

Coordinated Transportation Demonstration Results

Final Report
February 1980



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On the cover, a karate exhibition was one of the highlights of the opening ceremonies for the Verde Valley Transit Authority's bus services in October 1983. The system is funded by the non-urbanized transit assistance program, or Section 18 of the Urban Mass Transportation Act of 1964, as amended. One of the goals of Section 18 is "to encourage and facilitate the most efficient use of all Federal funds used to provide passenger transportation in non-urbanized areas through the coordination of programs and services." This photo was provided courtesy of Mary Currier, Director of the Verde Valley System in Jerome, Arizona.

Coordinated Transportation Demonstration Results

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Final Report
February 1980

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DISCLAIMER

All funds for this project were provided by the U.S. Department of Health, Education, and Welfare, but the opinions, findings and conclusions expressed in this report are those of the authors, who are responsible for the facts and accuracy of the material presented herein. The contents do not necessarily reflect the views or policies of the Department of Health, Education, and Welfare, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

PREFACE

This report documents the events of the HEW/OHDS Coordinated Transportation Demonstration Program and assesses the program's lessons about coordinated transportation to guide persons interested in efficient and effective transportation services. It is not the purpose of this report to label either the demonstration program or the demonstration projects themselves as successful or unsuccessful, but rather to derive the greatest number of insights from these experiences.

This is the final report of the evaluation contract for the demonstration program. An interim report was also produced under this contract, and that report contains additional materials about the initial operations of the demonstration projects plus other materials. The full citation for that interim report, sometimes referred to in this volume as "the first year's report" or "the initial evaluation report," is

Jon E. Burkhardt, Dolores A. Cutler, Sue F. Knapp, and Kenneth P. Ceglowski, Evaluation of the Office of Human Development Services Transportation Demonstration Program: Results of the First Year's Activities, prepared by Ecosometrics, Incorporated for Department of Health, Education, and Welfare, Bethesda, (February 1979).

ACKNOWLEDGMENTS

A great number of people were instrumental in the HEW/OHDS Coordinated Transportation Demonstration Program — most of them contributed positively to the success of our evaluation effort — and we would like to acknowledge them all. While recognizing the contributions of everyone involved, several persons deserve specific mention for the extent of their efforts. Among our various Project Technical Monitors at the Office of Human Development Services, Larry Guerrero and Jordan Benderly provided crucial guidance and direction for this report. Alexandra Ferguson of the OHDS Contracts Office graciously assisted us in final contractual matters. Michael Alberelli of the Administration for Public Services was the Technical Monitor for the demonstration program and Applied Resources Integration, Ltd. was the technical assistance contractor for the demonstration program. Alan M. Voorhees and Associates served as subcontractor to Ecosometrics and assisted in the methodology development and user surveys in the first data collection effort. Their personnel deserve thanks for their efforts. At Ecosometrics, those most involved in this project other than the authors of the final report included Dolli Cutler, who worked on all of the project except the final report, Armando M. Lago, Kenneth Ceglowski, Carl Rush and Theresa Ceglowski. The report was produced, with the usual talent and good cheer, by Linda Lee Jordan and Rosemarie Farinella and edited by Renae Dutkowski, with graphics prepared by Ed Zielinski.

A special note of thanks is due those at each of the five demonstration sites who shared their experiences and observations with us: system riders, project personnel, members of boards of directors, participating and non-participating agencies, others in the community, and State officials. In particular, the project personnel gave us a tremendous amount of assistance in data collection and interpretation. We are deeply indebted to them for taking on this difficult task in addition to their many other important duties and activities. Special thanks go to Carolyn Mills, Connie Olinger, and Barri Standish.

We look forward to many years of friendship with those who worked with us.

Jon E. Burkhardt
Project Director

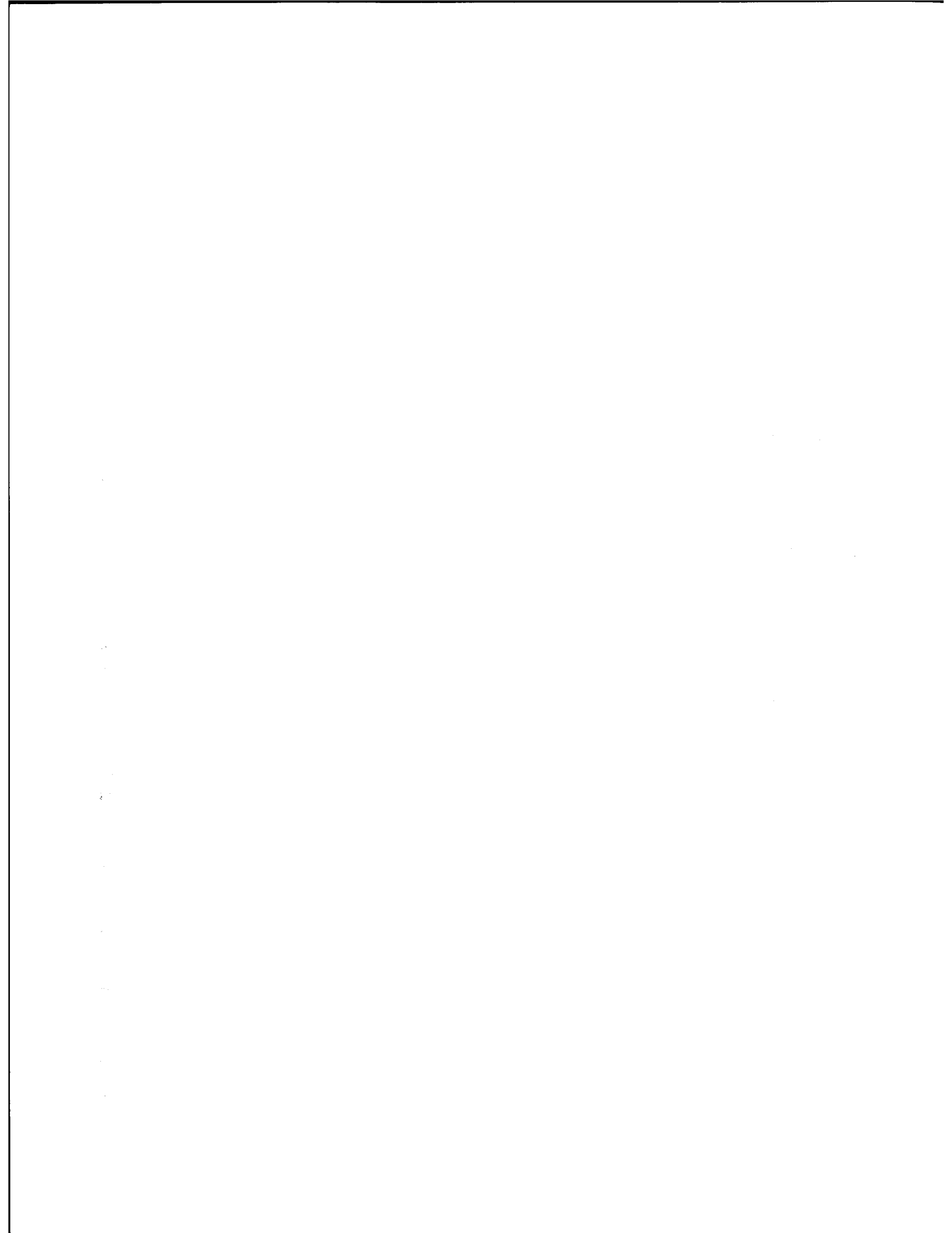


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EXECUTIVE SUMMARY

OVERVIEW

This two-year, nearly two-million-dollar demonstration has shown that the benefits of coordinating transportation operations are not as universally applicable or as easily obtainable as had been anticipated. Coordination is worth the effort in some circumstances and under certain conditions — but not others.

While a great number of valuable lessons have emerged from this effort, only a few of the specific program objectives were met. In particular, coordination does not necessarily lead to more efficient or effective transportation operations and it does require a substantially greater investment of time and effort than heretofore imagined.

HEW should publicize the results of this demonstration program so that concerned agencies will know when coordination can be an effective organizational strategy, what costs and benefits to anticipate (to thus avoid disillusionment due to over-optimistic expectations), and how to proceed, emulating the successes and avoiding the pitfalls of the five demonstration projects. HEW should support coordination efforts through information sharing and technical assistance, and should remove existing barriers to coordination, but should not mandate coordination among its programs.

BACKGROUND

OHDS Transportation Demonstration Program

In June of 1977, funding began for a two-year program sponsored by OHDS to demonstrate the feasibility of coordinating or consolidating existing transportation services at the local level. The program's purpose was to show that coordination can enhance both the quality and quantity of human service transportation; its overall goal was to effect national policy and programming.

The design of the Transportation Demonstration Program reflected OHDS premises that 1) existing transportation services provided to OHDS populations through Federal, State, and local sources could be coordinated at the local level with minimal incentive monies, and 2) coordination or consolidation of transportation activities would increase efficiency (by reducing duplication and total system costs) and effectiveness (by reducing fragmentation and improving access to services). The program's specific objectives were to 1) develop practical approaches to coordination at the local level, 2) explore and test service delivery systems and organizational methods for coordinated transportation, 3) develop and test methods for coordination with existing public and private transportation providers, and 4) identify statutory, regulatory, and administrative barriers to coordinated transportation.

Demonstration grants were awarded in June 1977 and June 1978 to:

- 1) Northwest Arkansas Human Services, Inc., Fayetteville, Arkansas
- 2) Grand Rapids Transit Authority, Grand Rapids, Michigan
- 3) Community Action Council of Howard County, Maryland, Inc.
- 4) Greater Jacksonville Economic Opportunity, Inc., Jacksonville, Florida
- 5) Westchester County Department of Transportation, Westchester County, New York

The Evaluation Study

OHDS awarded Ecosometrics, Incorporated, an evaluation contract to assess the efficiency and effectiveness of the demonstration projects and to document the coordination process. Those two objectives were accomplished through structured interviews, on-site observations, and data supplied by the grantees.

In addition to information about their pre-coordination transportation activities, the five grantees were asked to provide the evaluation team with monthly reports containing operational, passenger, and financial data. They were also to submit quarterly narrative reports to the OHDS technical monitor. These reports, along with the background information, form the basis for the assessment of project efficiency and effectiveness.

The coordination process at each of the five demonstration projects was documented through the on-site observations and structured interviews. Among the people interviewed were representatives from participating and non-participating agencies, local planners, funders, transportation system users, State agency personnel, and community members who influence human service transportation.

Overview of the Demonstration Sites and Projects

The five grantees were selected from 48 applicants who responded to a public notice of a competitive award. The guidelines for the applicants screened out agencies that had already begun to coordinate transportation services in their communities. By selecting applicants with no previous experience, OHDS was working with the most difficult — and probably the most typical — type of local agencies that may undertake coordination attempts in the future.

The projects provided a range of coordination concepts. The clearinghouse concept, Project RESPOND in Fayetteville, allowed the participating agencies the greatest amount of flexibility and required the least amount of commitment. In Grand Rapids, certain functions (e.g., dispatching) were consolidated, but most trips were still provided by agencies acting independently of one another. The local transit authority was the grantee. The Urban Rural Transportation Alliance (URTA) in Howard County has achieved the greatest degree of consolidation, having completely taken over the transportation budgets and vehicles of the participating agencies to provide services as an independent entity. In Jacksonville, several coordination concepts were approached simultaneously by RIDE, Inc., including the consolidation of several agencies' resources and services, coordination with others, and purchase-of-service agreements with still others. The Westchester Coordinated Transportation Project (WCTP) incrementally consolidated human service agency operations and planned to eventually implement a countywide paratransit system serving clients plus elderly and handicapped persons who may not be social service clients.

MAJOR FINDINGS

Transportation Operations

Each of the five demonstration projects showed improvements in the services they provided during the demonstration period, although the improvements were not as great as initially anticipated. In general (but not always), coordination and the number of riders served increased, but costs per unit of service also increased, even after adjusting for inflation. Only one of the five projects showed the substantial improvements in efficiency and effectiveness that were expected. Most participating agencies realized increased costs for transporting their clients, and the current operations of the five projects were not particularly more or less cost effective than similar but uncoordinated transportation systems. Most of the riders in the five projects spoke well of the services. Transportation service quality improved in some instances but deteriorated in others.

