies used to gauge their success by the number of riders rather than by cost. Privately owned transit agencies also gauged success by ridership--but only because their fares reflected marginal costs. Input costs--labor, fuel, and equipment--were relatively stable, and costs were controlled by cutting service on routes where revenue fell below marginal costs. Marginal cost pricing was abandoned when government subsidies became available. Many transit authorities lowered fares, expanded routes, and paid less attention to the cost of delivering

service. Meanwhile, the industry has continued to assess performance in terms of ridership

Clearly, traditional definitions of performance are changing as rapidly as the role of transit, as discussed earlier. A good example is Vice President Al Gore's initiatives to "reinvent government." A fundamental concept in his work is that government needs to be measured by different yardsticks. Responsiveness to customers remains a relatively new measure that holds enormous implications for changing the ways in which transit funding agencies and local authorities think about and measure what they do.

## EFFICIENCY AND EFFECTIVENESS MEASURES

Service input, output, and consumption figures measure three important dimensions of transit operations: efficiency, effectiveness, and overall performance.

According to Fielding, *efficiency* describes how well factors such as labor, equipment, facilities, and fuel are used to produce outputs as represented by vehicle hours or miles of service. *Effectiveness* measures transit's consumption of traffic congestion. *Overall performance* indicators integrate efficiency and effectiveness measures, as when costs of service inputs are related to consumption. Examples are cost per passenger and the ratio of revenue to the cost of producing service. Fielding's interpretation tends to represent the "orthodoxy" of thought regarding efficiency and effectiveness. This traditional view, however, is broadened by more contemporary views.

Transit management is responsible for achieving efficiency and is held accountable for it. Effectiveness, as Fielding points out, is more difficult to evaluate. In fact, many transportation professionals are quick to point out that it is the external factors, or those beyond the manager's control, that make up the largest determinant of the public transportation performance profile. For example, inflation, unemployment, development patterns, and politically based decisions on issues such as route alignment, fares, services, and hours, all weigh heavily on transit utilization and transit costs.

Therefore, states choosing to use performance-based measurements in their funding allocation formulas must make certain they properly distinguish *efficiency* from *effectiveness* and likewise do not penalize transit systems for not achieving performance goals that are outside the traditional circle of management influence.

## APPLYING PERFORMANCE MEASURES

Transit performance measures are applicable to both internal and external purposes.

Internally, transit performance measures can be used to ascertain progress toward transit service goals and objectives, to assist in evaluating the transit system's overall performance, and to provide a management control system for monitoring and improving transit services.

Externally, transit performance measures can facilitate the accountability sought by government funding agencies and demanded by legislators, regional and transit authority boards, and the general public. External performance factors enable public officials to compare the goals government has established for meeting community transportation needs with the actual results of efforts directed toward meeting those goals. As such, these performance indicators normally reflect a systemwide level of performance.

Performance-based measurements should be appropriate to the situation they are assessing, and transit systems should be comparable so that valid comparisons between systems can be made. This point is addressed in an analysis of performance measures prepared by Dave N. Carter and Timothy J. Lomax in *Transportation Research Record 1338 (3)*. As an example, Carter and Lomax assert that significant service and demographic differences between rural and urban transit systems should be considered when developing appropriate planning and evaluation techniques. Some such differences are as follows:

- Rural transit providers operate over vast geographic expanses that tend to have low populations.
- Residents of rural areas generally have lower income levels than their urban counterparts.
- Rural transit providers often do not operate a fixed-route service. Operations are usually demand-responsive or subscription service.
- The objectives of rural systems are more concerned with providing transportation to transit-dependent groups (e.g., elderly, youth, low income, handicapped) than with reducing traffic congestion.

But even these factors are considered by some to be generalizations. The advent of new transit requests, such as high-capacity service demands for recreational areas (e.g., ski resorts in Vermont), blur the urban/rural line to some extent. The pace of development in suburban and rural areas has also modified these distinctions.

Carter and Lomax identify three elements--demographic factors, service descriptors, and performance indicators--as necessary to compare transit service fairly. Peer groups may be used for service comparison if transit agencies have significantly different operations or service area characteristics. Transit providers should be compared with similar agencies. Care should be taken when determining peer groups and what constitutes a "similar" agency. Simply categorizing agencies by operation or modal group (e.g., fixed-route, demand responsive) may not provide fair comparisons because demographic and service characteristics may vary within these groups. Service area size, population characteristics, climatic conditions, and service objectives may also need to be considered when evaluating or comparing agencies.

Demographic factors (e.g., service area size, population), which describe the inherent characteristics of a service area, can be used to establish peer groups for comparison. Service descriptors indicate the quantity of service provided, such as total vehicle miles of travel or passengers. They do not give an indication of efficiency, effectiveness, impact, or quality. Therefore, they should not be considered performance indicators. Although these descriptors may show the quantity of service provided, they do not indicate the quality of service provided. Performance indicators, in contrast, can measure the efficiency, effectiveness, impact, or quality of transit service.

Carter and Lomax formulated the following chart of performance measures and indicators to assist in selecting appropriate measures and indicators for assessing and comparing systems

<i>Performance Measure</i>	<i>Performance Indicators</i>
Cost Efficiency	Cost per mile Cost per hour Cost per vehicle Ridership per expense

*continued*

*(continued)*

<i>Performance Measure</i>	<i>Performance Indicators</i>
Cost Effectiveness	Cost per passenger trip Revenue per passenger trip Ridership per expense
Service Utilization/Effectiveness	Passenger trips per mile Passenger trips per hour Passenger trips per capita
Vehicle Utilization/Efficiency	Miles per vehicle
Quality of Service	Average speed Vehicle miles between road calls Vehicle miles between accidents
Labor Productivity	Passenger trips per employee Vehicle miles per employee
Coverage	Vehicle miles per capita Vehicle miles per service

A more contemporary view of performance measurement and funding is addressed by David Osborne and Ted Gaebler in their recent book, *Reinventing Government, How the Entrepreneurial Spirit is Transforming the Public Sector*. Osborne and Gaebler indicate that service agencies (e.g. transit agencies, hospitals) focus on inputs instead of outcomes "Traditional bureaucratic governments fund schools based on how many children enroll; welfare based on how many poor people are eligible; police departments based on manpower needed to fight crime." Governments, the authors assert, "pay little attention to outcomes--results." Entrepreneurial governments seek to change these rewards and incentive structures. Public entrepreneurs know that when institutions are funded according to inputs, they have little reason to strive for better performance. But when they are funded according to outcomes, they become obsessive over performance (4).

The authors assert that today's citizens "refuse to pay higher taxes for services whose prices skyrocket while their quality declines As a result, words like accountability, performance, and results have begun to ring through the halls of government (and public service agencies)."

With respect to efficiency and effectiveness, and how government (service industries) tends to deal with them, they note, "When we measure efficiency, we know how much it is costing us to achieve a specific output. When we measure effectiveness, we know whether our investment is worthwhile."

Osborne and Gaebler recognize that efficiency and effectiveness are important But when public organizations begin to measure their performance, they often measure only their efficiency The public, the authors assert, "certainly wants efficient government, but it wants effective government even more." For example, citizens may be pleased that they enjoy a low tax rate, but if that means they spend an hour getting to work on clogged highways, they may vote to invest in a more effective transportation system.

Applying Osborne and Gaebler's concept to public transportation illustrates one of the challenges associated with the use of appropriate performance measures because they may be relied on to accommodate the different institutional perspectives of transit. Specifically, funding agencies, concerned with the ever-increasing

levels of assistance requested of them, focus their attention on aggregate systemwide productivity. Transit passengers are concerned with fare levels and the quality of transit service, which often requires greater expenditures.

## RESPONDENTS' PERSPECTIVE

In carrying out the research plan for this synthesis, a process was established, which began with the literature search The previous section conveyed a modest sense of this The literature overview is followed by the questionnaire results--a series of formal answers describing how performance measures are or are not being put to use in the course of making decisions on the allocation of funds The process concludes with follow-up discussion--primarily telephone calls to respondents and case study preparations It was through these activities that the most pragmatic evaluation of performance data begins to emerge And, at the end of this process from the highly theoretical to the very candid, the view of most of the practitioners who participated in this synthesis in some way is that it is very difficult, if not impossible, to make performance-based allocation work in the real world of intergovernmental relationships.

The survey found that no funding organization was basing its subsidy allocation decisions completely on performance related information Some were using it in part, some were stretching traditional definitions of performance, and some were not using it at all or were even abandoning previous efforts.

When respondents were questioned further in telephone conversations, comments were generally consistent People agree that performance for allocation purposes is widely discussed, but that little real decision making is associated with it.

Performance is hard to measure because there is no clear agreement on what constitutes good performance. The survey found that few funding organizations had set specific goals for assisting transit beyond the almost universal goals of mobility, economic development, and a cleaner environment. It is difficult to establish benchmarks for broad objectives like these For example, what is the performance measure to accompany a general environmental goal.

Even if good performance is carefully defined and appropriate measures are crafted, some question where the funding should go--to the good performers as a reward, or to the poorer performers who still are meeting transportation needs Also, funding organizations and fund recipients have their own ideas about what should be built, where, and what service should be operated

Once performance definition and benchmarking occur, performance allocations require a strong system of information collection Candidly, many state department of transportation managers admit that the data they collect from funding recipients are simply unreliable--subject to efforts and inconsistencies, sometimes inadvertent and sometimes deliberate They believe the proverbial notion that one can prove anything with statistics--that data can be directed to portray a favorable picture of any aspect of performance that will be rewarded. The level of effort involved in validating reported information is sometimes beyond the funding agency's capabilities and resources

Even assuming the data are reported and collected in good faith, differences in definitions and characteristics of recipients complicate the problem A good example relates to passengers per mile--one fairly common measure of performance In a community with higher densities and corridor-oriented land use patterns,



the number is likely to be high. More people will ride shorter distances. In a suburban or semi-rural environment, however, fewer people will ride longer distances, resulting in fewer passengers per mile. How does the performance-measuring funding agency handle that? Certainly, different benchmarks can be established for different categories of communities. But cities have not developed to please our definitions, and where the definitional lines get drawn can result in arbitrary funding disparities.

Even when measures are carefully laid out and painstakingly defined, recipients may still use statistics to paint the desired picture, according to the survey respondents. This may be a cynical view, but it was expressed by many.

The subject of politics came up a great deal in the course of the informal discussions. No respondent expounded on it in their questionnaire response, but many insisted privately that despite all the good academic writing about performance-based allocations, senior executive staff and elected officials often have their own ideas about which entities should get the money. Communities with political clout tend to deliver that help. Even staff who feel empowered to make changes indicate they are reluctant to do so.

The case is especially evident for agencies not currently using a performance-based approach (which is most), but considering moving to one. Converting to a financial assistance system that relies on performance results means winners and losers. Naturally, some recipients will get more and some will get less in that conversion. Everyone loves a winner, but staff suggest that the political climate does not tolerate losers. Perhaps this explains why steps toward performance-based funding have often included hold-harmless and grand-fathering protection and why incentive payments are often used only after a base amount of funding has been paid out.

Some transit officials, in particular, concede that the specter of financing tied to performance criteria is simply a ploy to reduce public investment under the guise of efficient government. Just as some funding agency staff believe that recipients can skew data to provide a rosier picture of results, some recipients believe that those who make grants can skew performance assessments to reduce the flow of funds. This concern notwithstanding, not a single funding recipient agency that responded to the survey reported any loss of subsidy because of the application of performance-based evaluations.

Finally, there are those who express discomfort with the notion of performance-based funding because it is viewed as an inappropriate business approach. This argument validates some of the observations noted earlier by Osborne and Gaebler. Because public transportation is a public service and no longer a privately sponsored business venture, it must provide many functions that

are simply not productive. Door-to-door service for people with disabilities, service to a senior citizen complex that is far from any heavily traveled corridor, or owl bus service for a small number of riders who have no alternatives are likely to skew performance measures in a negative direction. But these may be trips that the operator is required to provide by public policy or legislation. As long as similar services are offered by all recipients, performance measures can still be evenly applied. If, however, one transit organization provides more of these services than its peers, then performance-based funding may not offer an equitable allocation mechanism.

## PERFORMANCE INFORMATION FOR MONITORING

Whether or not performance information is used to grant financial assistance, most state and regional funding bodies want and use the data, at a minimum, to monitor how transportation organizations are faring.

Many states, transit authorities, transit districts, and regional authorities publish an annual comparative review of performance indicators, effectiveness measures, and efficiency measures for the transit systems for which they are financially or programmatically responsible. These reports are generally similar in content and provide graphic statistical information on annual transit system performance. While some publications only report trends in selected measures, many of these annual publications contain comparative analyses illustrating the performance of comparable transit operations. *The 1992 Performance Evaluations of Florida Transit Systems*, prepared for the Office of Public Transportation Operations of the Florida Department of Transportation, is such a report.

The evaluation measures that are used through this performance-based report are divided into three major categories: performance indicators, effectiveness measures, and efficiency measures. Performance indicators report the data in the selected categories that are required by the Federal Transit Administration's Section 15 document. (To receive federal funds, transit properties are required to report a variety of data in a standardized format, resulting in the Section 15 report.) These tend to be key indicators of overall system performance. Effectiveness measures typically refine the data further and indicate the extent to which various service-related goals are being achieved.

Appendix A lists the indicators and measures that the Florida Department of Transportation annually assembles to assess the transit services it funds. This is a comprehensive listing of measures, indicative of the measures used to assess the performance of transit systems throughout the country. A definition of these measures can also be found in Appendix A.

## CHAPTER THREE

## THE ROLE OF STATE, REGIONAL, AND LOCAL GOVERNMENTS IN ASSISTING LOCAL TRANSIT SERVICES

State, regional, and local involvement in public transit is as varied as the types of transit systems that serve the nation's communities. Some states and metropolitan planning organizations (MPOs) have a long history of financial investment in public transportation, predating the earliest federal legislation in 1964. Other states and MPOs are more recent entries, and others have yet to support transit in any meaningful way.

In some states, transit is operated by state government, with primary funding and overall direction from the state government. Delaware, Connecticut, Maryland, and to a large extent New Jersey fall into this category. In other states, transit agencies are not directly a part of state government, but they were created by state legislative action. The Metropolitan Transportation Authority serving the New York area represents this type of organization. Some transit systems are regional authorities or departments of municipal government, but still benefit from state funding support.

State departments of transportation are by far the most prevalent agencies nationwide to allocate transit operating and capital funding to transit agencies. Although the survey sample did include MPOs, only one MPO--the Metropolitan Transportation Commission (MTC) in the San Francisco Bay area of California--indicated that it annually allocates funds to transit agencies. The predominant role of MPOs regarding federal operating and capital planning funds relates to the responsibility for assembling the annual Transportation Improvement Program (TIP)--a federal requirement for federal fund eligibility.