The specific operational results of the demonstration program are mixed. The productivity increases in Jacksonville fueled some truly impressive efficiency increases. However, the productivity increases were artificially generated by spurious management techniques — charging substantially less than the true costs of the trips — that eventually led to an extreme financial crisis. Although services continue to be provided by a different organization, the full ramifications of the financial problems of the second-year grantee have yet to be felt. Howard County, proceeding with more modest objectives, has recently shown positive trends in its performance measures. Fayetteville and Westchester also increased their ridership, but Grand Rapids showed ridership declines in the second year. Westchester and Grand Rapids were not refunded for a third year by HEW.

The projects' operations show the relative importance of productivity versus cost savings as the major strategy for achieving greater efficiencies through coordination. Total cost savings were almost non-existent, whereas productivity increases were much more frequent. Furthermore, they sometimes also led to unit cost reductions.

According to generally-accepted performance indicators, three of the five projects showed operations within an acceptable range when compared with similar systems; their trip costs ranged from \$0.88 per trip to \$4.06. Costs per vehicle mile were good in two instances (less than 65 cents). Productivity measures (passengers per vehicle mile and passengers per vehicle hour) remained generally

low except in Jacksonville. Overall, the projects did not obtain as much mileage per month from their vehicles as other systems, but one demonstration (Jacksonville) was operated at a very high level of passengers per month (44,000 plus) for a short time.

Interviews with participating agencies and system users once again pointed up the importance of quality of service. If a decline in costs was accompanied by a decline in service, the respondents were liable to be highly critical of the project. This finding reinforces the need to guard against focusing on cost to the exclusion of other service variables.

Progress Toward Demonstration Objectives

In general, few of the objectives of the OHDS coordinated transportation demonstration program were met, although substantial progress has been made in understanding the barriers to coordination. The barriers to successful systems were more often operational (for example staffing, funding, and turfism) than statutory or regulatory. For the most part, the coordinated transportation efforts were not more or less efficient or effective than uncoordinated transportation operations. Greater coordination with existing public and private transportation providers was not achieved. Analysis of demonstration activities shows a need for substantial technical assistance at the local level. Thus, the premise that minimal OHDS funds are required to stimulate and implement coordinated transportation was not supported by this program's results. Finally, the objective of establishing transportation systems that will continue to serve human service agency needs after the demonstration is over will be met at some of the sites. These sites were able to obtain more funds, more stable funding, and local political commitments.

Coordination Process

The overriding theme emerging from the coordinated transportation demonstration program is that *coordination is a more costly, complex, difficult, and time-consuming process than had been imagined*. The process of coordination is arduous and does not end with initial accomplishments; some of the greatest achievements of the demonstration projects (particularly with regard to sources of funds and integration of funds) will require constant vigilance and work to ensure that the parties do not revert back to former attitudes and activities.

There are no overwhelming barriers facing those agencies that really wish to coordinate. Major problems encountered by the demonstration projects revolved around operating issues rather than statutory or regulatory requirements. However, the lack of Federal or state *incentives for coordination*, plus the hindrances that do exist, are sufficiently serious to provide excuses for those who do not wish to coordinate and to discourage those who do.

Strategies for Successful Coordination

Achieving coordination objectives often depends on the ability of the implementors to specifically identify and utilize appropriate coordination objectives and strategies. Most activities of the demonstration projects were not closely related to the local problems that originally suggested the need for coordination. A clear understanding of which strategies are being used for which purposes is crucial to the ultimate accomplishments of particular projects. The major types of coordination objectives are:

- reduce actual capital expenditures,
- increase the amount of services,
- improve the use of resources (increase efficiency), and
- improve the provision of services (increase effectiveness).

The choice of a particular strategy depends on the problems and objectives that have been identified in the service area. Once these problems have been identified, specific objectives can be chosen. Then specific strategies can be chosen to implement the objectives. The use of specific strategies and objectives allows system managers to continually monitor progress and to take corrective actions, if necessary. This process — specificity and iteration — changes coordination from a general concept into a detailed, achievable plan of action. Systems using the matrix of objectives and strategies in Chapter 6 will substantially increase their potential for successful coordinated transportation operations.

Lessons for Coordinated Transportation Systems

The demonstration program has provided a variety of lessons pertaining to the planning and management of transportation systems. Although many of these

lessons appear to be simple matters of common sense, their operation or resolution often proved vexing to the demonstration projects. They are offered by category as guides to others engaged in coordinated transportation:

The Planning Process

- Have a clear idea of what you're doing.
- Resolve major problems before operating.
- Do your political homework.
- Make the proposal reasonable.
- Don't promise more than you can deliver.

Management

- The director is the key.
- Don't create conflicts for boards of directors.
- Match personnel skills and job requirements.
- Don't overwork the staff.
- Select a lead organization with sufficient financial resources.
- Operate in a business-like fashion.

Vehicle Selection and Maintenance

- Acquire only well maintained vehicles.
- Plan ahead for vehicle procurement delays.

Financial Matters

- Establish an accurate billing and accounting system.
- Careful attention to contracting is mandatory.

System Performance

- Focus on service.
- Focus on viable operations.

Monitoring and Evaluation

- Change bad ideas.

The Implementation Process

- Make a realistic time schedule.
- Don't grow too fast.

POLICY IMPLICATIONS AND RECOMMENDATIONS

This evaluation of the OHDS Transportation Demonstration Program has identified many issues that could be addressed by HEW. Resolving these issues could make it easier for local transportation providers to achieve coordinated service delivery. The needed improvements are discussed below in three categories: national policy and programming, project planning and organization, and project operations and service management. Each is described in detail in Chapter 7 and is summarized below:

National Policy and Programming

- Endorsement of Coordination: *HEW should officially announce that it will support coordinated transportation systems where these have been locally determined to be desirable, and should then provide this support through technical assistance, legislative and regulatory reforms, and research.* The lack of a clear-cut endorsement of coordination has hampered the operations of coordinated projects and has allowed agency turfism to impede cooperative efforts. This endorsement should stress using coordination only when beneficial to the parties involved, since coordination is not a universally effective strategy for improving transportation services. While HEW should assist in the coordination of the transportation operations of human service agencies, the agency should most definitely not mandate such coordination. Monetary incentives for coordination are not required or desirable.
- Technical Assistance: *OHDS should function as a source of information and technical assistance to local coordinated transportation systems.* Services provided should include information on the results of this and other demonstrations, the continual dissemination of technical guidance memoranda, and on-site technical assistance. Primary subject areas should focus on project planning and organization as well as project operations and management. Specific details are described in the next two sub-sections.
- Legislative and Regulatory Reforms: *OHDS should attack Federal statutory and regulatory impediments to coordination.* The incentives to coordination are currently not great enough in light of the barriers that exist. Even through current statutory and regulatory barriers do not prohibit coordinated transportation, Federal action is required to eliminate the impediments that exist. OHDS should begin by eliminating barriers within the rules and regulations of its own programs. For example, eligibility determination under Title XX, the reporting procedures imposed on vendors (in this case, transportation providers) under Title XIX, and the difficulties in coordinating Title XIX and XX transportation services are issues that require resolution.

- Research: OHDS should sponsor research into high-priority issues pertaining to coordinated transportation. While OHDS has already begun investigating insurance and billing and accounting for coordinated transportation systems, other subjects that also deserve attention include training requirements for managerial staff and boards of directors, state laws and regulations governing the provision of transportation, the relative strengths of various non-monetary incentives for coordination, the development of model contractual formats, and standard or expected ranges for performance indicators for specialized transportation or paratransit systems.

Project Planning and Organization

- Understanding Coordination Concepts: HEW should consider a wide distribution of information on this demonstration program and the lessons learned from it. More particularly, the message that coordination is not an appropriate answer to all human service transportation problems should be widely disseminated.
- Project Planning Requirements: OHDS should consider a legislative initiative that would include financial support for the planning and initial operations of coordinated systems. The planning and reporting requirements of HDS agencies should be streamlined and standardized. In addition, as an incentive to coordinating transportation operations, methods of obtaining waivers for duplicative or conflicting planning, operating, and reporting requirements of HDS agencies should be implemented.
- Project Organization: OHDS should offer technical assistance on how to develop contractual agreements among agencies participating in coordinated projects, including advice on model maintenance and purchase-of-service agreements.
- Staffing: HEW should provide program guidance and training assistance on staffing levels and capabilities to agencies considering transportation coordination.
- Grantee Readiness: Specific requirements should be developed regarding the readiness of a grantee who intends to use grant-in-aid funds for transportation coordination. These requirements should address participating agency commitment and the grantee's capacity to cope with the initial cash flow problems that may be encountered.
- Funding Opportunities and Constraints: HEW should disseminate information on available Federal assistance for transportation services in general, and should provide technical assistance to local agencies on how to use these programs. OHDS should sponsor legislative initiatives to remove joint-use restrictions from the enabling legislation of some of this program administrations.
- Insurance: HEW should offer models of insurance policies and directories of vendors who specialize in insurance for coordinated systems.

Project Operations and Service Management

- Billing and Accounting: *OHDS should publish billing and accounting models that have been designed for coordinated transportation systems. Moreover, OHDS should consider the development of billing and accounting training programs for grantees involved in coordinated transportation projects.*
- Quality Assurance Procedures: *OHDS should sponsor research on coordinated transportation service quality problems and on ways ensuring minimum service quality levels.*
- System Performance Measures and Standards: *OHDS and DOT should sponsor research into the development of common performance measures and standards for transportation services provided by specialized transit systems. Such information would give both purchaser and provider agencies much better means of assessing the adequacy of services being provided and the kinds of changes that would be desirable.*

OVERALL ASSESSMENT

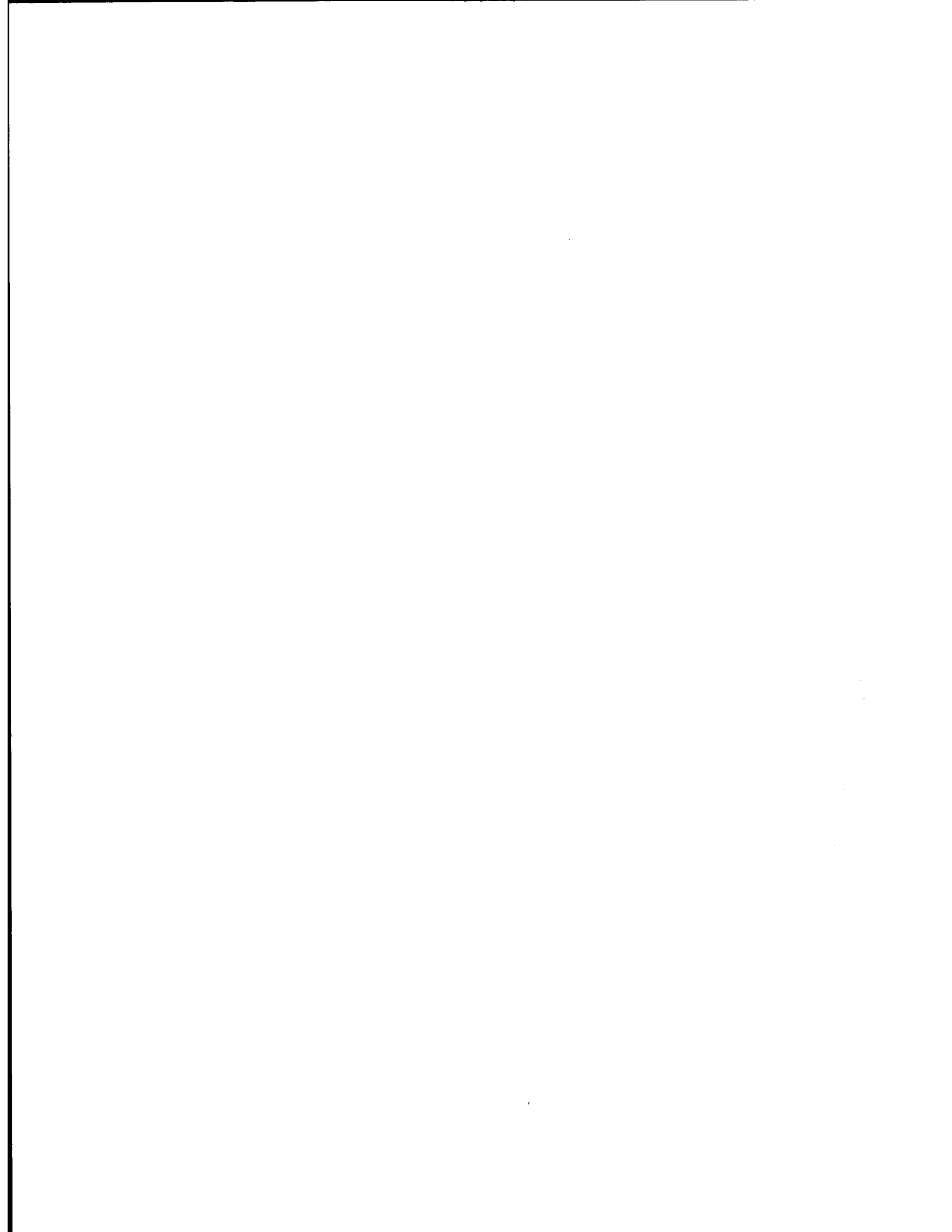
The development of specialized transportation systems — those providing limited services to limited target groups — were necessary because the transportation needs of people in certain areas were not being met. Suddenly, everybody had his own transportation system. Closer observation showed that the multiplicity of providers led to duplicative efforts, that many of the individual systems operated without regard to certain basic principles of economic efficiency, and that some of these principles were potentially achievable in the aggregate and for specific agencies through coordination. Thus began the coordination cycle, with some very high expectations.