MTC, however, does allocate federal, state, and regional funding for transit operating and capital purposes, performing two functions in this regard. First, it determines fund eligibility for prospective recipients. Second, it allocates funds to urban, small urban, and rural transit systems in northern California.

MTC applies several factors to calculate allocation levels for these transit systems, including service area population, funding level required to sustain core transit service, and farebox recovery ratio--the only performance measure used.

In many places it is easy to see why the state is a leading sponsor of transit services. Before federal legislation was enacted, failing private transit systems could turn only to local or state government, and frequently it was the state government that had the resources to help. For many urban areas, where consolidated transit networks serve a region including the central city and surrounding suburban counties, the state was the public body that could operate across municipal borders. In rural areas, service usually operates outside any incorporated communities and across many counties. Using general funds, social service funds, and dedicated taxes, the state could effectively become the financial provider.

It is important not only to recognize the role of state government in regard to transit, but to also understand *why* states, local

jurisdictions, and MPOs support transit and continue to provide increasing financial assistance for transit systems.

### INTEREST IN SUPPORTING TRANSIT

States are a major source of funding for public transit, and their general support of transit is founded in mobility, economic development, and environmental benefits.

#### Mobility

With the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Clean Air Act Amendments of 1990, states are being required to establish a transportation system that is balanced, efficient, and intermodal. A balanced transportation system relies on transit, as well as highways, with the classic goal of moving people rather than vehicles. It improves mobility and makes travel more efficient in terms of travel time, use of resources, energy conservation, and benefits to the environment.

State and local jurisdictions traditionally have been concerned with the mobility needs of citizens. In urban areas, state and local jurisdictions have increased their transit contributions to ensure people without access to automobiles can get to jobs, schools, and other basic destinations. In rural areas, states have responded to transit needs that may be smaller but are often more critical, because no options exist for some citizens to get to jobs, schools, stores, medical care, and social services.

#### Economic Development

In addition to improving mobility, the transit infrastructure in urban and rural areas also stimulates economic development and improves the performance and value of the transit system. It enables people to efficiently commute to congested work areas, such as the central business district or emerging suburban edge cities. Consequently, the highway system functions more effectively. Transit also provides "reverse commute" opportunities: individuals living in central cities can seek employment in the burgeoning suburban employment centers. Transit stimulates and supports economic development in cities, as well as in suburban and rural areas.

Transit brings with it the potential for more concentrated and therefore more efficient development. In dense urbanized areas, rapid transit stations provide opportunities for concentrated office, retail, and service development. The construction of office and commercial facilities, for instance, adjacent to the Washington, D C, Metrorail stations illustrates the benefits to local and regional economy--more jobs, additional taxable income, and increased property tax revenue.

**Environmental Benefits**

In recent years, transit has been called on to contribute to improving air quality in many major urban centers. An effective

transit system can make contributions toward improving the environment and assisting in meeting federal environmental mandates, thus elevating itself in the hierarchy of funding decisions

## CHAPTER FOUR

**SURVEY RESULTS****METHODOLOGY**

Two survey instruments were developed for *this* study. One version was sent to funding agencies; the other was sent to fund recipients. (See Appendix C for copies of each version.) Although some of the questions were specifically tailored to funding agencies or fund recipients, they addressed similar aspects of performance-based allocations. This allowed for the comparison of perspectives and attitudes among the survey populations. Both surveys were designed to

- Obtain an overview of the performance-based funding systems that are practiced by various funding agencies,
- Obtain assessments of whether the use of performance-based allocations is meeting intended objectives,
- Highlight the advantages and disadvantages of performance-based allocation systems from the perspectives of funding agencies and fund recipients,
- Provide information about specific transit funding allocation approaches, and
- Elicit opinions on the use of performance-based measures as a fund-allocation method.

Questionnaires were sent to 56 organizations that included state departments of transportation of various sizes, transit operators, and other funding entities. Recipients were selected based on their documented experience or interest in performance-based funding, the literature search, and the personal knowledge of the advisory panel members. Agencies without performance-based funding systems were also included in the sample to learn more about the distribution formulas they use and to ascertain the reasons they have not chosen performance criteria as a factor in determining funding allocations.

Of the 56 surveys distributed, 12 of the funding agency surveys and 13 of the fund recipient surveys were returned

**Questionnaire Part One: Funding Programs**

Each survey was divided into two parts. Part One was designed to extract general information about the agency's funding programs. In the first section, respondents were asked if their agency has formal goals or priorities for its funding programs, the specific areas in which goals were established, and how these goals or priorities were established. Information was also requested to determine if funding recipients participated in setting these goals and priorities and if a relationship existed between the goals for their transit assistance programs and the performance measures used in allocating funds.

The second section focused on measuring the advantages or disadvantages of perceived benefits and/or drawbacks associated with performance-based allocation methods. This was designed to compare responses of funding agencies with responses of the fund recipients.

The third section asked if performance-based allocation systems are accomplishing the goals set out for their public transportation programs. It also asked if the local transit systems receiving funds are managing, performing, and showing results in ways that they would not had the allocation system not been performance based.

Section four inquired about the cost of administering performance-based allocation systems. Respondents were asked for advice to other organizations considering establishing a performance-based allocation system.

A special section of Part One pertained only to funding agencies that do *not* use performance-based allocation systems in funding transit systems. These respondents were asked if they had ever considered revising their existing allocation method to be performance based. Respondents answering no were then asked why they were not considering switching to a performance-based allocation system.

Those agencies that do use performance-based allocations, or that have considered doing so, were asked whether they were doing anything to analyze, change, or adjust their system.

**Questionnaire Part Two: Profile**

Part Two of the survey instrument requested funding agencies to profile specific elements of their individual performance-allocation system. They were asked if allocation adjustments were made to fit the special needs of certain recipients who would otherwise be financially penalized by having their allocation level determined through performance-based funding.

**FINDINGS****General Information**

Most respondents indicated that they have established goals and priorities for the programs they fund. In contrast, only one-half of all local recipients—those agencies directly responsible for transit operations—had formal goals or priorities pertaining to their transit services. Goals of funding agencies were established through legislation and by senior management staff. The departments of transportation in Pennsylvania, Vermont, and Texas indicated that their goals and objectives were developed in this manner. Goals and priorities of the operating agencies were developed through strategic planning processes, as part of budget development activities, and to a lesser extent through legislation. Approximately one-half of the funding agencies indicated that grant recipients assist in the development of goals and priorities.

Both funding agencies and funding recipients said that program goals were most likely to be established for the following performance measures (from most to least responses):

- Ridership
- Efficiency (cost per some unit of measure)
- Local support
- Service expansion

Responses from both funding agencies and funding recipients indicated that performance and program goals were not established for quality of life factors, such as congestion reduction, environmental impact, land use impact, and economic development. The New York State Department of Transportation, the Greater Cleveland Regional Transit Authority, and many other funding agencies and recipients indicated that measures related to transit performance, such as ridership, constituted the major category for which goals were established (see Table 1).

### Means of Distribution

Although funding agencies have undertaken formal actions to develop program goals and objectives, the predominant funding allocation method cited was based on nonperformance or non-goal related factors (see Table 2). Two methods in particular were frequently cited.

With the first method, funding agencies develop allocation levels through a formula that considers population and size of the service area. The method by which Los Angeles County, California, apportions funds to transit systems is an example of this first method. Within Los Angeles County, continued eligibility to receive operating funds is determined through the continual assessment of performance related measures. Funding, however, is allocated using a formula calculated on total vehicle service miles and patronage support, which is quantified as farebox revenues. Farebox revenues are divided by each operator's respective base fare to equalize the difference in fare structures among operators. This normalized figure is defined as "fare units." The percentage share of funding distributed to each eligible operator is ultimately based on a formula that is 50 percent vehicle service miles plus 50 percent fare units.

With the second method, funds are allocated according to financial need. A transit system applies for funds and justifies the level of funding requested. Funding limits are defined by the percentage of operating costs the funding agency is willing to incur.

TABLE 1  
PROGRAM AREA GOALS ESTABLISHED FOR  
RECENT FUNDING YEAR

Goal	Funding Agencies (no. of responses)	Funding recipients (no. of responses)
Ridership	6	6
Efficiency	4	3
Service Expansion	2	4
Congestion Reduction	0	1
Land Use Impact	0	2
Economic Development	0	2
Local Support	3	1

This operating cost-to-revenue ratio ranged from 35 percent to 50 percent, according to those funding agencies responding to the survey. This approach accomplishes the funding agency's budget objective of predicting maximum subsidies. Moreover, it requires transportation operators to perform efficiently, and also requires local jurisdictions to assume responsibility for all operating costs that exceed a combination of fare revenue and state and federal assistance.

The Pennsylvania Department of Transportation (PennDOT) is strongly in favor of a needs-based funding approach. PennDOT believes funding transportation needs is more important than performance measures in allocating funds. It believes performance-based funding is too rigid and does not adequately address transportation funding needs. To the extent performance is used in allocating funds, PennDOT advocates using a few simple aggregate factors, such as farebox recovery, cost per hour, and revenue per hour.

Performance measurements were maintained by many transit systems as a separate information bank, and they were not directly related to fund allocation. The oversight agency often uses performance measures as part of the program management and planning process to determine system performance trends, to determine if services or routes should be modified to improve performance, and to serve as a basis for the overall justification by state funding agencies and boards to continue funding transit. The Texas Department of Transportation recently eliminated performance measurement from its allocation formula, and it has positioned monitoring of performance as a major program management function.

Actually, states that use performance measures tend to rely on funding formulas containing a number of factors, only some of which are performance related. Respondents explained that allocations strictly based on performance measures yield inherent funding inequities for smaller, less comprehensive, and nontraditional (e.g., demand-responsive, paratransit) transit systems. Transit operations serving smaller areas frequently travel longer distances, through less densely populated areas, and transport fewer riders. In addition, some services transit systems provide are not productive from a revenue-generation standpoint, but they do provide a valuable public service to specific groups of commuters. Medical related and reverse-commute trips for employment are two such services. Transit systems would be penalized for providing lightly used but socially important service if allocation formulas exclusively comprised performance-based measures.

Being cognizant of this, many states, including New York and Michigan, and the Ministry of Transportation in Ontario, Canada, use a funding formula that combines a number of performance and

TABLE 2  
MEANS OF FUNDING DISTRIBUTION

Distribution Method	Funding Agencies (no. of responses)	Funding Recipients (no. of responses)
Political Earmarking	3	4
Discretionary (need based)	6	1
Nonperformance Formula	9	6
Performance Formula	3	5
Combination of Factors	4	2

nonperformance factors to reflect more balance in the allocation of funds. Factors used in these allocation formulas include population, service area size, density of service area, ridership, and operating-cost-to-revenue ratios. This mix of factors lessens inequities and insensitivities to differences in needs that many respondents conveyed as major drawbacks of performance-based funding methods.

### **Advantages and Disadvantages**

#### *Advantages*

This section of the questionnaire was intended to draw out perceptions about performance-based systems from all funding agencies, regardless of the allocation method used to fund their programs. Funding recipients were asked to respond to similar statements so that the views of the two groups could be compared. All respondents were asked to rate possible advantages and disadvantages in the following manner: "strong advantage," "moderate advantage," "small advantage," or "not an advantage at all."

Those responding to the questionnaire rated the ability of performance-based funding to "force or encourage local transit systems to accomplish the goals for funding public transportation" as a small advantage to no advantage.

"Performance-based allocation is not burdensome to administer from a paperwork or reporting standpoint" was the second statement to which those surveyed were asked to respond. Funding agencies rated this factor a moderate advantage, while funding recipients considered this factor either a small advantage or no advantage at all. Funding agencies rated the statement "It is inexpensive to administer" as a moderate advantage. Recipients perceived the statement "inexpensive for them to apply for or receive performance-based allocations" as no advantage at all.

There was an equal split between perceptions of funding agencies reacting to the assertion of "performance-based allocations being equitable to all recipients." About one-half, including New York, Vermont, and Ontario, considered it a strong advantage, while the other one-half, including Pennsylvania and Texas, perceived it as no advantage at all. There was a similar divergence in the views of funding agencies regarding the statement, "It eliminates or reduces the politics of allocation decisions." This split in perception is most likely related to the degree of political input and geographic interest present in each of the states or areas served by the respondents. Funding agencies considered this statement only a small advantage. Both funding agencies and recipients "considered performance-based allocation as a way to build credibility and constituency for transit by documenting actual accomplishment and performance" as only a small advantage. The Ministry of Transportation in Ontario and the Vermont Department of Transportation were two agencies that felt strongly that performance-based funding did build credibility.

Only funding agencies were asked to react to the statement, "The recipients are satisfied." Many of those surveyed differed greatly in their perceptions. Some agencies considered this statement a strong advantage, while others perceived it a small advantage. All those surveyed were asked to respond to the statement,

"Local recipients can predict how much money they will receive from one year to the next." Fund recipients saw this as a moderate advantage, and some funding agencies perceived this as a strong advantage, while the New York and Michigan departments of transportation considered it to be no advantage at all.

#### *Disadvantages*

Respondents were also asked to register their views as to whether a series of statements regarding performance-based allocation were considered to be a "strong disadvantage," "moderate disadvantage," "small disadvantage," or "not a disadvantage at all."

All respondents perceived the statement, "It is a burden to administer performance-based allocation with respect to cost, staff time, and other administrative support" as a small disadvantage or no disadvantage at all. Funding agencies perceived there to be a greater disadvantage associated with the propensity for "transit recipients to exaggerate aspects of their performance" than did recipients. This is not a surprising result and suggests one possible reason why more agencies do not use performance-based allocation methods. This occurrence is referred to as "creaming" by Osborne and Gaebler, authors of *Reinventing Government*. Creaming occurs when service providers deliberately deliver the numbers they're asked to deliver, even if they need to adjust budgets or modify program results.

The statement "It does not treat all recipients fairly," was considered to be a strong disadvantage or no disadvantage by funding agencies. Recipients considered this to be a small disadvantage only. The variance in the response by funding agencies might relate to the inequities associated with funding transit systems that provide varying types of services (e.g., fixed route, demand response, deviated-fixed route) in the same manner and use similar performance factors and goals.

All recipients were consistent in rating as a small disadvantage the statement, "Performance-based allocations are subject to frequent appeal." Both groups of respondents also had similar responses to the statement "It doesn't address program goals other than equity," considering it as a moderate disadvantage or no disadvantage at all.

Only funding agencies were asked to respond to two statements. To the first statement, "Local recipients cannot predict from year-to-year how much money they will receive," most of the agencies responded that it was a small disadvantage or no advantage at all. Respondents were split in their perceptions of the second statement, "Performance-based allocation is too mechanical and does not reflect real-world factors." The Pennsylvania and Texas departments of transportation, for example, stated that this was a strong disadvantage, and others, such as the New York and Michigan departments of transportation, indicated that it was only a small disadvantage.

Fund recipients were asked to react to one final statement, "Performance-based allocation stresses certain aspects of performance that they do not think are important or are not a priority for them." This was rated only as a small disadvantage or as not an advantage at all.

## RESULTS AND IMPACTS

A specific set of questions was asked of funding agencies using performance-based allocation systems and funding recipients who receive subsidies based on certain performance measures.

### Goal Attainment

Funding agencies believe that their performance-based allocation system is accomplishing the goals set out by their public transportation program. Likewise, the majority of recipients believed that the performance-based allocation system is consistent with the goals established by their funding agency. Among the funding recipients, the Ames Transit Agency in Iowa and the Winston-Salem Transit Authority in North Carolina disagreed by indicating that performance-based funding was not responsible for achieving goals established by their funding agency.

### Performance Incentives

Funding agencies were split on whether the performance allocation method was an incentive to perform better. Recipients generally did not believe that the agency was being managed, was performing, or was showing results in ways that would not be occurring if the funding allocation system were not performance based. Many of these agencies commented that "good performance and management are inherent in the management of transit operation, and they are not dependent on the funding allocation arrangement."

Agencies responsible for distributing financial assistance reported that the cost of administering performance-based allocation systems was negligible and was not perceived to be a staff or accounting burden.

### Reluctance to Shift to Performance Allocation Approach

About one-half of the funding agencies indicated that their organizations had considered revising their existing allocation system to a performance-based funding system. The lack of political support, low funding levels, and satisfaction with their existing allocation system were cited as reasons these agencies did not plan to switch to a performance-based funding system. A few transit systems indicated that elected officials and executive appointees want to retain their ability to earmark funds. Some felt performance allocations would yield less funding for transit systems and the overall state transit assistance program.

Respondents were asked to provide advice to transit systems considering establishing a performance-based allocation system. While minimal advice was offered, some frequently repeated comments were as follows:

- Performance measures must be consistently defined
- Paperwork and documentation should be reduced to a minimum.
- The elapsed time for application reviews and the obligation of funds should likewise be reduced to a minimum.
- Performance information on all systems should be shared with all systems to determine a performance ranking

### Performance Measures as a Funding Incentive

There must be an effort to share information on how recipient transit systems stack up against one another. This observation was made particularly by funding recipients.

PennDOT and the Michigan Department of Transportation indicated that performance is used as a funding incentive. A PennDOT case study presented later on in this report provides a detailed description of the agency's transit funding program.

The Michigan Department of Transportation was the only responding funding agency that indicated it provided two performance-based funding incentive programs, the Local Share Bonus Program and the Effective Service Bonus Program. The programs are funded at \$1 million each out of the Public Transportation Development account of the state's Comprehensive Transportation Fund. This is a companion program to the Federal Transit Administration urban Section 9 and nonurban Section 18 operating assistance programs. Annual reconciliation reports, based on the state fiscal year, are required, and each agency must have an annual audit performed by an independent audit firm or the Michigan Department of Treasury, based on the local fiscal year. Quarterly operating assistance reports are also required. Adjustments in funding may be made based on the required reports and audits.

## PERFORMANCE ALLOCATION SYSTEM PROFILES

The last part of the questionnaire asked respondents to note the performance variables used in their allocation systems.

Ridership per population or population density and ridership per expense were cited as the two most common performance measures used in state allocation formulas. Cost per revenue mile, subsidy per revenue mile, and subsidy per passenger were also cited, but not as frequently (see Table 3)

Similar to funding agencies, the majority of recipient agencies indicated that the performance-based allocation approach is used mainly for state or provincial general funds. Federal funds were also cited by a few of the respondents. Funding allocations were predominantly based on ridership per population or population density and cost per revenue mile.

## SUMMARY

The overall findings from respondents to questions pertaining to their allocation methodology indicate that, in general, states using performance measures tend to rely on funding formulas that contain several diverse factors--only some of which are performance related. Funding agencies, as well as fund recipients, responded that allocation approaches strictly based on performance measures yield inherent funding inequities especially for smaller,

TABLE 3  
PERFORMANCE MEASURES USED IN ALLOCATION SYSTEMS

Performance Measure	Funding Agencies (no. of responses)	Funding Recipients (no. of responses)
Cost per revenue mile	1	2
Cost per passenger	0	1
Ridership per population	2	3
Subsidy per revenue mile	1	0
Subsidy per passenger	1	0
Ridership per expense	2	1
None of the above	1	3

less comprehensive, and nontraditional (e.g., demand-responsive paratransit) transit systems. In general, transit systems serving smaller areas frequently travel longer distances, through less densely populated areas, and transport fewer riders

In addition, some of the services provided by transit systems are not productive from a revenue-generation standpoint, but they do provide a valuable public service to specific groups of commuters.

Medical related trips and reverse commute trips for employment are two such services. If performance-based allocation methods were imposed, many transit systems would be penalized for providing lightly used but socially important services if allocation formulas were exclusively composed of performance-based measures



## CHAPTER FIVE

## CASE STUDIES

Case studies for three state departments of transportation were developed as part of the synthesis. The three departments were selected because of the diversity in their approach, experience, and philosophies regarding performance-based funding. Each brings out a different set of issues. In addition, over the past few years, all three states have undergone modifications to their transit allocation formulas.

The Pennsylvania Department of Transportation (PennDOT) case study highlights the shift from an allocation formula that was performance-based to one that predominantly allocates funds on the basis of transit system need. PennDOT now uses performance measures as an incentive to provide supplemental funding to transit systems.

The Indiana Department of Transportation (INDOT) uses a multifactor allocation formula that is intended to foster improved transit performance and encourage high levels of local financial support. This case study illustrates how the weighting of allocation formula variables can influence transit system priorities and local government actions.

The Texas Department of Transportation's (TxDOT) transit program is the third case study. In this study, a major change in program philosophy and the programmatic role of performance measures are highlighted and explained. TxDOT has eliminated performance measurement from its allocation formula, and it has emphasized performance assessments as a major program management area.

#### PENNSYLVANIA DEPARTMENT OF TRANSPORTATION

**Number of Transit Systems Supported:**

38 urban and rural transit systems

**Primary Allocation Mechanism:**

Transit systems--formula based on historical funding (financial need) and selected performance factors

**Primary Distribution Factors:**

Transit systems FY 1990-91--A maintenance of effort provision and a transit system prorated share (percentage) of total vehicle hours and of total operating revenues

**Total Dollar Value of Operating Subsidy Program:**

Fiscal year 1994-95--\$245 million urban, \$2.3 million rural operating assistance

**For More Information:**

Pennsylvania Department of Transportation, Bureau of Public Transportation, 1215 Transportation & Safety Building, Harrisburg, PA 17120

The Commonwealth of Pennsylvania's transit program is managed by the Bureau of Public Transportation, an organizational unit of PennDOT. PennDOT's primary transit role is to administer this large funding program, as well as provide technical assistance to its recipients. Providing mobility is a fundamental goal of the

commonwealth's transit program. Alleviating traffic congestion and improving air quality are two other important program objectives.

#### PennDOT Recipients

The commonwealth provides financial assistance to 38 transit systems. There are 21 urban transit systems that provide fixed-route service. Of these, 4 systems also operate rural transit services. In addition, 17 rural transit systems provide a variety of fixed-route and demand-responsive services.

The number of urban transit systems has not substantially increased since the mid 1970s, when the public takeover of private bus companies was occurring. However, there has been substantial growth in the number of rural transit systems, which has nearly doubled over the past decade.

To control state outlays for new rural transit systems, the state legislature, as part of a 1991 law, established dedicated funding for transit and placed a limit on funding for new rural transit systems. For general fund assistance, the legislature grand-fathered all existing rural systems. All new rural transit systems are required to be supported from a limited state set-aside for new service and selected other activities.

#### Funding

Pennsylvania's public transit program is funded through a combination of federal, state, and local funds. Of the three sources, state funding is, by far, predominant. State funding is derived from three areas of the state's treasury: general funds, lottery funds, and dedicated transit funds. Pennsylvania provides the third highest level of state funds for transit nationally (behind California and New York), and it has retained this position for a number of years. This year, Pennsylvania will provide over \$650 million in capital and operating assistance for transit statewide.

The largest state funding source is general funds used to support operating assistance and state bonding for capital project assistance. To obtain state general operating funds, transit needs compete head-to-head with other general fund-supported programs, including schools and welfare assistance.

The next largest source of state transit funds is dedicated funding, which was authorized by the state legislature in August 1991. Up to one-half of this dedicated funding can be used for "asset maintenance," which essentially defrays maintenance related operating expenses. Remaining dedicated funds can be used for capital projects. State law permits recipients to use all of their allocation for capital purposes, but limits the use of dedicated funds for operating related expenses to a maximum of about 50 percent. This relatively new dedicated funding source currently generates over \$150 million annually.

A portion of Pennsylvania's state lottery fund is also available for transit. The uses of these funds are specified for two programs. Under the first, the Free Transit Program for Senior Citizens, transit systems are reimbursed for the revenue loss they incur in providing free rides to senior citizens during off-peak hours. Under the second, the Shared Ride Program for Senior Citizens, individuals who cannot use fixed-route transit service can receive shared-ride, curb-to-curb service. Passengers or their sponsors pay 15 percent of the fare, and the state pays 85 percent of the applicable shared-ride fare. The transit set-aside from these lottery programs has grown from under \$10 million in the early 1970s to over \$130 million a year.

Although Pennsylvania has established a substantial state funding base for transit assistance, providing adequate transit funding remains the major program challenge. Frequent reductions in federal transit program assistance, particularly in the area of operating assistance, paired with rising transit operating costs, make this the major ongoing challenge. This is exacerbated by the numerous unfunded federal mandates that draw on available budgetary resources. These mandates include the Americans with Disabilities Act, the Clean Air Act, alcohol and drug testing requirements, and numerous other federal programs.

#### **Former Funding Allocation Methodology**

Prior to the current system of allocation, the state used a performance-based methodology with a strong performance related element in which a bonus was provided that increased the state's funding share. Systems exceeding performance goals would receive a higher state share of funding. However, this had an unforeseen negative effect on the level of local funding, which actually led to the reduction of the total annual budget for some transit systems. Specifically, on receipt of this state increase, some local areas withdrew a portion of their local funding, resulting in less local financial participation than existed before. This posed an unanticipated issue that was addressed when the new allocation system was being defined.

#### **Current Funding Allocation Approach**

Pennsylvania's current funding allocation approach focuses on meeting the basic financial needs and maintenance effort of transit systems. Performance factors now play a relatively modest role in overall state transit funding allocation methodology.

#### *Urban Transit Systems*

*Operating Funds.* The Southeastern Pennsylvania Transit Authority (SEPTA) and Port Authority of Allegheny County (PAT) are the two largest transit systems in Pennsylvania. Operating funds for these two systems constitute about 95 percent of state transit funding, and their funding is allocated based on historical need. As specified in state law, SEPTA is required to achieve a 50 percent revenue-to-cost ratio, and PAT is required to recover 46 percent of its costs from fare revenue. Meeting these cost recovery goals is a prerequisite to SEPTA receiving its full share of 70 percent and PAT receiving its full share of 25.3 percent funding. For every percentage point these systems fall short of their cost

recovery ratio, they lose 1 percent of state funds. So far, both systems have always met their respective fare recovery-to-cost ratios. However, the degree to which this ratio has been exceeded diminishes each year.

Funding for the remaining 19 urban transit systems is calculated using an allocation formula applied toward the remaining 4.7 percent of the state appropriation. One-half of a system's allocation is based on its historical prorated share of prior year funding (financial need). One-quarter is allocated relative to the level of service (vehicle miles) a transit system provides compared to the group of 19 small urban systems (system share of vehicle miles). The remaining one-quarter is a calculation of the prorated share of passenger revenue. Urban transit agencies must receive at least as much state operating assistance as they received in FY 1990-91 (\$234.9 million) before the performance factors effectively become the allocation.

*Dedicated Capital Funding.* Dedicated capital and asset maintenance funding is allocated on a similar basis. In this case, SEPTA and PAT receive 95.7 percent of available state funding--70.3 percent for SEPTA and 25.4 percent for PAT. The other 19 small urban systems share the remaining 4.3 percent of the funds based on a similar formula. In this case, approximately 40 percent is based on historical need, and 60 percent is based on transit performance (a system's relative share of vehicle miles, vehicle hours, and revenue passengers).

#### *Rural Transit Systems*

*Operating Funds.* Operating funds for the rural transit systems are allocated on a similar basis. Approximately 50 percent of each year's annual allocation is based on a system's historical pro rata share of the annual nonurban statewide transit appropriation, 25 percent on each system's pro rata share of vehicle miles provided, and 25 percent on each system's pro rata share of revenue hours. Rural transit agencies must receive at least as much state operating assistance as they received in FY 1990-91 (\$2.3 million) before the performance factors become effective.

*Capital General-Funded Program.* Capital funding is allocated on a project basis through periodic state and capital budgets. Since the authorization of state dedicated funding, smaller systems have become less dependent on this state source of funding and most of this resource is utilized to support the state's two large urban transit systems--SEPTA and PAT.

#### **Funding Split**

Pennsylvania has a relatively high level of state participation in transit funding--both capital and operating--and a relatively low local funding share requirement, compared nationally. Most urban and rural transit systems in Pennsylvania annually receive more state funds than federal funding, and this is especially true of operating assistance, including lottery funds.

The capital funding split (bond-funded) for urban and rural systems, for an 80 percent federally funded project, is 16.66 state and 3.33 local funding. For nonfederal projects, the state share is limited to 50 percent of total costs unless the limit is waived by the legislature.

The local operating fund contribution for most urban systems and rural systems is one-third of the state grant. Essentially, for

every \$1.00 of local funds, the state contributes \$3.00. For state dedicated funding, the local share is 1/30 of total state/local funding (i.e., local governments must provide \$1.00 for every \$29.00 of state assistance).

Pennsylvania staff strongly support the current allocation process as an appropriate and equitable way to fund transit systems, which heavily weights system financial need, but also provides a performance-based incentive to most systems. The percentage of federal operating assistance varies greatly among these systems and can cover from 50 percent of a system's operating deficit to as little as 8 percent of their deficit (e.g., SEPTA and PAT).

### **Challenges to the Allocation Method**

PennDOT staff identified three shortcomings in their current fund allocation system.

#### *Inflexibility to Increase a System's Funding*

The state allocation to each of the 17 urban systems, the 17 rural transit systems, and 4 combined urban/rural systems, is relatively constant from year to year. When a system has a legitimate need to significantly increase service, the funding program is not very flexible in its ability to accommodate such an increase. Annual increases or decreases in service usually do not significantly affect the amount of a system's allocation.

#### *Lack of Cost Recovery Incentives*

There is an absence of a cost recovery incentive for the majority of transit systems to keep their revenue cost recovery at a minimum level. In the prior allocation system, which was more heavily weighted on performance, there was a funding incentive keeping fare increases commensurate with inflation to maintain a minimum cost recovery level. Currently, a transit system might have declining revenues, but this doesn't adversely affect the level of state allocation. Only SEPTA and PAT have a direct financial incentive to maintain their cost recovery as a result of state funding methods. Previously, all transit agencies were subject to a minimum cost recovery level.