When this demonstration program began, coordination was being oversold in many places as a panacea, a strategy to eliminate duplication and to provide high-quality services in the face of impending budget cuts. Because of its logical appeal, coordination was previously extolled as a universally worthwhile effort. This simply is not true. As a result of this demonstration program and other efforts, coordination is now seen as a less versatile solution than had been imagined. The demonstration projects confronted more problems than anticipated, took longer to resolve them, and achieved less than expected.

The basic selling point for coordination has been that it saves money. In fact, this was generally not the case for these demonstration projects. We

conclude that it is only in very special circumstances that coordination costs less. First, coordination more readily generates savings for the smaller rather than the larger components of transportation budgets; that is, coordination will more readily lead to administrative instead of operating cost savings. Second, coordination is much more costly and time-consuming than any of us had initially expected, but it might save money in specific instances. Productivity increases apparently are more readily achievable through coordination than are direct cost savings.

This demonstration program has substantially increased our knowledge of the potentials and pitfalls of coordination. Seen in the proper perspective — one of several possible techniques to improve the mobility of persons dependent on social assistance for their transportation — coordination can be an effective tool.



2

OVERVIEW OF THE EVALUATION

The overall goal of the Transportation Demonstration Program of the Office of Human Development Services was to test approaches to coordinating and consolidating human service transportation systems to increase efficiency and effectiveness. Grants to perform these tests were officially awarded to the demonstration projects in June of 1977 to begin the two-year demonstration period. (Subsequently some of the projects received third-year grants. See Chapter 4.) This chapter discusses the concept of coordination, the objectives of the coordinated Transportation Demonstration Program, the development of the program, and the scope and methodology of this evaluation effort.

COORDINATION

The coordination of transportation services among various agencies is often proposed to enable small transportation systems, often operating in fragmented or duplicative fashions, to achieve the economies of scale usually achieved by large operators. Although numerous objectives are sometimes mentioned — the elimination of duplicative services, the filling of service gaps, and the improvement of services, among others — the primary objective is usually to save money.

The savings can be reinvested in the transportation system — to provide more service to more people or to increase the quality of service — or in the social service agencies — to provide more non-transportation services. Other coordination objectives and the process of interaction itself (see Chapter 6) can also be important to some persons. However, the focus on coordination as a tool for increasing the efficiency and effectiveness of transportation operations remains the major objective in most cases to date.

Increases in efficiency and effectiveness are possible in many ways. Since unit costs depend on both costs (inputs) and productivity (outputs), one can reduce unit costs by spending less (using fewer resources to achieve the same results) or achieving more (using the same amount of resources to achieve greater results). As an example of the first strategy, capital expenditures for vehicles can be reduced in situations where vehicles are sometimes idle during the day. Fewer vehicles are necessary in situations where routes can be combined because of excess capacity on the vehicles now being operated. Direct costs can be reduced by bulk purchases of items such as gasoline and oil, tires, vehicles, insurance, and other supplies. Certain agencies may be able to purchase such items with reduced or no taxes. Similarly, the functions of existing personnel not used to capacity can be consolidated. The productivity of drivers, dispatchers, and administrative personnel should be examined for potential cost savings. On the other hand, if more riders can be served for the same costs, this will also lead to increases in efficiency and effectiveness. Sharing space on existing vehicles allows both greater vehicle occupancy and service to new riders. Vehicles freed from duplicative operations can serve new geographic areas, clients, and client groups. Putting the management of transportation operations in the hands of transportation professionals might increase efficiencies. These and other ideas¹ can be implemented one at a time or jointly to improve efficiency and effectiveness.

A variety of coordination techniques or strategies are available, a number of which have been implemented in this demonstration program. While the term "coordination" will refer throughout this report to this total range of options,

¹See Chapter 6 for a more complete discussion of coordination strategies.

a useful distinction has been made between cooperation, coordination, and consolidation techniques.² These terms are on an ascending scale of integration of resources and represent vastly different levels of cooperative efforts and activities. The terms can be distinguished as follows:

- cooperation: working together in some loose association in which all agencies retain their separate identities and authorities,
- coordination: joint actions of a group with formal arrangements to provide for the management of the units of a distinct system, and
- consolidation: vesting all operational authority and resources in one agency that then provides services according to agreements with client agencies.

A scale of specific coordination techniques would include at least the following:

- information clearinghouse,
- referrals to ride sharing agencies,
- centralized dispatching and scheduling,
- coordination of maintenance and purchasing,
- integration of transportation services of human service agencies, and
- integration of transportation services of human service agencies and public transit authorities.

DEMONSTRATION PROGRAM GOALS AND OBJECTIVES

The stated goal of the Office of Human Development Services (OHDS) Transportation Demonstration Program is:

"For the purpose of affecting national policy and programming, the Office of Human Development (OHD) will demonstrate the feasibility of coordinating and/or consolidating transportation resources serving HDS target populations at the sub-State level... to test approaches to coordinating and consolidating human service transportation systems to increase efficiency (i.e., provide more transportation services for a given dollar level) and effectiveness (i.e., improved accessibility to services).

²Joseph S. Revis, "Coordinating Transportation for the Disadvantaged," in John W. Huddleston (ed.), Proceedings of the Southwest Conference in Coordinating Transportation Programs for the Transportation Disadvantaged, University of Texas at Austin, 1977, pp. 61-80.

"Two premises were made in setting this goal: (1) Existing transportation services provided through Federal, State and local sources to OHD populations can be coordinated at the local level with MINIMAL incentive monies. Additionally, (2) coordination and/or consolidation of transportation systems serving OHD populations will lead to increased *efficiency* (by reducing duplication and total systems costs) and *effectiveness* (by reducing fragmentation and improving access to services)....

"More specifically, the objectives of the projects are to:

1. Encourage OHD and other human service programs which provide transportation services to develop *practical approaches* to coordination and/or consolidation of transportation services at the local level.
2. Explore and test transportation service delivery systems and organizational methods which could lead to more integrated or centralized (hence *more cost effective*) transportation services.
3. Develop and test methods for greater coordination of *existing* public and private transportation *providers*, e.g., buses and taxis, with human service agency transportation services.
4. Identify statutory, regulatory or administrative *barriers* to implementing coordinated and/or consolidated approaches to the organization and financing of transportation services, including public transportation programs".³

Careful attention to these objectives is crucial, as they form the basis for our evaluation of the activities of the five demonstration projects.

In addition to these "official" pronouncements, the HEW project officer for the demonstration program described the program's objectives in the following fashion:

"The HDS transportation initiative is not only intended to demonstrate improved service levels and cost savings through coordinated transportation programming, but also to help establish an identifiable local transportation system responsive to, and representative of, the combined needs of participating human service agencies. Accordingly, our shared objective is to establish a transportation system with the capacity of continuing after the HDS demonstration period ends."⁴

³"Guidelines for the Preparation and Submission of an Application for a Project Grant under the Office of Human Development Transportation Demonstration Program," The Federal Register, May 20, 1976. (Emphasis added)

⁴Letter of January 22, 1979 from Michael Albarelli of OHDS to Don Young, Executive Director of the grantee agency in Fayetteville, Arkansas.

THE DEVELOPMENT OF THE DEMONSTRATION PROGRAM

Background

At least 30 Federal programs provide financial support for categorial human service transportation,⁵ and a total of 114 Federal programs provide some sort of assistance for client transportation.⁶ It has been estimated that at least \$70 million is expended annually for transportation services provided under OHDS programs alone.⁷ In addition, the estimated figure (provided to the House Select Committee on Aging) for Title III transportation in 1975 was \$42 million. The Title XIX (Medicaid) program and several other health and education programs in the department also provide some form of transportation services, but figures on expenditures are not known, as transportation is rarely a line item in HEW program budgets. The Department of Transportation is also spending large sums for transporting the elderly and handicapped in response to statutory mandates.⁸

Even though there has been considerable activity in the area of special human service transportation for some time, no Federally supported evaluation of such services has yet been published. Previous research activities have included the efforts by:

- the General Accounting Office,⁹

⁵See Table VIII-2 showing 30 Federal programs with transportation in Planning Handbook: Transportation Services for the Elderly, prepared by the Institute of Public Administration for the Administration on Aging (1976), pp. VIII-4 to VIII-8.

⁶Hindrances to Coordinating Transportation of People Participating in Federally Funded Grant Programs, Volume I, Report of the Comptroller General of the United States (October 1977).

⁷Request for Proposals for the Evaluation of Office of Human Development Services Transportation Demonstration Program, OHDS (July 15, 1976).

⁸Sections 5 and 16, Urban Mass Transportation Act of 1964, as amended, and Section 165, Federal Aid-Highway Act of 1970, as amended, mandate that the Department of Transportation spend large sums for capital assistance for transportation for the elderly and handicapped. DOT's guidelines for implementing Section 504 of the Rehabilitation Act of 1973 promote access for the handicapped to all modes of public transportation in as prompt a manner as possible.

⁹Hindrances to Coordinating Transportation of People Participating in Federally Funded Grant Programs, Volume I, Report of the Comptroller General of the United States (October 1977).

- the U.S. Department of Transportation,^{10,11,12}
- the Administration on Aging,^{13,14}
- OHDS,¹⁵ and
- various states.^{16,17,18}

These studies indicate that there are few existing models of coordinated transportation. Most of the systems studied to date have served only one population group, which means that they are not truly coordinated systems. A lack of specific information on the nature of difficulties experienced at the local level has been a problem in overcoming barriers to coordination.