Similarly, the allocation formula does not provide a strong incentive to transit systems to contain expenses. In the case of SEPTA and PAT, where there is a revenue recovery requirement, their choice not to increase fares requires them to reduce expenses. However, the other urban systems and the rural systems lack this expense containment.

#### *Lack of Incentives to Reduce Unproductive Service and to Curb Costs*

Both the urban and rural transit operating and dedicated fund allocation formulas include vehicle miles of service as a performance factor. Therefore, there is a funding disincentive to decrease miles of service, even if it is unproductive. In the PennDOT formula, there is an incentive to retain unproductive service. A system can increase its vehicle miles and see an increase in its allocation. A decrease in service miles has a negative effect on its share

of the allocation. This is an example of the need for proper balance among performance-based factors in any allocation formula.

### **Performance-Based Allocation Levels**

During the past few years, state transit appropriations have remained relatively constant. Therefore, the performance-based factors in the allocation formulas for smaller urban and rural systems have been relatively insignificant in the distribution of state funds among transit systems.

However, in fiscal year 1994, for the first time in 4 years, the state urban appropriation for transit grew by about \$5 million (from \$232.9 to \$237.5 million). This amount was sufficient to increase the state funding appropriation beyond the "maintenance of effort" level of \$234.9 million. Consequently, that portion of the allocation formula, which is performance-based, has yielded significant increases in allocations for selected transit systems that increased service in fiscal year 1994.

In future years, as the appropriation level continues to increase to levels beyond what was provided in FY 1990-91 to cover inflation and losses in federal aid, systems will benefit more from the performance elements in this allocation formula.

Overall, PennDOT staff are pleased with the recent effect performance-based factors have had on transit system allocations. Because of the unanticipated stagnation in the growth of the state mass transit appropriation, it took 4 years for the state's urban allocation methodology to yield the performance-based impacts originally anticipated. This trend is likely to continue into the future.

### **PennDOT's Rationale**

PennDOT staff believe financial need should be the dominant factor in funding transit systems. They believe other formulas tend to underrate need and overrate performance. Performance should be used mainly as an incentive, not as the major factor in whatever formula is used. This is necessary to preserve service in areas where productivity may not be high. In general, performance should not be used as a substitute for financial need-based funding but rather as a supplement.

PennDOT staff agree that it is appropriate for funding formulas to reduce relative funding for transit systems that experience lower productivity, but it is not good public policy to dramatically reduce or eliminate obsolete transit funding in these areas. Many citizens still have a need for mobility in these communities, regardless of the performance levels of the local transit system. Therefore, preserving this needed public transit service will require at least some public financial support.

### **INDIANA DEPARTMENT OF TRANSPORTATION**

#### **Number of Transit Systems Supported:**

32 urban and rural systems receive state and federal funds 6 systems receive only federal funds

#### **Primary Allocation Mechanism:**

Formula using performance measures and level of local funds contributed

#### **Primary Allocation Factors:**

Passenger trips, total vehicle miles, locally derived income

### **Total Dollar Value of Subsidy Program**

Fiscal Year 1994--\$17.7 million

#### **For More Information:**

Indiana Department of Transportation, Indiana Government Center North, 100 N. Senate, N901, Indianapolis, IN 46204

INDOT is responsible for administering the public transportation program for the state of Indiana. This encompasses managing the public mass transportation fund, administering the state funding allocation formula to transit systems, serving as the "Designated Recipient" for federal Section 18 and Section 16 funds, and granting federal and state funds to transit systems statewide.

In the mid 1980s, Indiana modified its public transportation funding methodology. Three major developments contributed to the change in allocation methodology. (1) the population-based funding formula resulted in inequities for many transit systems, (2) the rapid growth in the number of transit recipients receiving state funds placed a burden on the state, and (3) during the 1980s, the federal government proposed eliminating federal operating assistance. Consequently, INDOT, at the direction of the Indiana General Assembly, was asked to develop an allocation program that would provide an equitable distribution of funds and be capable of limiting the state's financial exposure in its support of transit.

### **Funding**

In 1980, the Indiana General Assembly created a dedicated state funding source to help support public transit. This funding source is known as the Public Mass Transit Fund (PMTF). Its revenue is derived from 0.76 percent of the state's general sales and use tax. Technically, PMTF is permitted to provide a match-up to the total sum of the Locally Derived Income (LDI, defined as local financial support) of an approved capital or operating grant. In fiscal year 1994, the level of PMTF budgeted by INDOT was \$17.7 million.

### **Number of Systems**

PMTF is available only to municipally operated transit systems that began receiving funds from PMTF before 1986. Thirty-two public transit systems receive assistance from PMTF. The six additional systems that began service after 1986 receive only federal assistance from INDOT. Their remaining funding comes from local sources.

### **Funding Allocation Approach**

Purdue University, under contract to INDOT, developed a new allocation approach that guarantees a minimum base level of state financial assistance. It provides additional state funding based on a formula that factors the amount of local funding provided for the transit operation and transit system performance.

This allocation approach is intended to do the following:

- Encourage improved operating performance and increase local financial support
- Provide at least a minimal level of state financial support
- Improve the effectiveness of the state's allocation process.

INDOT staff indicated that the allocation formula achieves these three objectives of providing a guaranteed base level of PMTF support. The formula also provides an accountable method of financial distribution that reflects INDOT's objective to encourage local financial support for its transit systems.

Although the allocation formula contains three performance-based parameters--system passengers, operating expense, operating subsidy--INDOT staff report it has a minimal effect in encouraging and rewarding improved operating performance. It also has a minimal effect on penalizing systems that perform poorly. The very high weighting the formula places on local financial contribution reduces the impact performance factors can have on the allocation. In fact, poor performance or a downward turn in performance will have little or no effect on a system's allocation if the local funding level is high. The allocation formula reflects quite clearly what Indiana considers to be important with respect to its transit investment activities.

### **Local Funding Contribution**

INDOT places a strong emphasis on local financial contributions toward transit system operating expenses. In the allocation formula, LDI contributions include transit fares collected; tax revenue that is used to support a transit system; non-transportation revenue, such as bus advertising revenue; and in some cases, in-kind services. The level of LDI varies according to locale. For instance, in Muncie, a special taxing district called the Public Transit Corporation (PTC) has been established. PTC allocates a percentage of Muncie property tax for local transit support. This tax generates about \$2 million in LDI annually. Terre Haute, on the other hand, has not established a PTC, and its LDI is significantly lower. Consequently, Muncie receives a higher level of annual PMTF than a municipality that does not, or cannot, provide high or increased levels of LDI, such as Terre Haute.

### **System Groupings**

To budget for transit systems of varying sizes, INDOT has grouped transit systems into four categories. These systems compete for PMTF funds with other transit systems within their "group." The size of the service area and the type of service provided define each of the four categories.

The groups are allotted a specific percentage of PMTF funds. These percentages reflect operating subsidy needs of each group (group operating deficit versus statewide deficit). Theoretically, the level of funding allotted for each group remains constant, and the transit systems compete for their share through the allocation formula. Consequently, transit systems with the highest LDI receive the highest amount of state funding. In actual practice, however, the budget level for each group is increased based on the funding needs of all transit systems within a particular grouping.

#### *Group 1 Large Fixed-Route--58 Percent*

These systems are located in areas over 200,000 in population and typically are also the recipients of federal Section 9 urban operating and capital funding. Examples of large fixed-route systems are Fort Wayne, Gary, and Indianapolis.

*Group 2. Medium Fixed-Route--24 Percent*

Medium systems are located in areas with populations between 53,000 and 200,000. In addition to receiving PMTF funds, they also receive Section 9 small urban operating and capital funding. Muncie, Bloomington, and Hammond are examples of medium fixed-route systems.

*Group 3. Small Fixed-Route--9 Percent*

Located in areas with populations under 50,000, these small fixed-route systems provide service in rural areas. They are eligible to receive federal Section 18 rural funding. Richmond and New Castle are examples of small fixed-route transit systems.

*Group 4: Demand-Response/Countywide Systems--9 Percent*

Demand-response systems are located in urban and rural areas and serve customers that need special transit accommodations. The transit service in Goshen is an example of a demand-responsive system

*Group 5: The Northern Indiana Commuter Transportation District*

A fifth grouping, with a special percentage PMTF allocation of 12.34 percent, was established for the Northern Indiana Commuter Transportation District (NICTD). This percentage is equal to NICTD's 1989 percentage distribution. The decision to fund NICTD separately grew from concern that it was not reasonable to require motor bus transit systems to compete with the service capacities of high-speed, high-demand commuter rail service. Any funds in excess of NICTD's 1989 base are distributed to the district only if it satisfies performance criteria agreed on by INDOT and NICTD.

The requirement that NICTD recover 50 percent of its operating expenses from farebox revenues is the key performance measure.

**Allocation Formula**

INDOT's allocation formula utilizes passenger trips, total vehicle miles, locally derived income, and operating subsidy as the basis for allocating PMTF funds.

Two steps are involved in the allocation process.

*Step One*

In step one, a portion of the PMTF allocation is distributed to each transit system to serve as a minimum operating base. The base is equal to the dollar amount each transit system received in 1989 based on service area population. For example, Richmond received \$123,597 in 1989, based on the percentage of the statewide population that lived in Richmond. This continues to be its base allocation.

*Step Two*

In step two, the remaining group subsidy is distributed using the following measures:

- LDI as a percentage of total operating expenses
- Passenger trips as a percentage of service area population
- Passenger trips per total vehicle mile (TVM)

These measures are then combined into three performance-based allocation formulas and are multiplied by the LDI level.

A. 
$$\frac{\text{Group Subsidy}}{3} * \frac{(\text{System LDI/Operating Expense} * \text{LDI})}{(\text{Group LDI/Operating Expense} * \text{LDI})}$$

LDI, when compared to a system's operating expense ratio, reflects the self-sufficiency of the transit system, as well as the extent of local commitment to provide transit service.

B. 
$$\frac{\text{Group Subsidy}}{3} * \frac{(\text{System Passengers/Service Area Pop.} * \text{LDI})}{(\text{Group Passengers/Service Area Pop.} * \text{LDI})}$$

Passengers per capita measures the degree to which residents in a particular area patronize transit service.

C. 
$$\frac{\text{Group Subsidy}}{3} * \frac{(\text{System Passenger/TVM} * \text{LDI})}{(\text{Group Passengers/TVM} * \text{LDI})}$$

Passengers per total vehicle mile measures service utilization the degree to which service is utilized when compared to the amount of service provided.

The total PMTF allocation to be received by a system is the sum of the amount derived in Step 1 and the amount derived by totaling Step 2 parts A, B, and C.

An increased allocation for a system in a particular group could result in decreased funding for the other systems in the same group. However, PMTF funds are usually increased to accommodate funding allocation increases without penalizing other systems.

**Challenges to the Allocation Method**

This formula is intended to compare one system with other similar systems to gauge relative differences in performance. In addition, this method is designed to encourage marginal systems to improve and to provide an incentive for superior systems to maintain their high performance. In actual practice, however, the high weighting of the LDI variable minimizes the effect system performance has on determining PMTF allocations. Consequently, municipalities and transit systems are cognizant of the effect LDI levels have on state allocations. Local governments, therefore, focus on increasing their LDI, sometimes in creative ways, and view transit system performance improvements as a secondary concern. This is a classic example of "creaming," which was defined in Chapter 4.

**TEXAS DEPARTMENT OF TRANSPORTATION**

**Number of Transit Systems Supported:**

34 small urban area transit systems  
41 rural transit systems

**Primary Allocation Mechanism:**  
System need and state affordability

**Primary Allocation Factors:**  
System need contingent on system achieving or making effort to achieve selected performance goals

**Total Dollar Value of Subsidy Program:**  
Fiscal year 1994-1995 biennium budget--\$72 million

**For More Information:**  
Texas Department of Transportation, 125 East 11th Street, Austin, TX 78701-2483

Public transportation is expanding in Texas with growth limited largely by the amount of available funding. Since 1989, TxDOT had used a performance-based method of fund allocation, but recently adopted a new allocation method that is not linked to transit system performance. This case study describes TxDOT's transit program and explains the context within which this change in allocation methodology was made.

### General Overview

The Public Transportation Division is the unit charged with overseeing the management of transit programs within TxDOT. This division establishes procedures and policies that are then carried out by district office staff. Each of the 24 TxDOT district offices has a public transportation coordinator who works with the local transit operators on day-to-day management issues.

### TxDOT's Financial Involvement with Transit Systems

TxDOT's level of involvement with different types of transit systems varies, particularly regarding funding.

TxDOT no longer has a direct financial relationship with the regional mass transit authorities. In 1991, the Texas Legislature rendered transit authorities, such as Houston Metro, ineligible to receive state funding on the premise that funds generated for transit from their local sales tax was more than adequate and that state aid was not necessary.

TxDOT established stronger ties with the Small Urban Section 9 transit systems (50,000 to 200,000 population) during the past year to address funding and help resolve constraints in that program. As the administrator of the federal Section 16 (aid to nonprofit organizations for transportation of people who are either elderly and/or disabled) and Section 18 programs (operating and capital assistance to rural public transit systems), TxDOT has traditionally had a strong working relationship with those systems and has provided these programs with a great deal of technical assistance and oversight. Given the relative maturity of rural public transit, TxDOT is now stepping back from a directive role and is working toward a collaborative partnership with Section 18 operators. This is the major development leading to the decision to change the allocation methodology.

TxDOT considers its relationship with transit systems to be a collaborative partnership in which the systems act as TxDOT's agents in serving the citizens of Texas. The close working relationship between the district coordinators and system managers provides an "early warning" system of potential problems. During

TABLE 4  
TxDOT'S FY 1994-95 TRANSIT BUDGET

Funding Source	Amount
State Transportation Funds	\$23,317,091
General Fund	\$6,000,000
Oil Overcharge	\$9,000,000
Federal (Sections 8, 16, 18, 26)	\$33,674,597
<b>Total Transit Funding</b>	<b>\$71,991,688</b>

the past year, TxDOT has, in fact, relinquished a number of controls that were perceived as micromanagement and contrary to the idea of local self-determination.

### Local Transit Support

On the local level, support for transit varies widely and is largely driven by local agendas. For example, environmental awareness is quite high in the Austin region, which has a vocal transit constituency. Similar support exists in four of the five air quality nonattainment areas. In the rest of the state, public transportation is considered to be important, but other local initiatives sometimes have greater budgetary priority.

### Number of Systems

There are 7 metropolitan transit authorities operating in the urbanized areas and 24 small urban area transit systems.

The most dramatic growth in the past 20 years has been in the rural sector with the first Section 18 (rural) system funded in 1980. Rapid expansion occurred in rural areas from 1985 through 1989 until most of Texas was served by a rural operator. There are now 41 nonurbanized public systems currently operating. Those systems are largely focusing on increasing the level of service within their existing territory.