To date, studies that considered coordinated transportation have emphasized the problems associated with achieving coordination, rather than the process by which coordination can be achieved. One of the explicit aims of the OHDS demonstrations is to develop coordinated transportation models that will be useful to other communities wishing to coordinate transportation services provided under several different health and social service programs. By

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- ¹⁰Coordinating Transportation for the Elderly and Handicapped: A State of the Art Report, prepared for the Urban Mass Transportation Administration by the Institute of Public Administration (November 1976).
- ¹¹Elderly and Handicapped Transportation: Eight Case Studies, prepared for the Urban Mass Transportation Administration and the Office of the Secretary, U.S. DOT, by Public Technology, Inc. (September 1979).
- ¹²Coordinating Transportation Services for the Elderly and Handicapped, (4 vol.), prepared for the Office of the Secretary, U.S. DOT, by Ecosometrics, Incorporated (January 1978).
- ¹³Transportation for Older Americans, prepared for the Administration on Aging by the Institute of Public Administration (April 1975).
- ¹⁴Transportation for the Elderly: The State of the Art, prepared for the Administration on Aging by the Institute of Public Administration (January 1975).
- ¹⁵Evaluation of Services Integration Demonstration Projects, Human Services Bibliography Series (Abstracts) #1, PROJECT SHARE (June 1976).
- ¹⁶TRANSPLAN '76, Planning and Research Division, Iowa Department of Transportation, Ames, Iowa (March 1976).
- ¹⁷Client Transportation and Services Coordination in Michigan, Bureau of Transportation Planning, State Highway Commission, Lansing, Michigan (Sept. 1978).
- ¹⁸Statewide Study of the Feasibility of Coordinating or Consolidating Specialized Transportation Services, prepared for the New York State Department of Transportation by the Institute for Public Transportation, Albany, New York (Oct. 1978).

providing documentation of the process by which coordination is achieved in the five OHDS demonstrations, including the progress made in overcoming barriers to coordination, this evaluation effort suggests guidelines for coordination that can be followed by transit authorities, human service agencies, and planners at all levels of government.

Previous HEW Efforts in Coordinating Human Service Programs

To address the problem of fragmented, duplicative, and overlapping health and social service delivery, in 1971 the Secretary of HEW directed the department to develop research on "services integration" techniques. Services integration is an approach to the organization of human services. It involves certain integrating mechanisms and processes that enable the coordination of a range of related social services so such services can be delivered in an efficient, effective, and comprehensive manner.

Since 1971, some 35 services integration R&D projects have been funded by HEW, including service delivery experiments conducted by State, county, city, community, and Indian reservation units of general purpose governments, and technical study efforts on needs assessment, planning, information, and management systems development. The research and evaluation findings of most of the 35 projects referenced above can be obtained through PROJECT SHARE, a national clearinghouse supported by HEW to improve the management of human services. Most of the integrated service delivery systems have been or are currently undergoing evaluations of their efficiency, effectiveness, and impact on clients and the community.

Many HEW service programs include transportation components, and transportation is often the one service that is commonly needed by clients of several otherwise separate and distinct programs in any community. Therefore, the concept of services integration can be said to have formed the basis for the development of the OHDS transportation demonstrations.

Developments in the OHDS Transportation Demonstration

In recognition of the fragmented, duplicative, and costly nature of transportation services provided to clients under OHDS (and other HEW) programs, a transportation work group (TWG) was convened by HEW early in 1976. The TWG

contained representatives of each of the programs within OHDS. (Persons from the Department of Transportation were subsequently added to the work group.) The work group was charged with the task of investigating the feasibility of coordinating or consolidating transportation services among OHDS programs at the local level.

The work group reviewed the literature on specialized transportation, services integration, and coordinated transportation; communicated with its State and local counterpart agencies; and discussed the matter with experts in the field of human services and public transportation. The group learned there was general agreement that 1) coordinated or consolidated transportation appeared to be less costly than categorical or non-coordinated services; 2) barriers to coordination existed, but there was little in the way of a national knowledge base on the impact of coordinating transportation services at the local level. Based on the information gathered by the work group, the Office of Human Development Services decided to establish a program that would demonstrate the feasibility of coordinating or consolidating transportation resources serving OHDS target populations at the sub-State level.

The application guidelines released in May of 1976 in The Federal Register called for letters of interest from agencies that intended to coordinate or consolidate the transportation operations of at least three OHDS agencies (and possibly non-OHDS agencies, including other human service providers and transportation organizations). Various coordination concepts (e.g., a clearinghouse, various levels of integrated operations, and full consolidation) were to be tested in a variety of geographic settings. The guidelines for the applicants screened out agencies that had already begun to coordinate transportation services in their communities. Writing the proposal for the demonstration grant was the first coordinated effort in transportation for many communities. The final applicants invested their own time and efforts in two rounds of proposal submission. By selecting applicants with no previous experience, OHDS was working with the most difficult type of demonstration program — and yet, at the same time, probably the most typical type of local agencies that may undertake coordination attempts in the future, since there really is very little in the way of experience in transportation coordination in the vast majority of potential sites.

Ten eligible applicants were selected from the 48 letters of interest received. The ten applicants submitted in-depth proposals to OHDS, which awarded five grants in June of 1977. The following criteria were examined in the selection of the five grantees:

- Project relevant to OHDS goals and objectives?
 - realistic concepts
 - magnitude of anticipated cost savings and service increases
 - commitment of local agencies
 - funding availability; personnel capability
 - transferability of results to other sites
- Proposal clearly describes needs and outcomes?
 - measures of transportation system inefficiencies
 - service coverage deficiency
 - potential for agency transportation coordination
 - relationship of project objectives to increased accessibility and reduced costs
- Proposal clearly describes implementation approach?
- Sections of proposal clearly relate to each other?
- Is overall project cost reasonable?¹⁹

This selection process resulted in demonstration grants to the following agencies:

- Northwest Arkansas Human Services, Inc., Fayetteville, Arkansas
- Grand Rapids Transit Authority, Grand Rapids, Michigan
- Community Action Council of Howard County, Maryland, Inc.
- Greater Jacksonville Economic Opportunity, Inc., Jacksonville, Florida
- Westchester County Department of Transportation, Westchester County, New York

These grantees were thus carefully screened and chosen as those that appeared most capable of meeting HEW's objectives.

Most of the grantees began their efforts by searching for a director for their project. Transportation operations commenced at various points during

¹⁹OHD Transportation Demonstration Program: Recommended Indicators for Project Selection Criteria, prepared for Department of Health, Education, and Welfare by Applied Resource Integration, Ltd., Boston (December 1976).

the first year. (See Chapter 4 for a complete discussion of the major events and activities of the projects.) All five localities were awarded second-year grants, sometimes to different but related agencies. Three of the five sites received third-year grants. The grant totals²⁰ for each of the sites are as follows:

Table 2-1
 DEMONSTRATION FUNDS AWARDED BY OHDS
 FOR COORDINATING TRANSPORTATION SERVICES

Site	Funding Levels			
	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>Totals</u>
Fayetteville	\$45,949	\$65,000	\$40,000	\$150,949
Grand Rapids	98,531	78,144	0	\$176,675
Howard County	75,250	52,285	45,000	\$172,535
Jacksonville	99,279	\$114,992	32,000	\$246,271
Westchester County	96,000	78,470	0	\$174,470

In addition to the \$920,900 directly awarded to the sites, a contract of \$545,435 was awarded to Applied Resource Integration, Ltd., to provide technical assistance to the sites in the proposal stage and for the first two years of the grants. This sum included \$156,000 in DOT funds, administered by OHDS, to provide guidelines for coordination of agency transportation systems. The third-year grants to the three on-going projects contain funds for the purchase of technical assistance services by the grantees (with the approval of OHDS). The contract with Ecosometrics, Incorporated to evaluate the first two years of the demonstration program totalled \$344,964. All items together — the grants to the project, the technical assistance contract, and the evaluation contract — brought the total expenditure for the OHDS coordinated transportation demonstration to \$1,811,299.

Administration of the Demonstration Program

This demonstration program was conceived and administered by the Office of Human Development Services (OHDS; formerly known as OHD, the Office of Human

²⁰Actual expenditures were sometimes slightly less than the total dollars awarded.

Development). OHDS is the principal operating component of HEW responsible for administering human service programs. The services of HDS, funded at a level of approximately \$5.8 billion, are implemented through its five program administrations: Administration on Aging; Administration for Children, Youth, and Families; Rehabilitation Services Administration; Administration for Native Americans; and Administration for Public Services. Human development services are intended to complement HEW's income assistance and health insurance programs by supporting the independence and self-sufficiency of individuals and by strengthening families and communities.

Administration of the day-to-day operations of the demonstration program, five demonstration projects, and the technical assistance contract was performed by the Division of Research, Demonstration, and Evaluation of the Office of Planning and Evaluation of OHDS. These functions, and the personnel responsible for administering them, were subsequently transferred to the Administration for Public Services (APS), which is one of the program units of OHDS. The prime responsibility of APS is the administration of the Title XX program, Social Service for Individuals and Families (part of the Social Security Act of 1935, as amended). The evaluation contract was administered separately throughout the demonstration program by the Division of Evaluation and Analysis of the Office of Planning and Evaluation of OHDS (subsequently renamed the Office of Planning, Research, and Evaluation).

THE EVALUATION STUDY

The evaluation effort measured progress toward the demonstration objectives. It also documented the demonstration activities through structured interviews, on-site observations, and data supplied by the grantees. These data were also used to assess the efficiency and effectiveness of the demonstrations at each site.

The following sections highlight the evaluation effort. Further details can be found in the first year's report.²¹

²¹Jon E. Burkhardt, Dolores A. Cutler, Sue F. Knapp and Kenneth P. Ceglowski, Evaluation of the Office of Human Development Services Transportation Demonstration Program: Results of the First Year's Activities, prepared by Ecosometrics, Incorporated for Department of Health, Education, and Welfare, Bethesda, (February 1979).

Objectives

Coordinated/consolidated transportation systems for the OHDS target groups presumably create demonstrable benefits vis-a-vis uncoordinated, specialized, particularized transportation. The purpose of the process evaluation is to explain the relative degree of success in terms that will be instructive to others who attempt to coordinate or consolidate transportation services.

The following are the major activities that took place during the evaluation:

- the documentation of changes in the degree of coordination in the provision of transportation by social service agencies,
- the documentation of changes in the amount of quality of transportation provided to HDS clients (and others) and in the transportation system,
- an overall assessment of the relative worth of the transportation changes to the local agencies and Federal programs participating in the clients served by coordinated transportation, and
- an analysis of the degree to which changes in transportation service could be concretely linked to changes in the degree of coordination that occurred over the lives of the demonstration projects.

The transportation services provided in each demonstration community change over time. This change is presumably an increase and it presumably begins to be noticeable after the coordination efforts begin. Other factors as well as the coordination efforts will have an influence on the transportation changes that occur; the evaluation effort must separate these influences from the influences of the coordination activities. All of the outcomes associated with the demonstrations can be traced to some sort of change in the system itself; e.g., cost reductions due to a shift from a single-agency fleet to a consolidated operation. This is a relatively simple step, linking a known impact to its immediate cause. However, given the complexity of the interactions in the coordination process, it is sometimes difficult to establish the extent to which coordination activities contribute to system changes. The extent to which coordination caused certain changes is discussed in this report.

Data Collection

The analysis used data collected in three ways: background data collected by Ecosometrics, data collected and reported monthly by the grantees, and data collected through surveys administered by Ecosometrics.

The background data include the socioeconomic and demographic characteristics of the areas as well as operational and financial data on the agencies participating in the projects (for the 12-month period before the demonstration projects were undertaken). The data collected and reported monthly by the grantees include data on current costs, revenue, ridership characteristics, and operational statistics. In addition, personal interview questionnaires were administered by Ecosometrics to collect information from agencies, influential persons, and users on perceptions, impacts, and the process of coordination.

The universe of all respondents for the personal interviews in each of the five demonstration projects included:

- all agencies participating in the demonstration project;
- all State agencies having jurisdiction over agencies participating in the project;
- local health and social service agencies not participating in the project, but having transportation components (either through reimbursement or purchase of service);
- local and regional planning bodies with jurisdiction over the service areas in which the project was located;
- individuals exerting influence at the local level with respect to human service transportation; and
- users of the coordinated transportation services at each demonstration site (both OHDS clients and other population groups who may also utilize the service).

Some respondents (in particular, all participating agencies at each site relevant State agencies, and the local public transit authority), were interviewed "with certainty" because of their influence on the planning, funding, or development of transportation services. The remaining types of respondents were sampled to obtain representative interviewees. The number of respondents actually interviewed at each site is shown in Table 2-2.