### Funding

TxDOT's biennium fiscal year 1994-95 budget is approximately \$3 billion. Of this, the transit portion is approximately \$72 million. This funding is derived from four state and federal sources (see Table 4).

Combining local transit funds, funding provided by transit authorities, small urban transit system funding, and TxDOT's transit budget yields a biennium budget that exceeds \$3 billion. Figure 2 depicts the percentage of federal, state, and local funds that support each of the three transit program categories.

### Funding Allocation Approaches

#### *New Allocation Approach*

The allocation approaches for Section 18 rural systems recently underwent a major change. Allocations are no longer based on demographic and performance data. The new allocation method is

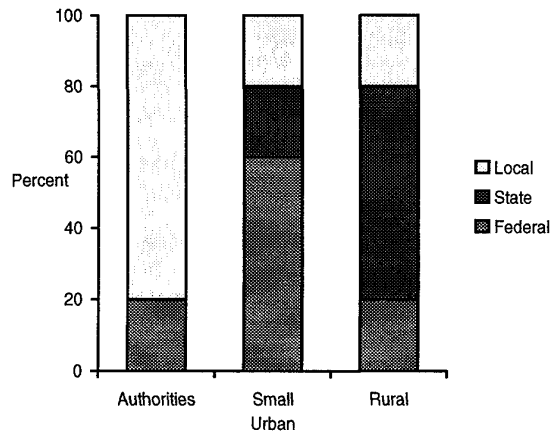


FIGURE 2 Texas Transit Funding Sources

based on financial need and basically provides rural systems with their current percentage of available TxDOT funds. The evaluation of transit system performance is now treated separately from the allocation of funding. System performance has become a major program management function monitored in part by the district offices.

According to TxDOT staff, the formerly used allocation process did not put the proper emphasis on improved performance for individual systems and did not promote a partnership between TxDOT and Section 18 operators.

#### Former Allocation Approach

The original allocation formula for rural transit systems contained measurements for five factors:

1. Nonurbanized population of the service area (pop.)
2. Square miles of service area (sq mi.)
3. Cost per mile of the transit system (cost per mi.)
4. One-way passenger trips per nonurbanized population of the service area (trips)
5. Revenues vs. expenses of the system (rev./exp.)

The five measures for each transit system were divided by the total of that measure for all rural systems combined. These were then totaled to obtain an aggregate factor and divided by 5 to obtain an average coefficient.

$$\left\{ \frac{\text{Pop}}{\text{Total Pop}} + \frac{\text{Sq Mi}}{\text{Total Sq Mi}} + \frac{\text{Cost per Mi}}{\text{Tot. Cost per Mi.}} + \frac{\text{Trips/Tot Trips}}{\text{Tot. Trips}} + \frac{\text{Rev./Exp.}}{\text{Tot. Rev./Exp.}} \right\} / 5 \times \text{Avail Funding} = \text{UNADJUSTED ALLOCATION}$$

Once allocations were calculated, funding was sometimes adjusted if a transit system's new annual allocation resulted in a percentage increase or decrease greater than the base or maximum funding percentages established annually by the Transportation Commission. This "cap" maintained a measure of funding continuity for transit systems and controlled state funding increases.

#### Performance Impact

TxDOT staff indicate that the effectiveness of this allocation method in improving transit service and transit performance cannot be measured accurately. The revenue recovery factor (revenue/cost) may have encouraged systems to raise their fares, but with respect to the other factors, it is doubtful that there was any direct impact.

Transit systems have made some operational modifications to improve overall (efficiency/effectiveness related) performance. For instance, a number of systems have altered their route structure to eliminate nonproductive runs or to capture new ridership. Several of the transit authorities are investing heavily in advanced technology to increase their operating efficiency and improve on-time performance. Rural operators have initiated fixed-route service when conditions warrant, replacing more expensive demand-response operations.

#### Challenges of the Former Allocation Method

Applying the annual cap/base diluted the effects of the formula factors, and policymakers were understandably reluctant to reduce funding to any system when overall program funding levels remained stable.

Although the cap/base diluted the impact, the "pure" formula would have penalized systems that provided more expensive or difficult trips, such as service to persons with special needs living in remote areas, away from other system users. The formula clearly favored fixed-route operations within small towns because of their higher revenue recovery, lower cost per mile, and higher trips per capita. This formula also did not address expanded levels of service within an established operating jurisdiction—for example, a system could not be given more money to provide more service to the same base population.

As part of this formula, each system was compared to all others on the five baseline factors. It became increasingly evident, according to TxDOT, that the systems were too diverse to be considered comparable. Similarly, the Section 18 systems did not lend themselves to peer group comparisons because of differences in geographic conditions, population density, service structures, and so forth.

The methodology shifted the focus away from individual system performance. Neither the transit operators nor TxDOT paid much attention to improvement; instead, they concentrated on maintaining overall funding levels. Although this is important, according to TxDOT staff, "the formula did have the potential to be used to improve performance, as well."

#### New Approach

The new method of allocating funds to rural transit systems does not include a direct link to performance. Instead, contractors receive their current percentage of available funds, and each system negotiates individual annual performance goals and management objectives with TxDOT. Operators continue to receive funding as long as they achieve those goals and objectives or make a good faith effort to do so. Lack of good faith effort subjects a system to a 1-year probationary period after which they would be

either terminated as a funding recipient (highly unlikely) or restored to nonprobationary status.

Essentially, in this new approach, TxDOT's district public transportation coordinators negotiate with local transit operators to establish specific targets within the following categories: cost efficiency, cost effectiveness, service utilization, other measures (such as safety), training, marketing and public involvement, disadvantaged business enterprise participation, and general

management activities (such as staffing plans). The Texas Transportation Commission ultimately approves the systems' performance goals and management objectives. TxDOT estimates that the negotiation process requires 75 to 85 person days per year. TxDOT staff indicates that some length of time, measured by a few funding cycles, needs to pass before the effectiveness of this new allocation methodology can be truly assessed.



## CHAPTER SIX

**CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH****CONCLUSIONS**

Analysis of the information developed for this synthesis suggests a number of conclusions about the state of the art as it applies to performance-based funding between states and local transit systems.

*There continues to be a great diversity of opinion and approaches to the use of performance-based funding systems for public transportation by states and regional funding entities.* The survey results and the case studies confirm that the use of performance-based allocation systems is still an unresolved and, at times, controversial issue among states and regional bodies responsible for funding transit systems. A frequently mentioned concern in the debate is that performance-based allocations often overlook the issue of providing transit systems with the level of funding that transit organizations truly need. This raises the question of whether performance-related allocation should begin at some minimum floor of funding that meets basic operating requirements. Increasingly, however, there seems to be agreement that transit performance measures should be used to determine progress toward meeting transit service goals and objectives to assist states in evaluating transit system performance and to provide a management system to monitor and improve transit services by offering technical assistance.

*There is a lack of clear-cut goals established for transit in many states.* Where goals do exist, they tend to be universal in nature, such as providing mobility, encouraging and supporting economic development, and improving the environment. Given their global nature, it is difficult to assign standards and measures to assess progress in any meaningful way.

*Some funding organizations find themselves struggling with conflicts between their concerns for quality and quantity of transit service provided and the need to respond to legislative and taxpayer demands to constrain funding.* On one hand, states are working to ensure transit service is effective and available to their citizens. On the other hand, states are challenged to provide accountability. This feeds fears by some transit agency recipients that ultimately performance-based funding may be, at worst, a good government mask on initiatives to dramatically reduce or eliminate transit operating subsidies. The public official charged with the responsibility to make judgments about the expenditure of limited taxpayer dollars may counter that if transit performance is below a certain level, the subsidy should shrink or go away entirely.

*There is widespread agreement among state departments of transportation and regional funding bodies like metropolitan planning agencies that local transit system performance should be tracked. Fewer agree that the results should guide financial subsidy decisions, and even fewer are doing it.* While performance measurement is generally viewed as an important

management technique in making local agencies accountable for financial assistance they receive, there are a number of challenges inherent in making performance-based allocation work. Survey respondents indicated (sometimes only in candid, informal discussion) that the challenges are significant enough to block the establishment of entirely performance-based systems. Some of the more profound issues raised include the following:

- It is difficult to reach consensus on what constitutes good performance, especially in light of the broad-based goals for transit funding assistance.
- Should performance-based financial assistance go to the good performers or to the poor performers, who may have greater financial needs?
- Funding agency decisionmakers remain skeptical of the reliability of data provided by many local authorities; there is concern that information can be skewed deliberately or inadvertently to meet benchmarks.
- There is doubt as to whether performance measurement systems can truly be sensitive to the differences among transit systems; at the same time, external factors beyond the control of transit managers can also unbalance the playing field.
- The influence of politics remains formidable, sometimes driving funding as well as operations, regardless of performance results.
- Funding agency staff are reluctant to apply the financial penalties to local transit systems that might be dictated by performance-based decisions.
- Performance-based funding may not respond appropriately to the competing pressures upon public transit systems to take a hard-nosed business approach to service while also fulfilling its social mission.

*When performance components are used in subsidy allocation formulas, they tend to be combined with other nonperformance factors, or factors not traditionally viewed as performance characteristics, such as local financial contribution levels.* As an example, Indiana combines performance and local contribution levels, with greater weight accorded to local financial support of the transit system, reflecting state policy.

*Two movements seem to be occurring among state departments of transportation that include performance measures in their allocation formulas.*

*Performance measurement is being used to provide an incentive level of funding rather than as a determinant of base allocations.* In these instances, state departments of transportation provide financial assistance necessary to support the previously agreed on level of service in a particular area. They use a transit system's ability to achieve specified performance goals as a method to provide a supplemental incentive level of funding. PennDOT recently adopted this change in approach, which closely reflects state and regional debates about providing financial

support based on performance as opposed to it being based on what is perceived to be the real need.

*Other states are eliminating performance-based measures from their allocation systems entirely.* Officials in these states view performance-based allocations as a method to distribute dollars in a more mechanical manner rather than as a method to motivate transit operations to become more efficient and effective in meeting the service requirements of the public. This emerges from their concern that transit systems have directed their energies toward ensuring that performance indicators remain high to secure the needed funding allocation level rather than on their mission of providing transportation. State departments of transportation have become more focused on validating performance reporting and in ensuring accuracy in allocating funds. Texas offers an illustration of a state where performance measures have been eliminated from the allocation methodology and funding is now distributed according to historic levels or perceived need. The focus on performance measurement comes as an important piece of a joint department of transportation/transit system initiative to define system-specific performance measures and use them to identify where improvements are required. The result is a management as opposed to an allocation tool.

*Some state departments of transportation and metropolitan planning organizations have considered performance measurement and performance-based allocation of financial aid. But*

*they recognize that developing appropriate measures and allocation mechanisms that are responsive is no small task. At a minimum, it requires the active participation of transit systems and local and state legislative bodies.*

## RECOMMENDATIONS FOR FURTHER RESEARCH

Further research in several areas would benefit both funding agencies and funding recipients who are faced with questions about performance-based distribution.

Fundamental to an increase in the use of performance measures in the allocation of funds is the need for a more thorough understanding of the applicability and appropriateness of performance measures to different types of transit systems. Likewise, there is a need to enhance our understanding of how to apply and interpret the application of performance measures in locales that provide similar types of transit operations but within different geographic areas that perhaps have contrasting densities and travel needs.

Because many funding formulas were devised to manage the allocation of state funds for operating expenses, it would be useful for state departments of transportation and transit systems to have research available that describes successful, and not so successful, efforts by transit agencies to control and/or reduce operating expenses, yet maintain the appropriate level of transit service.

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## APPENDIX A

## EXAMPLES OF PERFORMANCE MEASURES AND OBJECTIVES/DEFINITION OF PERFORMANCE MEASURE

State of Florida  
1992 Performance Evaluation of Florida Transit Systems

Performance Review Indicators and Measures  
Directly-Operated Transit Services

Performance Indicators	Effectiveness Measures	Efficiency Measures
Service Area Population	<b>Service Supply</b> Vehicle Miles Per Capita	<b>Cost Efficiency</b> Operating Exp Per Capita Operating Exp Per Peak Vehicle Operating Exp Per Passenger Trip Operating Exp Per Passenger Mile Operating Exp Per Revenue Mile Operating Exp Per Revenue Hour Maintenance Exp Per Revenue Mile Maint Exp. Per Operating Exp
Passenger Trips	<b>Service Consumption</b> Passenger Trips Per Capita Passenger Trips Per Revenue Mile Passenger Trips Per Revenue Hour	<b>Operating Ratios</b> Farebox Recovery Local Revenue Per Operating Exp Operating Revenue Per Oper Exp
Passenger Miles	<b>Quality of Service</b> Average Speed Average Age of Fleet (in years) Number of Incidents Total Roadcalls Revenue Miles Between Incidents Revenue Miles Between Roadcalls	<b>Vehicle Utilization</b> Vehicle Miles Per Peak Vehicle Vehicle Hours Per Peak Vehicle Revenue Miles Per Vehicle Mile Revenue Miles Per Total Vehicles Revenue Hours Per Total Vehicles
Vehicle Miles	<b>Availability</b> Revenue Miles Per Route Mile	<b>Labor Productivity</b> Revenue Hours Per Employee Revenue Hours Per Oper Employee Revenue Hours Per Maint Employee Revenue Hours Per Admin Employee Vehicle Miles Per Maint Employee Passenger Trips Per Employee Total Vehicles Per Maint Employee Total Vehicles Per Admin Employee
Revenue Miles		<b>Energy Utilization</b> Vehicle Miles Per Gallon Vehicle Miles Per Kilowatt Hour
Vehicle Hours		<b>Fare</b> Average Fare
Revenue Hours		
Route Miles		
Total Operating Expense		
Total Operating Expense (1984 \$)		
Total Maintenance Expense		
Total Maintenance Expense (1984 \$)		
Total Capital Expense		
Total Local Revenue		
Operating Revenue		
Passenger Fare Revenues		
Total Employees		
Transportation Operating Employees		
Maintenance Employees		
Administrative Employees		
Vehicles Available for Max Service		
Vehicles Operated in Max Service		
Spare Ratio		
Total Gallons Consumed		
Kilowatt Hours of Propulsion Power		

**State of Florida**  
**Source: 1992 Performance Evaluation of Florida Transit Systems**

**LIST OF DEFINITIONS**

**PERFORMANCE INDICATORS**

**County/Service Area Population** - For 1991 and prior years, county population is used to approximate the service area population for each of the Florida transit systems and is taken from the *Florida Statistical Abstract* for each year. The only exception is Smyrna Transit System (SMTS), for which the population of the city of New Smyrna Beach is used to approximate the service area population for these years. This measure provides a suitable approximation of overall market size for comparison of relative spending and service levels among communities in the absence of actual service area population. However, in 1992, FTA began requiring transit systems to provide service area population in their Section 15 reports. As a result, this is the measure that is now utilized in this study.