Table 2-2

INTERVIEWS CONDUCTED TO ASSESS
OHDS COORDINATED TRANSPORTATION DEMONSTRATION PROGRAM

Respondent Types	Fayetteville, Arkansas (4 Counties)		Grand Rapids Michigan		Howard County Maryland		Jacksonville Florida		Westchester County New York	
	1st year	2nd year	1st yr.	2nd yr.	1st yr.	2nd yr.	1st yr.	2nd yr.	1st year	2nd year
Participating Agencies	7	11	4	5	4	5	14	7	1	8
Non-Participants ¹	13	9	13	8	3	3	13	16	14	5
State Agencies Analogous to Local Agencies	6	5	7	6	8	3	6	2	7	1
Grantees ²	3	1	2	2	2	1	4	2	3	2
Planners/Funders/ Influential Persons	15	12	12	5	10	9	15	7	10	3
Total Interviews (excluding riders)	44	38	38	26	27	21	52	34	35	19
User Interviews at Each Site	155	75	166	0 ³	123	84	204	195	52	41

¹Non-participating agencies are agencies in the community that provide transportation services to their clients and are not participating in the demonstration project.

²Grantees interviewed are representatives of both the grantee agency and the operating agency.

³No second-year user interviews were conducted in Grand Rapids due to the small number of persons using the coordinated service when data were collected (April 1979). Some user statistics are available from a locally-administered survey in February 1979.

3

DESCRIPTION OF THE FIVE DEMONSTRATION PROJECTS

This chapter briefly describes the five demonstration sites, including information on 1) the projects' original coordination concepts as proposed in their first-year grant applications, 2) the status of the concepts as of May 1979, and 3) some operational, financial, and service characteristics of the projects.

This information is presented as background for the analysis in the following chapters. More detailed descriptions of the projects are found in Appendix A. The reader is urged to spend some time studying that material to more fully understand the projects and their developmental processes.

The projects provide a range of coordination concepts to be tested. The clearinghouse concept in Fayetteville¹ allowed the participating agencies the greatest amount of flexibility and required the least amount of commitment. In Grand Rapids, certain functions (e.g., dispatching) were consolidated, but the majority of trips were still provided by agencies acting independently of one another. The local transit authority was one of the major participants.

¹In its third year proposal, the Fayetteville project changed its basic concept from the clearinghouse to consolidation.

In Jacksonville, several coordination concepts were approached at one time, including the consolidation of some agencies' resources and services, coordination with others, and purchase-of-service agreements with still others. The local transit authority provided dispatching services and technical assistance to the project, but did not consolidate operations. Westchester attempted to incrementally consolidate the operations of human service agencies and planned eventually to implement a countywide paratransit system to serve agency clients plus elderly and handicapped persons who may not be social service agency clients. Howard County obtained the greatest degree of consolidation, having completely taken over the transportation budgets and vehicles of the participating agencies to provide services as an independent entity.

The sites themselves showed a similarly large variation in their characteristics. The Fayetteville project covered a very large area that is quite sparsely populated, with some difficult terrain and weather problems. Howard County is relatively small and basically rural, but with a developing urban center. Westchester County is part of the New York City SMSA, but the northern part of the county includes some low-density areas. Grand Rapids and Jacksonville are urban centers; Jacksonville was the most heavily populated of the demonstration sites.

At all sites, the users tended to be the "transportation disadvantaged" — the elderly and handicapped, non-drivers, and the poor. The users also tended to be predominantly female. There were some substantial site-to-site variations: Westchester served a higher proportion of low-income persons than did the other projects; Fayetteville served many more persons who live alone; and Jacksonville served by far the largest proportion of non-whites. The elderly were the largest single client group (except that more physically handicapped were served in Westchester).

Table 3-1 shows the coordination objectives proposed at each site and Table 3-2 summarizes various project statistics.

Please refer to Appendix A for more complete details about the projects.

Table 3-1

PROPOSED COORDINATION OBJECTIVES AND STRATEGIES OF THE FIVE PROJECTS

Site	Reduce Actual Expenditures	Increase Amount of Service	Improve Use of Resources	Improve Provision of Service
Fayetteville, Arkansas	<ul style="list-style-type: none"> ● reduce overhead on management, accounting and recordkeeping by combining the functions of existing personnel not used to capacity ● reduce direct costs on supplies and maintenance by bulk purchasing supplies and by obtaining a volume maintenance contract ● reduce direct costs on insurance by obtaining a lower fleet price 	<ul style="list-style-type: none"> ● increase passenger trip-making by providing more service hours, more frequent service, and promotional campaigns ● increase geographic area by re-designing routes and schedules and using existing vehicles during idle time ● increase number of persons served by expanding service ● increase impacts on target population; serve more client groups and more agencies by using excess capacity on vehicles and by negotiating purchase of service contracts with agencies needing transportation 	<ul style="list-style-type: none"> ● increase cost efficiency; lower unit cost of service, and provide more service for the same costs by obtaining economies of scale through joint actions ● improve labor productivity of maintenance staff by more efficient management ● improve vehicle utilization; make better use of capacity and time on vehicles by joint dispatching and scheduling (ride-sharing and time-sharing) 	<ul style="list-style-type: none"> ● increase service accessibility to users by expanding services or re-designing routes and schedules ● increase service quality by improving passenger safety through vehicle maintenance program ● improve management by increasing the number of funding sources and obtaining longer term, more stable funding ● build political and community support by meeting community needs, providing quality service and through public relations efforts ● increase provision of primary social services by providing new clients with access and freeing agency personnel from transportation functions.
Grand Rapids, Michigan	<ul style="list-style-type: none"> ● reduce overhead expenses on dispatching/scheduling by combining these functions of existing personnel ● reduce direct costs on supplies, taxes and maintenance by bulk purchasing under a non-taxable status and by obtaining a larger scale maintenance operation 	<ul style="list-style-type: none"> ● increase passenger trip-making by combining service and eliminating unused capacity ● increase number of persons served by establishing information and referral program 	<ul style="list-style-type: none"> ● increase cost efficiency; lower unit cost of service and provide more service for the same costs by obtaining economies of scale through joint actions ● improve labor productivity of maintenance staff by more efficient management ● improve vehicle utilization; make better use of capacity and time on vehicles by joint dispatching and scheduling (ride-sharing and time-sharing) 	<ul style="list-style-type: none"> ● increase service quality by improving passenger safety through preventive maintenance program ● build community and political support by meeting community needs, providing quality service and through public relations efforts
Howard County, Maryland	<ul style="list-style-type: none"> ● reduce overhead expenditures on management, dispatching, scheduling, and accounting and recordkeeping by combining the functions of existing personnel not used to capacity ● reduce direct costs on supplies and maintenance by bulk purchasing supplies and obtaining a volume maintenance contract with a local garage ● reduce direct costs on insurance by obtaining a lower fleet price 	<ul style="list-style-type: none"> ● increase passenger trip-making by combining services and eliminating unused capacity 	<ul style="list-style-type: none"> ● increase cost efficiency; lower unit cost of service by obtaining economies of scale through joint actions ● improve driver labor productivity by better routing/scheduling and by setting driver objectives for daily mileage and passengers ● improve vehicle utilization; make better use of capacity and time on vehicles by joint dispatching and scheduling (ride-sharing and time-sharing) 	<ul style="list-style-type: none"> ● increase service effectiveness by increasing productivity through the elimination of unused capacity ● increase service quality by improving passenger safety and reliability through vehicle maintenance program and better management ● improve management by increasing the number of funding sources, obtaining longer term, more stable funding and by establishing stable monthly cash flow ● build political and community support by meeting community needs, providing quality service and through public relations efforts ● increase provision of primary social services by freeing agency personnel from transportation ● obtain non-transportation benefits by mainstreaming clients

Table 3-1 (continued)

Site	Reduce Actual Expenditures	Increase Amount of Service	Improve Use of Resources	Improve Provision of Service
Jacksonville, Florida	<ul style="list-style-type: none"> ● reduce overhead expenditures on management and dispatching/scheduling by combining the functions of existing personnel not used to capacity ● reduce direct costs on supplies and maintenance by bulk purchasing supplies and by consolidating maintenance to obtain larger scale maintenance operation 	<ul style="list-style-type: none"> ● increase passenger trip-making by providing more service hours, more frequent service, and promotional campaigns. ● increase passenger trip-making by combining service and eliminating unused capacity ● increase number of persons served by expanding service 	<ul style="list-style-type: none"> ● increase cost efficiency; lower unit cost of service, and provide more service for the same costs by obtaining economies of scale through joint actions ● improve vehicle utilization; make better use of capacity and time on vehicles by joint dispatching and scheduling (ride-sharing and time-sharing) 	<ul style="list-style-type: none"> ● increase service effectiveness by increasing productivity through the elimination of unused capacity ● increase service by improving reliability through preventive maintenance and better management ● improve management by obtaining longer term, more stable funding and by establishing a stable monthly cash flow ● build political and community support by meeting community needs, providing quality service and through public relations efforts ● increase provision of primary social services by freeing agency personnel from transportation
Westchester County, New York	<ul style="list-style-type: none"> ● reduce direct costs on maintenance and supplies by bulk purchasing supplies and by obtaining a volume maintenance contract with a local garage 	<ul style="list-style-type: none"> ● increase passenger trip-making by combining services and eliminating unused capacity ● increase the number of persons served by expanding service 	<ul style="list-style-type: none"> ● increase cost efficiency; lower unit cost of service, and provide more service for the same costs by obtaining economies of scale through joint actions ● improve vehicle utilization; make better use of capacity and time on vehicles by joint dispatching and scheduling (ride-sharing and time-sharing) 	<ul style="list-style-type: none"> ● increase service by improving reliability through preventive maintenance and better management ● improve management by obtaining longer term, more stable funding, and establishing stable monthly cash flow ● build political and community support by meeting community needs, providing quality service and through public relations efforts ● increase provision of primary social services by freeing agency personnel from transportation

Table 3-2
 DESCRIPTIONS OF OHDS COORDINATED TRANSPORTATION DEMONSTRATION PROJECTS

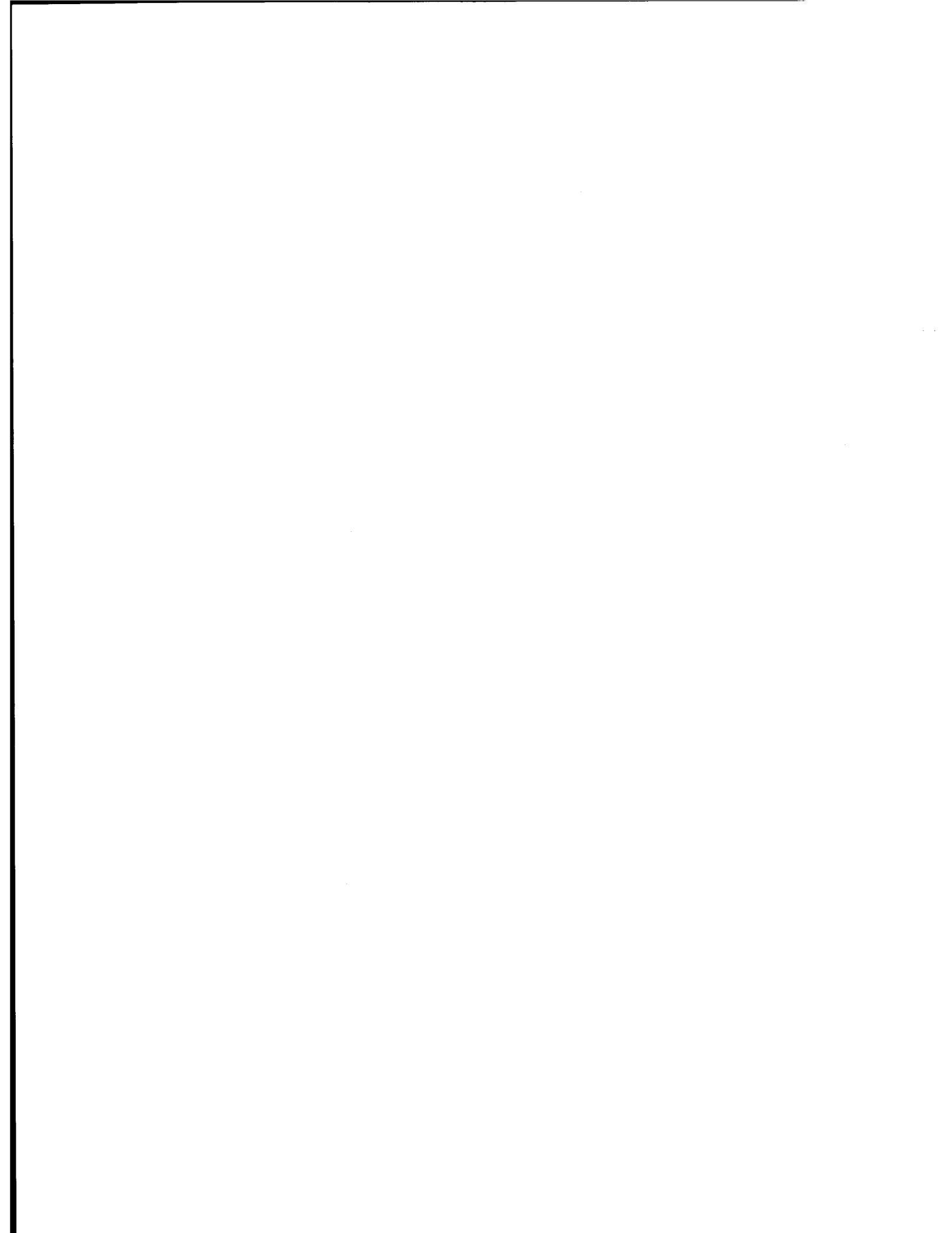
Characteristics	SITES				
	Fayetteville	Grand Rapids	Howard County	Jacksonville	Westchester
1. Service Type	demand responsive and fixed schedule	demand responsive and fixed schedule	demand responsive and fixed schedule	demand responsive and fixed schedule	fixed schedule
2. Service Area • Square Miles	4 counties 3,267 sq. miles	Kent County 857 sq. miles	Howard County 200 sq. miles	Duval County 766 sq. miles	Westchester County 450 sq. miles
3. Service Area Population	170,000	411,006	111,000	580,000	268,200
4. Clientele	agency only	agency & general E&H	primary agency (also E&H and low income)	agency only	agency only
5. Project Budget	\$290,995 1st year 370,033 2nd year 355,958 3rd year	\$1,169,762 1st year 1,286,737 2nd year	\$212,591 1st year 231,510 2nd year 224,965 3rd year	\$504,617 1st year 654,920 2nd year 564,894 3rd year	\$228,200 1st year 274,470 2nd year
6. OHDS Demonstration Grant Awarded	\$45,949 1st year 65,000 2nd year 40,000 3rd year	\$ 98,531 1st year 78,144 2nd year 0 3rd year	\$ 75,250 1st year 52,285 2nd year 45,000 3rd year	\$ 99,279 1st year 114,992 2nd year 32,000 3rd year	\$ 46,000 1st year 78,470 2nd year 0 3rd year
7. OHDS Demonstration Grant Used	\$30,759 1st year 53,890 2nd year 55,012 (est) 3rd year	\$ 63,753 1st year 81,477 2nd year 0 3rd year	\$ 62,500 1st year 65,035 2nd year 45,000 (est) 3rd yr.	\$ 96,776 1st year 114,992 2nd year 32,000 (est) 3rd yr.	\$ 81,688 (2-year est total) 0 3rd year
8. Date Operations Began	May 1978	February 1978	February 1978	March 1978	June 1978
9. Project Operating in 1980	Yes	No	Yes	Yes	No
10. Number of Vehicles - Peak	14	18	12	36	6
11. Number of Drivers - Peak	Not Applicable	19	11	50	6
12. Passengers per month • highest • average ¹	3,223 1,685	9,893 5,078	4,713 3,823 ³	44,534 34,765 ⁴	1,043 761
13. Cost per month • highest • average ¹	\$4,899 ² 4,899 ²	\$61,444 46,304	\$18,668 16,566	\$47,438 35,725	\$10,868 10,124
14. Cost per trip • lowest • average ¹	\$1.52 2.91 ²	\$ 4.43 9.12	\$ 3.77 4.36 ³	\$.80 .96 ⁴	\$ 9.60 13.30
15. Cost per mile • lowest • average ¹	Not Applicable Not Applicable	\$ 1.09 1.81	\$.59 .72 ³	\$.51 .58 ⁴	\$ 1.16 1.46
16. Cost per hour • lowest • average ¹	Not Applicable Not Applicable	\$14.56 24.50	\$11.72 13.92 ³	\$ 7.14 8.72 ⁴	\$ 28.07 35.13

¹Average is for last six months from December 1978 to May 1979 except as noted.

²Cost data for Fayetteville represent administrative costs only; costs for operations equivalent to those of the other sites are not known but are substantially higher than the administrative costs alone.

³These averages are for the last five months of the project.

⁴Based on four months of data.



4

THE COORDINATION PROCESS

INTRODUCTION

This chapter reviews the second-year activities aimed at achieving coordination in each of the five demonstration sites. The process of achieving coordination includes those activities felt to be necessary to implement the project as originally proposed or as modified. Theoretically, the degree to which each site was successful in implementing its chosen coordination concept should partially explain the level and quality of service delivered.

The purpose of this chapter is to identify and highlight the major issues that emerged at each site in the process of achieving coordination. It is intended that this discussion will serve to explain why, or why not, each project was successful in meeting its service delivery objectives. As such, this material should serve as a guide to the issues, problems, and requirements associated with achieving coordinated transportation services.

The coordination process is discussed in terms of four observation and two assessment categories, as defined in the following sections. For each category, a summary observation is presented across all sites and then observations are given for each demonstration project.

COORDINATION PROCESS OBSERVATIONS

This report considers implementation activities of the second demonstration year. In the first year, the evaluation study examined the same events across all sites, including:

- OHDS Grant Award
- Advisory Board Formation
- Project Staffing
- Establishing Contractual Agreements
- Arranging for Vehicle Maintenance
- Capital Equipment Acquisition
- Obtaining Licensing and Certification
- Obtaining Insurance
- Commencing Operations

These were identified to be the necessary implementation activities that were common to all demonstration sites during their start-up period.

In the second year this study employed four observation categories for examining the process of achieving coordination across the five demonstration sites. Because in the second year of the demonstration grant, each site was proceeding with the implementation of the coordination project in terms of its own particular priorities, problems, and needs, no common process events could be studied. The four observation categories are:

- Implementation Activities
- Implementation Problems
- New and Continuing Coordination Barriers
- Major Staff Time Investments

Taken together, the observations made in these categories provide a picture of how each demonstration project continued its attempt to achieve its coordination objectives during the second year.

Implementation Activities and Achievements

Definition and Summary

This category covers the activities undertaken by each demonstration project in the second grant year to continue its implementation of the project and

to achieve the desired coordination objective. This category also mentions implementation achievements; for example, where a series of activities led to the solution of a particular problem that stood in the way of coordination, or where activities led to fulfilling a project objective. As noted below, implementation activities during the second grant year were very different across demonstration sites and were largely determined by the outcomes of the first grant year.

There was no consistent focus of implementation activities among the demonstration projects. It ranged from efforts to terminate the project based on first-year problems (METROVAN), to efforts to overcome the negative consequences of inadequate and improper start-up activities (RIDE), to activities aimed at capitalizing on five-year results and lessons (RESPOND). Second-year implementation activities were seldom tightly related to the achievement of each project's proposed coordination objectives. Rather, the implementation activities tended to be dictated by "survival responses" or by felicitous opportunities, whether or not such actions were part of the demonstration project's original plan. Table 4-1 illustrates, using Fayetteville as an example, ways in which actual events sometimes differed substantially from what was expected.

Activities and Achievements Observed

The primary focus of RESPOND's implementation activities in the second year was on activities to capture opportunities identified in the first grant year and to expand the level of service through the clearinghouse. During the first year, it became apparent to project management that consolidating RESPOND with the Economic Opportunity Agency's (EOA's) Dial-A-Ride program and the soon-to-be-started Section 147 rural transit project would be an important step toward achieving their coordination activities. Consolidation of the three service projects could reduce service administration costs and could enhance the potential for consolidating vehicle maintenance activities. At the end of the second grant year, negotiations between the Community Resource Group, Inc. (CRG) (for the RESPOND project) and the EOA (for the Dial-A-Ride and Section 147 projects) were complete and the boards of directors of the two agencies had unanimously voted to consolidate the three programs. Moreover, the coordination process was also being supported by the move to centralized facilities. Before consolidation, the Section 147 rural transit project was being administered out of their office/maintenance facilities located on two and a half acres of land put into trust

Table 4-1

EXAMPLES OF CHANGES WHICH OCCURRED IN IMPLEMENTING VOLUNTARY COORDINATION
CONCEPTS: PROJECT RESPOND (FAYETTEVILLE, ARKANSAS)

Concept	Implementation Mechanism	Anticipated Result	Actual Result	Project Response	Outcomes
Time/ride sharing among agencies with/without vehicles	<i>Clearinghouse</i>	Increased rides provided for clients of human service agencies.	Peak demand for purchaser and provider agencies was same. Severely limited time and space available to purchase.	Application for additional vehicles under UMTA 16(b)(2) program.	State Highway Department allocated four vehicles to Project RESPOND. Vehicles have not yet arrived. Anticipated results: increased rides available during peak hours.
Agencies without vehicles could buy time/space on existing vehicles	<i>Clearinghouse</i>	Increased utilization of vehicles. Improved client access to services.	Purchaser agencies had no money in budgets to purchase transportation.	Project developed Title XX contract to be used by participating agencies.	Purchaser agencies draw down against the portion of Project RESPOND's Title XX contract allocated to their agency for purchase of transportation service.
Development of lower cost blanket insurance coverage for all participating agencies and their clients	Project staff was to <i>identify insurance agencies</i> that would provide required coverage at lower cost	Uniform coverage of all agencies and clients at a lower cost.	No one would write the policy.	Project's monitoring federal efforts to address insurance problem.	Participating agencies continued to operate under individual insurance policies with different coverages and at different costs.
Formal commitment by agency to participate	Signed <i>inter-agency agreements</i> designating lead agency and outlining functions of participating agencies and resources to be provided by individual participating agencies	Strong, clear commitment to participation and to coordination effort.	Commitment on part of administrators or boards of directors did not filter down to operations people.	Individual meetings with operations people in each agency to explain purpose of coordination effort, services provided and how it actually worked.	Mixed results. Turnover among participating agency staffs continues to hinder maximum agency participation in coordination effort.
Increased awareness of cost of transportation among participating agencies	Detailed <i>cost analysis</i> of each participating agency's transportation operations	Increased participation on part of agencies to assist in project's effort to find ways of reducing transportation cost to human service agencies.	Varied -- Some agencies chose not to believe cost/utilization data. Others, because transportation was a relatively small part of their budget and not their primary service, chose to ignore the cost inefficiency and ineffectiveness of their transportation system.	Continued educational efforts toward agencies, community and funding sources.	Generally continued low levels of participation. The awareness of a problem does not necessitate that an agency seek to solve a problem.

Source: Community Resource Group, Two-Year Transportation Program Report, Fayetteville, Arkansas (June 1979) pp. II.11-15.

for this purpose by EOA. Following consolidation, the facility and land would be deeded to CRG and would serve as the location for the entire transit operation (RESPOND, Dial-A-Ride, and Section 147). This would be the site for centralized vehicle storage and maintenance. As a further step toward facilitating coordinated operations, the project applied to the FCC for a two-way radio license in January 1979.