**National Inflation Rate** - Used to deflate the operating expense data to constant 1984 dollars. Inflation-adjusted dollars provide a more accurate representation of spending changes resulting from agency decisions by factoring out the general price inflation. The inflation rate reported is the percentage change in the Consumer Price Index (CPI) for all items (including commodities and services) from year to year. During the 1984 to 1991 period, service and labor costs tended to increase at a faster rate than did commodity prices. Therefore, transit operating expenses, which are predominantly comprised of service and labor costs, may be expected to have increased somewhat faster than inflation even if the amount of service provided were not increased.

**Passenger Trips** - Annual number of passenger boardings on the transit vehicles. A trip is counted each time a passenger boards a transit vehicle. Thus, if a passenger has to transfer between buses to reach a destination, he/she is counted as making two passenger trips.

**Passenger Miles** - Number of annual passenger trips multiplied by the system's average trip length (in miles). This number provides a measure of the total number of passenger miles of transportation service consumed.

**Vehicle Miles** - Total distance traveled annually by revenue service vehicles, including both revenue miles and deadhead miles.

**Revenue Miles** - Number of annual miles of vehicle operation while in active service (available to pick up revenue passengers). This number is smaller than vehicle miles because of the exclusion of deadhead miles such as vehicle miles from the garage to the start of service, vehicle miles from the end of service to the garage, driver training, and other miscellaneous miles that are not considered to be in direct revenue service.

**Vehicle Hours** - Total hours of operation by revenue service vehicles including hours consumed in passenger service and deadhead travel.

**Revenue Hours** - Total hours of operation by revenue service vehicles in active revenue service.

**Route Miles** - Number of directional route miles as reported in Section 15 data; defined as tile mileage that service operates in each direction over routes traveled by public transportation vehicles in revenue service.

**Total Operating Expense** - Reported total spending on operations, including administration, maintenance, and operation of service vehicles.

**State of Florida**  
**Source: 1992 Performance Evaluation of Florida Transit Systems**

**Total Operating Expenses (1984 \$)** - Total operating expenses deflated to 1984 dollars for purposes of determining the real change in spending for operating expenses.

**Total Maintenance Expense** - Sum of all expenses categorized as maintenance expenses; a subset of total operating expense.

**Total Maintenance Expense (1984 \$)** - Total maintenance expenses deflated to 1984 dollars for purposes of determining the real change in spending for maintenance purposes.

**Total Capital Expense** - Dollar amount of spending for capital projects and equipment.

**Total Local Revenue** - All revenues originating at the local level (excluding state and federal assistance).

**Operating Revenue** - Includes passenger fares, special transit fares, school bus service revenues, freight tariffs, charter service revenues, auxiliary transportation revenues, subsidy from other sectors of operations, and non-transportation revenues.

**Passenger Fare Revenues** - Revenue generated annually from passenger fares.

**Total Employees** - Total number of payroll employees of the transit agency. It is useful to note that the increasing tendency to contract out for services may result in some significant differences in this measure between otherwise similar properties. It is important to understand which services are contracted before drawing conclusions based on employee levels. All employees classified as capital were excluded From this report.

**Transportation Operating Employees** - All employees classified as operating employees: vehicle drivers, supervisory personnel, direct personnel.

**Maintenance Employees** - All employees classified as maintenance employees who are directly or indirectly responsible for vehicle maintenance.

**Administrative Employees** - All personnel positions classified as administrative in nature. This report includes all general administration employees (marketing, planning, and support) as classified by FTA in Form 404.

**Vehicles Available for Maximum Service** - Number of vehicles owned by the transit authority that are available for use in bus service.

**Vehicles Operated in Maximum Service** - The largest number of vehicles required for providing service during peak hours (typically the rush period).

**Spare Ratio** - Vehicles operated in maximum service subtracted from vehicles available for maximum service divided by vehicles operated in maximum service. This measure is an indicator of the number of spare vehicles available for service. A spare ratio of approximately 20 percent is considered appropriate in the industry. However, this varies depending on the size and age of fleet as well as the condition of equipment.

**Total Gallons Consumed** - Total gallons consumed by the vehicle fleet.

**State of Florida**  
**Source: 1992 Performance Evaluation of Florida Transit Systems**

**Total Kilowatt Hours of Power** - Kilowatt hours of propulsion power consumed by a transit system (rapid rail and automated guideway).

**Average Age of Fleet** - Traditionally, a standard transit coach is considered to have a useful life of 12 years. However, longer service lives are not uncommon. The vehicle age and the reliability record of the equipment, the number of miles and hours on the equipment, the sophistication and features (i.e., wheelchair lifts, electronic destination signs, etc.), and operating environment (weather, roadway grades, and passenger abuse) all affect the maintenance needs and depreciation of the bus fleet.

**Number of Incidents** - Total number of unforeseen occurrences resulting in casualty (injury/fatality), collision, or property damage in excess of \$1,000. For an incident to be reportable, it must involve a transit vehicle or occur on transit property.

**Total Roadcalls** - A revenue service interruption during a given reporting period caused by failure of some mechanical element or other element.

#### **EFFECTIVENESS MEASURES**

**Vehicle Miles Per Capita** - Total number of annual vehicle miles divided by the service area's population. This can be characterized as the number of miles of service provided for each man, woman, and child in the service area and is a measure of the extensiveness of service provided in the service area.

**Passenger Trips Per Capita** - Average number of transit boardings per person per year. This number is larger in areas where public transportation is emphasized and in areas where there are more transit dependents, and is a measure of the extent to which the public utilizes transit in a given service area.

**Passenger Trips Per Revenue Mile** - The ratio of passenger trips to revenue miles of service; a key indicator of service effectiveness that is influenced by the levels of demand and the supply of service provided.

**Passenger Trips Per Revenue Hour** - The ratio of passenger trips to revenue hours of operation; reports on the effectiveness of the service since hours are a better representation of the resources consumed in providing service.

**Average Speed** - Average speed of vehicles in operation (including to and from the garage) calculated by dividing total vehicle miles by total vehicle hours.

**Revenue Miles Between Incidents** - Number of revenue miles divided by the number of incidents; reports the average interval, in miles, between incidents.

**Revenue Miles Between Roadcalls** - Number of revenue miles divided by roadcalls; an indicator of the average frequency of delays because of a problem with the equipment.

**Revenue Miles Per Route Mile** - Number of revenue miles divided by the number of directional route miles of service.



**State of Florida**  
**Source: 1992 Performance Evaluation of Florida Transit Systems**

**EFFICIENCY MEASURES**

**Operating Expense Per Capita** - Annual operating budget divided by the county/service area population; a measure of the resource commitment to transit by the community

**Operating Expense Per Peak Vehicle** - Total operating expense per vehicle operated in maximum service (peak vehicle); provides a measure of the resources required per vehicle to have a coach in operation for a year.

**Operating Expense Per Passenger Trip** - Operating expenditures divided by the total annual ridership; a measure of the efficiency of transporting riders; one of the key indicators of comparative performance of transit properties since it reflects both the efficiency with which service is delivered and the market demands for the service.

**Operating Expense Per Passenger Mile** - Reflection of operating expense divided by the number of passenger miles; takes into account the impact of trip length on performance since some operators provide lengthy trips while others provide short trips.

**Operating Expense Per Revenue Mile** - Operating expense divided by the annual revenue miles of service; a measure of the efficiency with which service is delivered and is another key comparative indicator.

**Operating Expense Per Revenue Hour** - Operating expense divided by revenue hours of operation; a key comparative measure which differs from operating expense per vehicle mile in that the vehicle speed is factored out. This is often important since vehicle speed is strongly influenced by local traffic conditions.

**Maintenance Expense Per Revenue Mile** - Maintenance cost divided by the revenue miles.

**Maintenance Expense Per Operating Expense** - Calculated by dividing maintenance expense by operating expense; expressed as a percent of total operating expense.

**Farebox Recovery** - Ratio of passenger fare revenues to total operating expenses; an indicator of the share of revenues provided by the passengers.

**Local Revenue Per Operating Expense** - Ratio of total local commitment with respect to total operating expense.

**Operating Revenue Per Operating Expense** - Operating ratio calculated by dividing operating revenue by total operating expense.

**Vehicle Miles Per Peak Vehicle** - Vehicle miles divided by the number of peak vehicles. It is an indicator of how intensively the equipment is used and is influenced by the bus travel speeds as well as by the levels of service in the off-peak time periods. A more uniform demand for service over the day would result in a higher number.

**Vehicle Hours Per Peak Vehicle** - Substitutes vehicle hours for vehicle miles and again reflects how intensively equipment is utilized.

**State of Florida**  
**Source: 1992 Performance Evaluation of Florida Transit Systems**

**Revenue Miles Per Vehicle Mile** - Reflects how much of the total vehicle operation is in passenger service. Higher ratios are favorable, but garage location, training needs, and other considerations may influence the ratio.

**Revenue Miles Per Total Vehicles** - Total revenue miles of service that are provided by each vehicle available for maximum service.

**Revenue Hours Per Total Vehicles** - Indicates total revenue hours of service provided by each vehicle available for maximum service.

**Revenue Hours Per Employee** - Reflects overall labor productivity.

**Revenue Hours Per Operating Employee** - Reflects operating personnel productivity.

**Revenue Hours Per Maintenance Employee** - Reflects maintenance employee productivity

**Revenue Hours Per Administrative Employee** - Reflects administrative employee productivity

**Vehicle Miles Per Maintenance Employee** - Another measure of maintenance employee productivity

**Passenger Trips Per Employee** - Another measure of overall labor productivity.

**Total Vehicles Per Maintenance Employee** - Vehicles available for maximum service divided by the number of maintenance employees.

**Total Vehicles Per Administrative Employee** - Vehicles available for maximum service divided by the number of administrative employees.

**Vehicle Miles Per Gallon** - Vehicle miles of service divided by total gallons consumed and is a measure of energy utilization.

**Vehicle Miles Per Kilowatt-Hr** - Vehicle miles of service divided by total kilowatt-hours consumed and is another measure of energy utilization.

**Average Fare** - Passenger fare revenues divided by the total number of passenger trips.

**Santa Clara County, California**  
**Transit Objectives and Performance Measures**

EXHIBIT IV-1  
 ADOPTED SCCTD OBJECTIVES AND SUBOBJECTIVES

1. Reliability - Improve Bus System Reliability to an Acceptable Level
  - A. Improve fleet reliability
  - B. Upgrade system operations for quick response to road calls
  - C. Improve schedule adherence
  - D. Improve transfer connections
2. Level of Service - Improve the Level of Transit Service in the County by Maintaining the Scheduled Expansion of the Bus Fleet to 516 Buses
  - A. Provide expanded transit service throughout the County
  - B. Extend hours of service
  - C. Provide necessary facilities for expansion
  - D. Increase bus system capacity
  - E. Evaluate the need for further service expansion
3. Effectiveness - Improve Bus System Effectiveness
  - A. Evaluate system and route performance, and make modifications as needed to improve productivity and ensure minimum standards
  - B. Improve ridership and productivity of South County Dial-a-Ride
  - C. Enhance customer facilities at bus stops
  - D. Improve transfer convenience and comfort
  - E. Develop park-and-ride facilities F Enhance transit service to downtown San Jose
  - G. Provide timely and adequate customer information
  - H. Encourage ridership increases through marketing and promotional programs
  - I. Develop customer relations programs
  - J. Encourage ridership through special fare provisions
4. Efficiency - Improve Bus System Efficiency
  - A. Analyze cost effectiveness and personnel productivity utilizing management information systems
  - B. Ensure efficient scheduling and driver utilization
  - C. Conduct daily coach operations in an efficient manner
  - D. Reduce delays and increase system speed
  - E. Maximize fare box revenue consistent with adopted goals
5. Safety - Ensure the Highest Standards of Safety in the Transit System Operation
  - A. Ensure buses available for service meet safety standards
  - B. Reduce transit vehicle accidents
  - C. Reduce passenger falls
  - D. Eliminate unsafe routing
6. Full Accessibility - Improve Bus System Accessibility to all Segments of the County Population
  - A. Develop programs directed toward the utilization of transit by the elderly and handicapped
  - B. Ensure all future buses are fully accessible
  - C. Improve accessibility to bus stops
7. Southern Pacific Commuter Service - Upgrade the S.P. Commuter Rail System and Integrate with the County Bus System
  - A. Stabilize and reverse ridership losses
  - B. Implement 2nd phase of PENTAP recommendation
  - C. Integrate rail and bus service



**APPENDIX B**

**EXAMPLES OF TRANSIT SYSTEM PERFORMANCE REPORTS**

**Indiana Public Transportation, Muncie Indiana Transit System**

**GROUP: 2**

**Muncie**

**FINANCIAL INFORMATION**

Operating Expense Summary: (\$)	
Operators Salaries/Wages	993,711
Other Salaries/Wages	579,315
Fringe	626,842
Services	244,719
Materials & Supplies	595,625
Utilities	62,723
Casualty/Liability	122,182
Purchased Transportation	0
Other	140,113
<b>Total</b>	<b>\$3,365,230</b>
Reconciling Items	0

Revenue Summary: (\$)	
Fare Revenue	305,665
Charter/Other	123,615
Contra & Other Fed./State	5,518
Local Assistance	1,608,141
State Assistance (PMTF)	749,233
Federal Assistance (FTA)	573,058
<b>Total</b>	<b>\$3,365,230</b>

Capital Grant Awards: (\$)	
Local	176,986
State PMTF	0
Federal	707,944
<b>Total</b>	<b>\$884,930</b>

Operating Subsidy	\$2,930,432
Locally Derived Income (LDI)	\$2,037,421
Operating Income	\$429,280

**SERVICE STATISTICS**

Total Passenger Boardings	1,218,775
Total Vehicle Miles (TVM)	1,075,286
Revenue Vehicle Miles (RVM)	1,058,263
Peak Hour Fleet	26
Base Fleet	26
Road Calls	263