During the second grant year, the RESPOND staff also pursued many activities aimed at developing local support for the project and at increasing service demand. The project staff spent much time making presentations on the project to local and state agencies, community groups and government officials. Efforts to increase service demand took the form of direct contact with potential service purchasers. This activity did result in the signing of some new service contracts (with the Benton County and the Siloam Springs development centers). This direct negotiative posture toward marketing seems to have been an appropriate response to the difficult transportation service requirements caused both by the lack of available vehicles and funds in the area and by the rural, low density nature of the service area. As part of its service expansion activities, RESPOND also negotiated two Title XX grants, one to allocate among participating agencies without vehicles and the other to operate a special elderly and handicapped transportation service program within the consolidated project. Finally, in an attempt to expand its fleet, the project obtained a grant from Levi Strauss to be used as matching funds in an application for UMTA Section 18 vehicles.

The second-year activities of METROVAN reflected the deterioration of the level of coordination achieved during the first year. Kent CAP withdrew its vehicles from the project in December 1978. Since Kent CAP was the only agency participating in the central dispatch portion of the project, this action reduced coordination to the preproject level. In addition, the withdrawal of Kent CAP's vehicles led to the termination of the centralized maintenance program which had been started in October, 1978. Moreover, the coordinated purchasing of fuel by GRATA, under its tax exempt status, was discontinued in May 1979, due to a cut-back in GRATA's fuel allocation.

Following the termination of coordinated service, participants were involved in futile attempts to sustain the project. The project advisory board tried to schedule issue resolution meetings, but key project participants (particularly

GRATA and Kent CAP), disillusioned by their initial experiences, would not attend. The project grantee (GRATA), convinced by experiences during the first project year that coordinated service was too difficult to pursue and that elderly and handicapped transportation was too costly to provide, had serious doubts about continuing the project. All GRATA proposals for continuing the project contained requirements untenable to other project participants (for example, GRATA wanted complete control over the vehicles). Although a waiver to a State law prohibiting the use of school buses for other than elderly programs was pursued, nothing ever came of it. The Director of the Michigan Department of Education advised the project against the waiver and recommended instead that GRATA seek the adoption of House Bill #4547 which would, in effect, release public school vehicles for METROVAN use. Unfortunately, that bill did not pass and the issue was not pursued further.

During the second project year, the Howard County URTA project staff undertook activities to overcome the problems created by the initial staff and the staff resignations. At the beginning of the second project year (June 1978) several problems emerged. It became apparent that there were major problems with dispatching, routing/scheduling and fiscal management. (For example, workmen's compensation had not been paid for project employees.) In July, an URTA vehicle had a serious accident in which five clients were injured. This accident, along with the poor driving records of URTA's drivers, decreased URTA's credibility with insurance companies and the public. Soon after these problems emerged, the project manager and his administrative assistant resigned.

Following the termination of the project's start-up staff, the operations committee of the project (an informal body comprised of the executive directors of each consolidating agency) managed to keep the project alive by personally taking over day-to-day management responsibilities. The committee members, familiar with the transportation operations of their own agencies, were able to sustain the project, even though no activities could be devoted to expanding the coordination process. This effort did ensure the continued consolidation of all project functions: management, dispatching, purchasing, and maintenance. The next project director lasted less than one month. Finally, with the hiring of a new project director and operations supervisor in January of the second year, attention was again focused on further implementation of the coordination process.

By the end of the second demonstration year, four of the five agencies originally proposed for involvement in the project were participating; only the Community Action Council (CAC) Head Start program still had not joined (they did join in the third project year).

The second-year activities also focused on overcoming concerns that had emerged in the community because of first-year problems. After the new director came on board, she initiated extensive contact with agencies and community groups which resulted in a strong base of community support for continuing the project. In addition, she developed a collaborative relationship with Columbus, the local private bus operator. This support has substantially increased the potential for a coordinated countywide transportation system. In addition to developing community support, the project staff devoted time to developing better contractual agreements with service purchasers. In particular, unit cost contracts were negotiated that better reflected the cost of services actually delivered to specific agencies and their clients.

In Jacksonville, the RIDE, Inc. project had to deal with severe problems that resulted directly from poor management (evidenced by the overworked staff and the uninformed board of directors) and inappropriate decisions (billing rates and billing and accounting procedures) made by the project staff during the initial start-up year. The problems turned out to be insurmountable, and RIDE ceased operations in April 1979. The initial response by the RIDE board to these problems was to assess their extent in an attempt to make an informed decision about project continuation. No decision regarding the future of the RIDE organization has been made because of difficulties in obtaining an accurate audit. Since no money was available to continue the operational aspect of RIDE, service was terminated abruptly. At the point of service termination, the project was so heavily in debt that it is not clear whether or not all outstanding bills will ever be paid. These issues will be discussed fully in the section on implementation problems.

In spite of the problems encountered by the demonstration project, agency commitment to the concept of coordination remained strong even after project operations ended. The Northeast Florida Community Action Agency (formerly the Greater Jacksonville Economic Opportunity Agency), a major participant in the project, took back its vehicles and began a coordinated transportation services program. This NFCAA program features the coordination of transportation

services among three of its divisions (senior service, social services, and Head Start) and continues to offer services to some agencies formerly under contract with RIDE. NFAA did not assume responsibility for any of the debts incurred by RIDE.

Second-year demonstration project activities in Westchester County — the Westchester Coordinated Transportation Project (WCTP) — primarily focused on activities crucial to the project's viability. In particular, the WCTP worked to resolve relationship problems with the Westchester County Department of Transportation. The county DOT had originally promised to acquire 16 vehicles for the project, but did not order the minibuses during the demonstration period. The WCDOT said they were unable to find a vehicle with acceptable specifications. In spite of the failure to overcome this roadblock, the WCTP staff did devote much time to building strong community support for the project. By the end of the second demonstration year, WCTP had consolidated the use of six vehicles from four agencies, and eight agencies were purchasing service. Without the larger fleet promised by the county, the project was never able to successfully negotiate the service contracts it was trying to develop.

Implementation Problems

Definition and Summary

Every demonstration site encountered some problems implementing the project. Observations in this category are limited to those implementation difficulties identified as problems by the demonstration project participants. Where known, the discussion presented below also includes an indication of the attempted solutions.

There was a great range in the level and type of implementation problems encountered by the five demonstration sites. In some cases, the problems were small and simply made realization of full project potential difficult (RESPOND and URTA). In other cases, the problems encountered and not solved were sufficiently large and complex to seriously disrupt or terminate the project (RIDE, WCTP, and METROVAN). In some of these cases, the problems were carried over from the first year, while additional problems emerged during the second year as a result of first-year implementation activities (RIDE).

Implementation Problems Observed

The coordination process problems encountered by RESPOND were not severe and tended only to retard project implementation or to limit project achievements for the interim. Many of these problems were overcome. During the second project year, RESPOND was only able to negotiate purchasing and maintenance agreements with three agencies. The project staff learned, however, that this low level of participation was due to the use of a standard maintenance contract for all agencies. RESPOND is now willing to write individualized contracts, and it is expected that more agencies will be involved. RESPOND also faced a problem caused by a State law that limited the use of certain vehicles to social service activities. Through extensive discussions with the Arkansas Department of Highway and Transportation, a waiver of this law was obtained. Though attempts were made, the project staff never managed to get the Area Agency on Aging, a major source of vehicles and transportation funds, involved in the demonstration project. This lack of cooperation by the Area Agency on Aging was due to their concern that involvement in the project would result in the loss of control over resources secured for its elderly clients. Local politics and personalities also contributed to this lack of cooperation.

The implementation problems encountered by METROVAN, on the other hand, were severe and led to the termination of the demonstration project. Of primary importance, the project was never able to overcome the problems caused by its organizational location within GRATA, the public transit authority. The project was not only placed within the transit authority, but was also largely managed by GRATA personnel. This situation created a reluctance among human service agencies to participate in the demonstration project; they did not believe that the transit authority management of the project could be concerned with their special transportation needs. In addition, the project was also never able to overcome problems of service quality. Part of the problem stemmed from the fact that the drivers had too many bosses. Some drivers were managed and dispatched by METROVAN, but were provided and paid by Kent CAP. Although Kent CAP drivers were anxious to assist riders, as they always had before the demonstration project, the GRATA union directed its drivers not to participate in this practice. In addition, the project was unable to assemble a fleet of good quality. The largest part of the fleet was provided by Kent CAP. These vehicles had been

purchased from the Grand Rapids Board of Education after the board felt they had to be replaced. Ultimately, Kent CAP withdrew from the project because of these service quality issues, and because they felt that high project usage was accelerating the deterioration of their vehicles. When Kent CAP withdrew from the demonstration project, almost none of their vehicles would pass inspection. A potential major source of vehicles was the board of education's school bus fleet, but the project did not obtain a waiver of the State law prohibiting use of school vehicles for other than elderly services.

The Howard County demonstration project, URTA, confronted and solved many implementation problems created by the project's start-up management (specifically, problems with driver records, operational inefficiencies, community support, and fiscal management). As mentioned above, participating agencies felt their initial service contracts did not accurately reflect the cost of service provided. The development of new unit cost contracts seems to have taken care of this problem. Potential participants in the project also felt that the demonstration focused on the transportation needs of the urban area, excluding the remainder of the county. Extensive contacts with agencies and public officials to explain the project seems also to have overcome these concerns, and many people feel that the potential for a countywide coordinated transportation system is now good.

The implementation problems encountered by RIDE, Inc., were large enough to lead to severe financial conditions.¹ Rooted in the activities of the first demonstration year, the problems did not emerge until the second year. Then, the problems occurred so quickly and with such magnitude that project participants were unable to solve them and keep RIDE operational. Transportation services are now provided by NFCAA.

From the outset, RIDE project management negotiated and signed service contracts that did not reflect the true cost of providing service. In many cases, the contracts included difficult performance standards — like delivering children by a certain time because of their medication needs. RIDE seemed only concerned with expanding service; adjustments in contracts could be made later to reflect actual costs. RIDE then found itself unable to provide the service promised, and in particular was unable to meet the performance requirements of the service

¹While RIDE, Inc. (the private non-profit corporation established to provide transportation services in Jacksonville during the second year of the demonstration program) has no source of funds with which to pay its very substantial outstanding debts, the corporation has not, as of the publication of this report, legally filed for bankruptcy.

contracts. In response to poor service and frequently inaccurate billings — for example, bills would reflect the cost of service instead of the contracted rate — agencies often refused to pay on time, if at all. The result of this, of course, was an increasingly difficult cash flow problem. By April of the second demonstration year, the cash flow problem was so severe that project staff and vendors were not being paid. Service was terminated to some agencies without notification. The problems seemed so insolvable that the director resigned.

Ironically, throughout the two demonstration years, the president of the board of directors was fully involved in the project. He received regular performance reports from the RIDE staff, and even reviewed most service contracts. What became apparent in the end was that the board had put too much reliance on one person, the project director, and did not fully and accurately comprehend the implications of the project management's actions and decisions. Most important, while the board appreciated the business realities of the demonstration project, it did not have the knowledge necessary to serve as a check on project management. The board requested training and technical assistance for their own managerial functions, but did not receive either.

Aside from these management problems, RIDE was also unable to involve the local public transit authority in vehicle consolidation. Although a formal commitment was apparently never made, many parties in Jacksonville expected the transit authority to provide vehicles and funds to RIDE. The transit authority felt that it could not do so until the project's operations had stabilized (which never occurred).

In the second demonstration year, the WCTP project in Westchester continued to face implementation problems that were carry-overs from the first demonstration year. In spite of regular negotiations with the county DOT, the WCTP was never able to obtain the vehicles promised to the project by the county. Without those vehicles, the project fleet remained small (seven vehicles), which put a ceiling on the service that could be marketed and resulted in high project and service costs. Also, to avoid the cash flow problems that have beset many specialized transportation services (including some of the other four OHDS demonstration projects), the project advance-billed most participating agencies, requesting payment before the delivery of service. Advance billing requirements,

coupled with the participating agencies' perceptions of high costs, made the establishment of new contracts difficult. While advance billings and payments resolved the potential cash flow problem for the WCTP, they remained as barriers to expanding agency participation in the project.