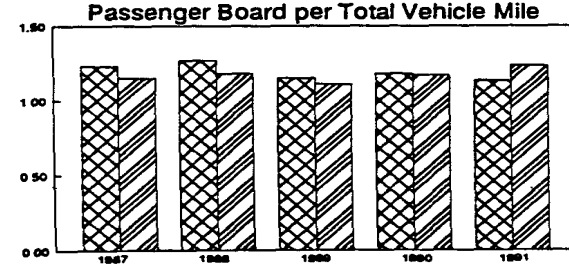
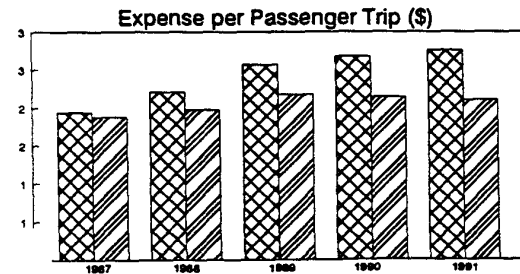
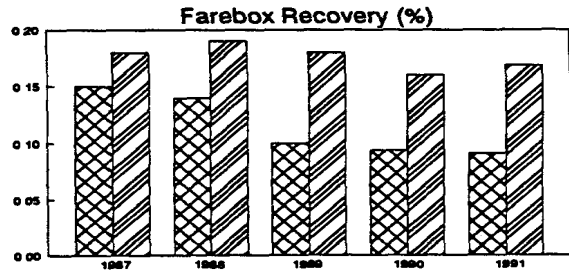
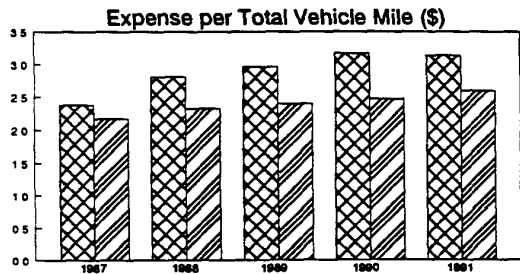
**PERFORMANCE MEASURES**

	<b>1991</b>	<b>Peer Group</b>
<b>Service Efficiency:</b>		
Operating Expense/TVM	3.13	2.60
Veh. Miles Between Road Calls	4,089	2,272

<b>Service Effectiveness:</b>		
Passenger Boardings/TVM	1.13	1.24
Passenger Boardings/Capita	17.16	12.07

<b>Cost Effectiveness:</b>		
Operating Expense/Pass. Board	2.76	2.10
Subsidy/Passenger Board	2.40	1.69
Fare Revenue/Passenger Board	0.25	0.35

<b>Financial Performance:</b>		
Fare Recovery	0.09	0.17
LDI/Operating Expense	0.61	0.48



## 1992 Minnesota Transit Report

### St. Cloud - Metropolitan Transit Commission Metro Bus

Legislative Districts 17A, 17B

Congressional District 7

Benton, Sherburne and Stearns Counties

Contact David Tripp

Address 665 Franklin Ave N E., St Cloud, MN 56301

Telephone (612)251-1499

Operating Class Fixed Route

Funding Class Urbanized

#### Profile of System

The St Cloud Metropolitan Transit Commission (MTC) was created by the Minnesota Legislature in 1969 to provide public transportation in St Cloud, Sauk Rapids and Waite Park.

The MTC currently operates 15 routes with 30 minute peak and 60 minute off-peak headways

The service is used primarily for school trips (51 %) and work trips (32%) Seventy percent of the passengers are between the ages of 19 and 45. The MTC has increased routes and service to St Cloud State University because of its tremendous growth and is experiencing substantial growth in demand and ridership The MTC recently assumed responsibility for the Rideshare program for the Greater St Cloud area and has implemented Metro Express, a commuter subscription service

*St Cloud "D.A.R.E." Bus introduced to the public in early 1992.*



#### Characteristics of System

Vehicles	24 large buses 1 small bus
Hours	Monday - Friday, 6 am - 10 pm Saturday, 8 am - 6 pm
Base fare	\$.25

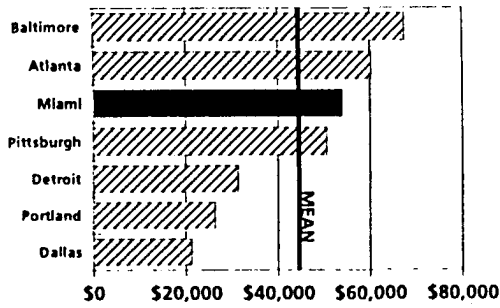
#### 1991 System Data

Total operating cost	\$1,676,532
Ridership	1,620,841
Annual system miles	748,106
Passengers per mile	2.2
Cost per mile	\$2.24
Cost per passenger	\$1.03

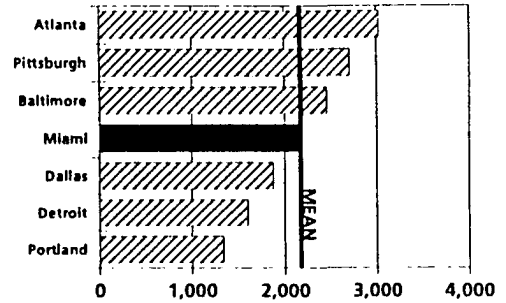
**State of Florida  
1992 Performance Evaluation of Florida Transit Systems**

**>200 MOTORBUS VEHICLE CATEGORY**  
SYSTEM TOTAL LESS PURCHASED MOTORBUS  
Performance Indicators

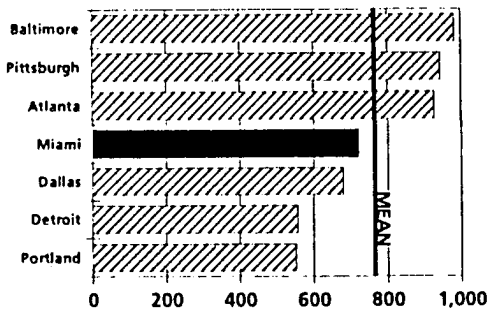
**Figure II-96  
Passenger Fare Revenues (000)**



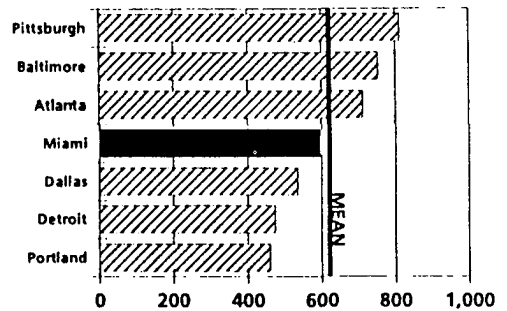
**Figure II-97  
Total Employees**



**Figure II-98  
Vehicles Available for Maximum Service**



**Figure II-99  
Vehicles Operated in Maximum Service**





**APPENDIX C**

**SURVEY FORMS AND TALLIES OF RESPONSES**

TRANSIT COOPERATIVE RESEARCH PROGRAM, TOPIC  
SG-4 PERFORMANCE-BASED FUNDING  
QUESTIONNAIRE -FUNDING AGENCY VERSION

Organization: 12 Respondents (Listed in Appendix)

Individual Filling Out Questionnaire:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone: \_\_\_\_\_

**WE ARE SEEKING INFORMATION ABOUT FUNDING ALLOCATION PROGRAMS THAT YOUR ORGANIZATION ADMINISTERS BASED ON FACTORS RELATED TO ANY ASPECT OF HOW THE RECIPIENT PERFORMS ITS SERVICES AND THE RESULTS ACHIEVED. THIS SURVEY IS CONCERNED WITH THESE DISTRIBUTION MECHANISMS AS THEY ARE APPLIED TO OPERATING, OR COMBINED OPERATING/CAPITAL ASSISTANCE. WE ARE NOT, HOWEVER, LOOKING AT STRICTLY CAPITAL ASSISTANCE PROGRAMS. IF YOU HAVE NO RESPONSIBILITIES FOR FUNDING OPERATING PROGRAMS, PLEASE INDICATE SO ON THE TOP OF THIS QUESTIONNAIRE AND RETURN IT. THANK YOU.**

PART 1 -- General Information

Goals for Funding Programs

1. Do you have goals or priorities for your funding program(s) that address what public transportation should accomplish in your state, region, province, or funding district?

2 YES/Go to Question # 1a. NO/Go to Question # 3.

1a. Who establishes these goals or priorities?

- 8 Elected officials or political body (e.g., legislature, \_\_\_\_\_ Governor).
- 3 Policymaking board for your agency.
- 5 Senior management of organization.
- 2 Other: \_\_\_\_\_

Further information: \_\_\_\_\_

1b. What is the forum for establishing these goals or priorities?

7 Specific legislation.

7 Budget process.

4 Strategic planning process.

6 Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1c. Do the recipients of funding have any input into the establishment of these goals or priorities?

7 YES. \_\_\_ NO.

2. For the most recent funding year, please check off any of the areas in which goals were established for your funding program(s)?

6 Ridership or some derivative of it.

4 Efficiency (often expressed as cost per some unit of measure).

2 Service expansion.

0 Congestion reduction (e.g., reduction in vehicle miles traveled).

0 Environmental impact.

0 Land use impact.

0 Economic development.

3 Local support (measured by local subsidy).

3 Other: \_\_\_\_\_

More information: \_\_\_\_\_

Means of Distribution

3. On what basis are funds allocated to local recipients. (If there is more than one program using different mechanisms, please check all that apply.)

- Earmarking by political body/Go to Question # 11.
- Discretionary (local recipients apply and make their case)/Go to Question # 11.
- Formula based on non-performance factors (population-related, magnitude of area served, etc.)/Go to Question # 11.
- Formula based on performance factors (ridership- related, cost-related, etc.)/Go to Question # 4.
- Combination of above/Go to Question # 4.
- Other: \_\_\_\_\_  
/Go to Question # 11.

Further explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Is there a relationship -- generally or specifically -- between the goals for your transit assistance program and the performance measures you use in allocating dollars?

YES.  NO.

More explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Advantages and Disadvantages

5. The following is a list of advantages of some performance-based allocation systems. Based on your experience with the system(s) you use, please rate each feature using this key:

- 3 -- Strong advantage
- 2 -- Moderate advantage
- 1 -- Small advantage
- 0 -- Not an advantage at all

- \_\_\_\_\_ It forces or encourages local transit systems to accomplish the goals for funding public transportation.
- \_\_\_\_\_ It is not burdensome to administer from a paperwork and reporting standpoint.
- \_\_\_\_\_ It is inexpensive to administer.
- \_\_\_\_\_ It is equitable to all recipients.
- \_\_\_\_\_ It eliminates or reduces the politics of allocation decisions.
- \_\_\_\_\_ The recipients are satisfied.
- \_\_\_\_\_ It builds credibility and constituency for transit by documenting actual accomplishment and performance.
- \_\_\_\_\_ Local recipients can predict how much money they will receive from one year to the next.
- \_\_\_\_\_ Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. The following is a list of disadvantages of some performance-based allocation systems. Based on your experience with the system(s) you use, please rate each disadvantage using the same key:

- 3 -- Strong disadvantage
- 2 -- Moderate disadvantage
- 1 -- Small disadvantage
- 0 -- Not a disadvantage at all

- \_\_\_\_\_ It is burdensome to administer with respect to cost, data required, staff time, and other administrative support.
- \_\_\_\_\_ It encourages recipients to exaggerate aspects of their performance.
- \_\_\_\_\_ It does not treat all recipients fairly.

- It is subject to frequent appeal.
- It does not accomplish or conflicts with program goals other than equity.
- Local recipients cannot predict from year-to-year how much money they will receive.
- It is too mechanical and does not reflect real-world factors.
- Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Results and Impacts**

7. Do you believe that the performance-based allocation system is accomplishing the goals set out for your public transportation program?

4 YES. 1 NO.

8. Do you believe that local recipient transit systems are managing, performing, and showing results in ways that they would not if the allocation system was not performance-based?

2 YES. 3 NO.

Further explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

9. Have you calculated the costs of administering your performance-based allocation system?

2 YES/Please provide an estimate if available: \$ \_\_\_\_\_

Number of staff people directly involved: \_\_\_\_\_  
 (Full-time equivalent)

3 NO.

10. If you were asked to assist an organization like yours which was setting out to establish a performance-based allocation system, what advice would you offer? \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

GO ON TO QUESTION # 13.

**If You Don't Use Performance**

11. Has your organization considered revising your existing allocation system to one based on performance criteria?

4 YES/Go to Question # 13. 5 NO/Go to Question # 12.

Further explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

12. Please check one or more of the reasons below which explain why you are not planning to revise your existing allocation system to one based on performance criteria.

3 There is not enough political support to adopt a different system.

2 Some recipients would get less funds.

2 Current system best supports our program goals.

0 Do not collect or have the capability of collecting data to support a performance-based system.

1 Elected officials and executive appointees want to maintain the ability to earmark.

1 Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_

IF YOU ANSWERED QUESTION # 12, YOU HAVE NOW COMPLETED THIS SURVEY. PLEASE RETURN IT TO: TRB -- SG4, COLUMBIA MD 21045. IF YOU SKIPPED QUESTION # 12, PLEASE GO ON TO QUESTION # 13.

Evolution of Program

13. Are you doing anything to analyze, change, or adjust your system? \_\_\_\_\_

PART 2 -- Individual Performance Allocation System Profile

The following set of questions is designed to probe, more specifically, how your performance-based allocation systems work. If you administer more than one system or program, please answer the questions for the program through which the greatest amount of money flows. Alternatively, you may copy these questions and fill out additional sets for other programs.

1. What is the name of the program? \_\_\_\_\_

2. What is the source of the funds which are distributed through the allocation mechanism (Check all that apply)?

Funds directly generated by the local transit system (e.g., fares).

Taxes collected across a locality, region, district, state, or province dedicated to transit (e.g., income, sales, property, gasoline). If you checked this, please indicate the type of tax(es): \_\_\_\_\_

State or province general fund.

Federal.

Other: \_\_\_\_\_

3. How much money was distributed through this program for FY 1992? \_\_\_\_\_

4. How many recipients are in the program? \_\_\_\_\_

5. This set of questions is designed to identify which performance measures you use in your allocation system and how they work together.

5a. Do you rely on any of the following specific performance measures in your funding allocation system? (Check all those that apply.)

Cost per revenue mile.

Cost per passenger.

Ridership per population or population density.

Subsidy per revenue mile.

Subsidy per passenger.

Cost recovery ratio.

None of the above.

5b. In addition to those indicated above, check off each of the categories below which covers one or more performance measure that you use to make funding decisions. Please write in the specific performance measure to the right of the category.

Cost efficiency (cost per unit of output): \_\_\_\_\_

Service utilization (passenger trips per unit of output): \_\_\_\_\_

Revenue generation (operating revenue related to expense or subsidy): \_\_\_\_\_

Labor efficiency (employees per vehicle or unit of output): \_\_\_\_\_

Vehicle efficiency (vehicle miles per vehicle): \_\_\_\_\_

0 Safety (accidents per revenue miles or passenger trips): \_\_\_\_\_

0 Strategic effectiveness (measures of impacts on regional goals such as congestion mitigation, environmental quality, energy utilization, and economic development): \_\_\_\_\_

3 Other: \_\_\_\_\_

5c. How do these measurements factor into your funding allocation system?

0 Each measure evaluated independently.

3 Performance measures are blended together in a formula or weighting system.

1 Less structured approach where performance measures are reviewed but not specifically accounted for in the evaluation.

1 Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5d. In order for us to better understand how your overall performance-based allocation system works, please indicate one or more of the following options which is convenient for you.

\_\_\_\_\_ If documentation and/or evaluation of your funding system has been developed and is available that might include a description of how it works and the decisions made as a result, please check here and attach it.

\_\_\_\_\_ If you would like us to call you or your designee to conduct a brief telephone interview about your allocation system, please check here. If the individual to be called is other than the person whose name is at the top of the questionnaire, please give us the name and telephone number:  
\_\_\_\_\_

\_\_\_\_\_ If you would like to write a brief description of how your funding allocation system works and recent decisions made with it, please do so here, and attach any additional sheets necessary:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Do you make adjustments to fit the special needs of certain recipients, for whom the application of pure performance-based factors would offer a skewed or inaccurate picture?

\_\_\_\_\_ YES. \_\_\_\_\_ NO.

Further explanation: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PART 3 -- Appendix

Please attach any already prepared material associated with your allocation system that might be useful to this investigation including lists of recipients and their most recent allocations, sample forms for reporting and calculating information, evaluations, and the like.

TRB SG-4, BOX 261  
COLUMBIA, MARYLAND 21045

TRANSIT COOPERATIVE RESEARCH PROGRAM, TOPIC SG-4  
PERFORMANCE BASED FUNDING  
QUESTIONNAIRE - FUNDING RECIPIENT VERSION

Organization: 13 ORGANIZATIONS RESPONDING

Individual Filling Out Questionnaire:

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

WE ARE SEEKING INFORMATION ABOUT FUNDING ALLOCATION PROGRAMS BASED ON FACTORS RELATED TO ANY ASPECT OF HOW YOU, AS THE RECIPIENT, PERFORM YOUR SERVICES AND THE RESULTS YOU ACHIEVE.

WE ARE SPECIFICALLY EXPLORING PERFORMANCE-BASED SYSTEMS THAT DISTRIBUTE FUNDS FROM OR VIA THE STATE, REGIONAL, LOCAL, OR PROVINCIAL LEVELS OF GOVERNMENT -- NOT DIRECTLY FROM FEDERAL SOURCES. PROGRAMS WHICH REDISTRIBUTE FEDERAL FUNDS ACCORDING TO FACTORS DECIDED AT THE STATE, REGIONAL, LOCAL, AND PROVINCIAL LEVELS SHOULD BE INCLUDED.

MOREOVER, THIS SURVEY IS CONCERNED WITH THE DISTRIBUTION OF FUNDS FOR OPERATING OR COMBINED OPERATING/CAPITAL PURPOSES. WE ARE NOT, HOWEVER, LOOKING AT STRICTLY CAPITAL ASSISTANCE PROGRAMS.

IF YOU RECEIVE NO OPERATING FUNDS FROM EITHER THE STATE, PROVINCIAL, REGIONAL, OR LOCAL LEVELS OF GOVERNMENT, PLEASE INDICATE THAT ON THE TOP OF THIS QUESTIONNAIRE AND RETURN IT NOW. THANK YOU.

Part 1 -- General Information

Goals for Funding Programs

1. Are there goals or priorities established for the funding program(s) from which you receive assistance which lay out what public transportation is to accomplish in your state, region, province, or funding district?  
 YES/Go to Question # 1a.  NO/Go to Question # 3.  
 1a. Who establishes these goals or priorities?

- Elected officials or political body (e.g., legislature, Governor).
- Policymaking board for the agency from which you receive funds.
- Senior management of organization from which you receive funds.
- Other: \_\_\_\_\_

Further information: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1b. What is the forum for establishing these goals or priorities?

- Specific legislation.
- Budget process.
- Strategic planning process.
- Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

1c. Does your organization have any input into the establishment of these goals or priorities?

YES.  NO.

2. For the most recent funding year, please check off any of the areas in which goals were established for the funding programs from which your agency receives assistance.

- Ridership or some derivative of it.
- Efficiency (often expressed as cost per unit of measure).

- 4 Service expansion.
- 1 Congestion reduction (for example, reduction in vehicle miles traveled).
- 2 Environmental impact.
- 2 Land use impact.
- 2 Economic development.
- 1 Local support (measured by local subsidy).
- 0 Other: \_\_\_\_\_

More information: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Means of Distribution

3. On what basis are funds allocated to your agency. (If there is more than one program using different mechanisms, please check all that apply.)
- 4 Earmarking by political body/If you check this, go next to Question # 12.
  - 1 Discretionary (local recipients apply and make their case)/If you check this, go next to Question # 12.
  - 6 Formula based on factors other than performance (population-related, magnitude of area served, etc.)/If you check this, go next to Question # 12.
  - 5 Formula based on performance factors (ridership-related, cost-related, etc.)If you check this, go next to Question # 4.
  - 2 Combination of above/Go next to Question # 4.
  - 1 Other: \_\_\_\_\_  
 /If you filled this in, go next to Question # 12.

Further explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

4. Is there a relationship -- generally or specifically -- between the goals you identified in Question # 2 and the performance measures used to allocate funds to your agency?

4 YES. 2 NO.

More explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Advantages and Disadvantages**

5. The following is a list of advantages of some performance-based allocation systems. Based on your experience with the system through which your agency receives its funding allocation, please rate each feature using this key:

- 3 --- Strong advantage
- 2 --- Moderate advantage
- 1 --- Small advantage
- 0 --- Not an advantage at all

- \_\_\_\_\_ It forces or encourages local agencies like ours to accomplish the goals set for funding public transportation.
- \_\_\_\_\_ It is not burdensome to apply for or receive financial assistance from a paperwork and reporting standpoint.
- \_\_\_\_\_ It is inexpensive for us to apply for or receive financial assistance.
- \_\_\_\_\_ It eliminates or reduces the politics of allocation decisions.
- \_\_\_\_\_ It builds credibility and constituency for transit by documenting actual accomplishment and performance.
- \_\_\_\_\_ Local recipient agencies like ours are able to predict how much money they will receive from year to year.
- \_\_\_\_\_ Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

6. The following is a list of disadvantages of some performance-based allocation systems. Based on your experience with the system through which your agency receives its funding allocation, please rate each disadvantage using this key:

- 3 --- Strong disadvantage
- 2 --- Moderate disadvantage
- 1 --- Small disadvantage
- 0 --- Not a disadvantage at all

- \_\_\_ It is burdensome to administer with respect to cost, staff time, and other administrative support.
- \_\_\_ It encourages recipients to exaggerate aspects of their performance.
- \_\_\_ It does not treat all recipients fairly.
- \_\_\_ We frequently have to appeal decisions.
- \_\_\_ It doesn't address program goals other than equity.
- \_\_\_ It stresses certain aspects of performance that we do not think are important or are not a priority for us.
- \_\_\_ Other: \_\_\_\_\_

**Results and Impacts**

7. Do you believe that the performance-based allocation system is accomplishing the goals established by your funding agency for providing assistance to public transportation?

5 YES. 2 NO.

8. Do you believe that your agency is being managed, is performing, and is showing results in ways that would not be occurring if the allocation system for your funding was not performance-based?

2 YES. 5 NO.

Further explanation: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Have you calculated the costs of applying for funds under the performance-based allocation system which provides you with aid?

0 YES/Please provide an estimate if available: \$ \_\_\_\_\_

Number of staff people directly involved: \_\_\_\_\_

\_\_\_ NO.

10. If the agency which distributes your funds asked you for suggestions to improve the performance-based allocation system, what would you tell them? Check all that apply.

1 System works well. No changes necessary.

2 Reduce paperwork and documentation.

3 Improve definitions of performance elements.

1 Share information of how we stack up to other recipients.

2 Reduce time involved in application reviews and obligation of funds.

0 Increase time involved in developing documentation and filing information.

0 Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. If you were asked to assist an organization like yours which was going to begin receiving funds through a performance-based allocation system, what advice would you offer?

\_\_\_\_\_  
\_\_\_\_\_



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GO ON TO PART 2.

If Your Funds are Not Distributed on the Basis of Performance

12. Has your the organization from which you receive your funding considered revising the existing allocation system to one based on performance criteria?

1 YES/Go to Question # 13. 6 NO/Go to Question # 14.

Further explanation: \_\_\_\_\_

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13. If you checked YES to Question # 12, what are they doing? \_\_\_\_\_

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14. If you checked NO to Question # 12, please indicate one or more of the reasons below to explain why there is no current consideration of a performance-based system.

0 Tried before and rejected because: \_\_\_\_\_

- 1 There is not enough political support to adopt a different system.
- 1 Some recipients would get less funds.
- 4 Current system best supports our program goals.
- 0 Funding agency and/or recipients do not have the capability of collecting and reporting data to sustain a performance-based system.

2 Elected officials and executive appointees want to maintain the ability to earmark.  
0 Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_

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IF YOU ANSWERED ANY OF QUESTIONS # 12-14, YOU HAVE NOW COMPLETED THIS SURVEY. PLEASE RETURN IT TO: TRB-SG4, BOX 261, COLUMBIA MD 21045. IF YOU SKIPPED QUESTIONS 12-14, PLEASE GO ON TO PART 2.

PART 2 -- Individual Performance Allocation System Profile

The following set of questions is designed to probe, more specifically, how the performance-based allocation system(s) works through which you receive your funding from state, provincial, or regional entities. If you receive funds through more than one system or program, please answer the questions for the program through which the greatest amount of money flows. Alternatively, you may copy these questions and fill out additional sets for other programs.

1. What is the name of the program? \_\_\_\_\_

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2. What is the source of funds which are distributed through the allocation mechanism (check all that apply)?

1 Funds directly generated by your system (e.g., fares).

1 Taxes, collected across a locality, region, district, state, or province dedicated to transit (e.g., income, sales, property, gasoline). If you check this, please indicate the type of tax(es): \_\_\_\_\_

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5 State or provincial general fund.

2 Federal.

1 Other: \_\_\_\_\_

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3. How much money was distributed in total through this program for FY 1992?  
\_\_\_\_\_

4. How much did your organization receive? \_\_\_\_\_

5. This set of questions is designed to identify which performance measures are used to make the funding allocation decisions for your agency and how they work together.

5a. Does your funding allocation result specifically from any of the following performance measures (check all those that apply)?

Cost per revenue mile.

Cost per passenger.

Ridership per population or population density.

Subsidy per revenue mile.

Subsidy per passenger.

Recovery ratio.

None of the above.

5b. In addition to those indicated above, check off each of the categories below which covers one or more performance measure used to determine your funding. Please write in the specific performance measure to the right of the category.

Cost efficiency (cost per unit of output): \_\_\_\_\_  
\_\_\_\_\_

Service utilization (passenger trips per unit of output): \_\_\_\_\_

Revenue generation (operating revenue as proportion of expense or subsidy): \_\_\_\_\_

Labor efficiency (employees per vehicle or unit of output): \_\_\_\_\_

Vehicle efficiency (vehicle miles per vehicle): \_\_\_\_\_

Safety (accidents per revenue miles or passenger trips): \_\_\_\_\_

Strategic effectiveness (measures of impacts on regional goals such as congestion mitigation, environmental quality, energy utilization, and economic development): \_\_\_\_\_  
\_\_\_\_\_

Other: \_\_\_\_\_

5c. How do these measurements factor into the funding allocation for your organization?

Each measure evaluated independently.

Performance measures are blended together in a formula or weighting system.

Less structured approach where performance measures are reviewed but not specifically accounted for in the evaluation.

Other: \_\_\_\_\_

Further explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5d. In making funding allocations for your organization, does the agency that provides your assistance take into account factors that are not readily addressed by pure performance measures or a formula approach?

YES.  NO.

5e. In order for us to better understand how the performance-based allocation system works through which you get your funding, please indicate one or more of the following options which is convenient for you.

\_\_\_\_\_ If documentation and/or evaluation of your funding system has been developed and is available that might include a description of how it works and the decisions made as a result, please check here and attach it.

\_\_\_\_\_ If you would like us to call you or your designee

to conduct a brief telephone interview about your allocation system, please check here. If the individual to be called is other than the person whose name is at the top of the questionnaire, please give us the name and telephone number:

\_\_\_\_\_

\_\_\_\_\_ If you would like to write a brief description of how your funding allocation system works and recent decisions made with it, please do so here, and attach any additional sheets necessary:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PART 3 -- Appendix

A. Please give us some basic information about your organization:

- Daily Ridership \_\_\_\_\_
- Annual Revenue Miles of Service \_\_\_\_\_
- Number of Vehicles \_\_\_\_\_
- FY 1993 Operating Budget \_\_\_\_\_
- Nonfederal Subsidy Received \_\_\_\_\_

B. Please attach any already prepared material associated with your funding allocation that might be useful to this investigation including grant applications, sample reporting forms, and the like.

**TRB SG-4, BOX 261  
COLUMBIA, MARYLAND 21045**

**APPENDIX D****SURVEY RESPONDENTS****Funding Agencies**

British Columbia Transit

California Department of Transportation Division of Mass  
Transportation

Florida Department of Transportation

Metropolitan Transportation Commission Oakland,  
California

Michigan Department of Transportation

Ministry of Transportation  
Ontario, Canada

New York State Department of Transportation

Ohio Department of Transportation

Pennsylvania Department of Transportation  
Bureau of Public Transportation

Tennessee Department of Transportation  
Office of Public Transportation

Texas Department of Transportation  
Public Transit Division

Vermont Department of Transportation

Virginia Department of Transportation

Virginia Department of Rail and Public Transportation

**Fund Recipients**

Metropolitan Transit Commission  
St. Cloud, Minnesota

Ames Transit Agency  
Ames, Iowa

Dallas Area Rapid Transit  
Dallas, Texas

Edmonton Transit System  
Edmonton, Alberta Canada

Greater Cleveland Regional Transit Authority  
Cleveland, Ohio

Greater Richmond Transit Company  
Richmond, Virginia

Jacksonville Transportation Authority  
Jacksonville, Florida

Milwaukee County Transit System  
Milwaukee, Wisconsin

Santa Monica Municipal Bus Lines  
Santa Monica, California

Spokane Transit Authority  
Spokane, Washington

Tidewater Regional Transit  
Norfolk, Virginia

Via Metropolitan Transit  
San Antonio, Texas

Winston-Salem Transit Authority  
Winston-Salem, North Carolina

**THE TRANSPORTATION RESEARCH BOARD** is a unit of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. It evolved in 1974 from the Highway Research Board, which was established in 1920. The TRB incorporates all former HRB activities and also performs additional functions under a broader scope involving all modes of transportation and the interactions of transportation with society. The Board's purpose is to stimulate research concerning the nature and performance of transportation systems, to disseminate information that the research produces, and to encourage the application of appropriate research findings. The Board's program is carried out by more than 270 committees, task forces, and panels composed of more than 3,300 administrators, engineers, social scientists, attorneys, educators, and others concerned with transportation; they serve without compensation. The program is supported by state transportation and highway departments, the modal administrations of the U.S. Department of Transportation, the Association of American Railroads, the National Highway Traffic Safety Administration, and other organizations and individuals interested in the development of transportation.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce Alberts is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. Robert M. White is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Kenneth I. Shine is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Bruce Alberts and Dr. Robert M. White are chairman and vice chairman, respectively, of the National Research Council.