New and Continuing Barriers to Coordination

Definition and Summary

The new and continuing barriers to the implementation of the coordination process, as reported in the first demonstration year, rarely are insurmountable. In no sites did the barriers to coordination *prohibit* project operations and the delivery of service. Rather, the barriers tended to retard the full achievement of operational objectives.

Barriers Observed

A barrier to project implementation for RESPOND was the size of its service area. The plan for the third project year proposes to reduce the planned service area from the original four counties to one (Washington County), and thus increase the potential for this project's success.

A primary and continuing barrier to coordination for METROVAN was the State law prohibiting the use of school vehicles for other than elderly activities. As noted above, METROVAN's inability to obtain a waiver from this law severely restricted the number of vehicles available for use in the demonstration project. Also as noted above, the placement of the demonstration project within the local transit authority constrained some human service agencies' willingness and desire to participate in the project.

The barriers faced by the URTA project, on the other hand, were much less severe and were really problems that could be overcome by effective management. Obtaining insurance for the project at reasonable cost was a problem, largely caused by the project drivers' poor driving records and accidents. This problem was partly overcome by the recruitment of drivers with better records and also by a driver training program. As previously mentioned, the barrier to coordination caused by the initial contracts was overcome by the formulation of unit cost contracts.

The major barrier faced by the RIDE project in Jacksonville was obtaining a Public Utility Commission license. By the end of the two-year demonstration, this barrier had been overcome.

For the WCTP demonstration project, the inability to obtain vehicles from the county and thereby increase its service potential served as a barrier to achieving coordination. Moreover, the project was never able to obtain an "invalid coach permit" — the authorization to transport the non-ambulatory handicapped — which restricted the offering of service to some potential client groups. But without the necessary vehicles, of course, the invalid coach permit was not an important issue.

Major Staff Time Investments

Summary

In all demonstration sites, the project staffs devoted most of their time to implementing directions and emphases that had been established by the end of the first year. In some cases, the chosen area of implementation emphasis was useful and led to increased project successes (RESPOND and URTA). In other cases, the staff activity focus led to the project's demise (RIDE), or was unsuccessful in solving crucial problems (WCTP). In another site, the focus of staff effort is unclear (METROVAN).

Observed Staff Time Investments

The RESPOND staff devoted most of its time to activities aimed at marketing and at achieving organizational change. Much time was spent on obtaining two important Title XX contracts. Considerable time was also spent on developing strong community support for RESPOND. Finally, the staff also made major time investments in the consolidation of the EOA Dial-A-Ride and Section 147 Rural Transit programs with the demonstration projects.

It is not very clear where METROVAN's staff chose to allocate its staff time. It is apparent that not much time was devoted to project implementation activities.

The URTA project staff made major time investments in developing community support and solving service contract problems created by the start-up staff. In sum, the new second-year demonstration project staff "resumed" the project implementation that had not progressed (but had not deteriorated either, because of the activities that the board had managed to maintain) during an interim period without a director.

It is clear, in hindsight, that the RIDE, Inc., staff devoted most of its time to marketing. An unusually small amount of time was spent on project management and ensuring quality service. When RIDE terminated operations, more service contracts had been signed than could be honored, and the contracts contained inconsistent rate schedules that, in addition, did not reflect true costs.

Although the WCTP staff made major time investments in developing community support, few contracts were signed because of the project's inability to provide service (due to lack of vehicles) and because of the project's requirement of advance payment for service. The WCTP staff also made major time investments in developing relationships with the county DOT, but as noted above, it was never successful in obtaining the vehicles promised by the county.

MAJOR INFERENCES ABOUT THE COORDINATION PROCESS

This section assesses and comments on the coordination process in terms of

- Unintended Consequences of the Coordination Process
- Coordination Process Lessons

For the most part, these two categories include impressions about the potential consequences of the project, particularly for future coordination attempts, and about important lessons to be gained from each demonstration project's implementation experiences. These categories also include observations of impacts already felt at some sites because of project difficulties, and lessons that have already been used for the resolution of certain problems.

Unintended Consequences

These comments focus on the potential impacts of problems and failures on current or future coordination efforts. They address impacts already felt, and the possible future consequences of process implementation difficulties.

In some sites, the demonstration project's implementation activities went relatively smoothly and no unintended consequences were observed (RESPOND and URTA). In two sites, the unanticipated problems of the implementation process made attainment of the planned coordination level difficult (RIDE and WCTP). And in one site, it is suspected that the project implementation difficulties may have caused a real setback in future coordination attempts (METROVAN).

Site Comments

The only possible unanticipated consequence of RESPOND's implementation activities is that some non-participating agencies may remain skeptical of the demonstration project and of the coordination concept. This skepticism results, in part, from RESPOND's first demonstration year request for some non-participating agencies to keep operations data on their vehicles. These data were not requested for project evaluation purposes since these agencies had yet to time-share or ride-share vehicles, and RESPOND was never able to explain to them why the data were needed. RESPOND's extensive promotion of the demonstration project will probably far outweigh any negative consequences from implementation activities.

The actions of the METROVAN project management and the grantee agency have probably created a situation within which it will be difficult to relaunch the coordination concept. The coordination process problems and failures reinforced the latent feelings of many agencies that coordination does not work and that elderly and handicapped transportation services may be too costly to offer. One junior college, for example, recruited handicapped students based on METROVAN's promise of service, which was never forthcoming. When the students arrived, the college was forced to provide very expensive services through a local taxi operator. Some social service agencies felt that their initial concerns about the role of a public transit authority in offering coordinated specialized transportation were unfortunately borne out by the actual experiences.

A major unintended consequence of the demonstration project in Howard County had to do with insurance. The cost of insurance for the coordinated project turned out to be more than twice the amount previously paid by participating agencies individually.

In Jacksonville, the coordination activities of the RIDE, Inc., staff created several negative outcomes for current and future coordination attempts. In general, project implementation difficulties and demonstration project failures resulted in "bad press" that may increase skepticism for all human service programs, and in particular, for coordinated human service transportation. In addition, the negotiation of inaccurate contracts that could not be fulfilled led to the feeling among some agencies that they never again wanted to be involved with coordinated transportation services.

There were probably no negative consequences from the WCTP's project implementation activities.

Lessons from the Coordination Process

Scope

This section deals with apparent lessons to be learned from the process of coordination itself at the five demonstration sites. These lessons do not necessarily apply to all transportation coordination attempts since, in some cases, the lessons emerged from what may be unique (political, for example) circumstances. The potential lessons cited here are based on activities that led to project achievements as well as those that led to difficulties.

Lessons Learned

The lessons concerning the coordination process to be learned from the OHDS demonstration program are in most cases strong reconfirmations of what were originally thought to be crucial issues in successfully implementing coordinated transportation projects. These lessons are not, it appears, unique to coordinated transportation projects, but may be equally applicable to all human service project implementation and management. It was found that, while coordinated transportation services may initially cost slightly more to offer, a higher quality of service may be provided (RESPOND, WCTP and URTA.) The demonstration projects also pointed out many lessons regarding project implementation and management: A diligent and resourceful staff is necessary for effective project implementation and management (RESPOND); accurate and appropriate recordkeeping is essential (METROVAN, URTA, and RIDE); constant communication between the project board and staff and among participating agencies is critical (METROVAN, URTA, RIDE, and WCTP); marketing in advance of service capacity can create problems (METROVAN and RIDE); reliance on one person can be disastrous (RIDE); and a strong and capable board or operating committee is a prerequisite (URTA). Finally, good relationships between a coordinated transportation project and the public transit authority are very important (METROVAN, RIDE, and WCTP).

The RESPOND demonstration project seemed to confirm the importance of a diligent and resourceful staff. RESPOND's staff constantly researched new

concepts and broadened their expertise. They uncovered and capitalized on opportunities that would lead to project implementation and to improved operations (such as changing the coordination concept and changing contract arrangements.) The local community support generated by RESPOND is another indication that, while coordination adds costs to the delivery of transportation services, the higher level of service and quality can offset the expense.

The importance of good communications among project participants was made apparent by the METROVAN demonstration project. The inability of project participants to get together and resolve important issues is one factor that contributed to the project's eventual demise. Also, METROVAN's inability to establish operating independence (at least as perceived by potential participants) pointed out the need for good relationships between a coordinated transportation project and the local transit authority.

The project implementation experiences of URTA proved without question the importance of a strong and involved committee of agencies participating in the project. When the project's initial staff resigned, the operations committee (a separate entity from the board of directors) was able to step in and maintain project operations. Although no additional project development activities were possible, the operating committee's actions probably saved the project. Finally, the URTA project reconfirmed the problem of obtaining insurance for a coordinated transportation system; it can be expensive and difficult to acquire.

There are many lessons to be learned from RIDE's coordination activities and experience. It is dangerous to rely too heavily on one person, particularly if that person is not monitored closely by the project's board. Though RIDE's director was very highly thought of professionally, he was pursuing an implementation strategy that led to the termination of the project. The board, much less familiar with coordinated transportation activities, was unable to assess the director's actions on a day-to-day basis, and was in the end unable to deal with the problems that emerged. There was also an inherent conflict in the multiple roles of members of the board; on the one hand, they could set rates for the transportation project but, on the other hand, they were also committed to keeping the costs to their own social service agencies as low as possible. RIDE too quickly negotiated contracts for service that it did not have the

capacity to meet. Moreover, a poor billing and accounting system (a factor that should have been resolved through the technical assistance process) magnified an increasingly difficult cash flow problem. It seems clear that effective project implementation must include establishing a good billing and accounting function. In general, the RIDE project indicates the necessity of approaching a coordinated transportation project as a business.

As observed in Grand Rapids, the WCTP showed the importance of developing good relations with the local transportation authority. The WCTP was never able to obtain the active support of the Westchester County DOT. The staff's inability to solve these problems contributed to the project's limited development.

5

TRANSPORTATION OPERATIONS OF THE DEMONSTRATION PROJECTS

Each of the five demonstration projects showed improvements in the services they provided during the demonstration period, although the improvements were not as great as initially expected. In general (but not always), coordination and the number of riders served increased, but costs per unit of service also increased. Few participating agencies realized reduced costs for transporting their clients, and the current operations of the five projects are not particularly more or less cost effective than similar but uncoordinated transportation systems. Most of the riders in the five projects speak well of the services, although transportation service quality improved in some instances but deteriorated in others.

This chapter discusses, in the following order, the services provided by the demonstration projects, performance measures of the transportation operations (including changes over time), comparative performance with similar systems, costs to participating agencies before and after coordination, and impacts on the users of transportation services and on the human service systems in each locality.

SERVICES PROVIDED

Types of Services

The services provided by each of the five demonstration projects were somewhat similar. The projects provided (or managed) demand-responsive and fixed-schedule services, except for Westchester County, where only fixed-schedule services were offered. Services were provided primarily to agency clientele except in Grand Rapids, where the general elderly and handicapped populations were served, and Howard County, where service to the general elderly and handicapped populations plus low-income individuals made up 10 percent of the agency's total ridership. Escorts were generally not provided, but drivers were generally allowed to assist the passengers.

Types of Riders Served

Table 5-1 shows the types of clients that had used the services of each project at the time of the user interviews. The elderly were the largest single client group served except in Westchester, where the physically disabled outnumbered the elderly. The projects generally provided services to a greater variety of clients in the second year than in the first.

Despite the fact that Area Agencies on Aging were only officially participating at one of the demonstration sites, the major category of clients transported at all sites, except Westchester, was the elderly. The next largest group of participants was the physically handicapped. Head Start clients were involved in three of the demonstrations, as were other non-handicapped people.

Other demographic characteristics of the demonstration project users are shown in Table 5-2. The users tended to be persons classified as the "transportation disadvantaged" — elderly, handicapped, non-drivers, and the poor. They also tended to be predominantly female. However, there were some substantial site-to-site variations: Jacksonville served a much higher proportion of women than did the other projects; Fayetteville served more persons who were living alone; and Jacksonville served by far the largest proportion of non-whites. The proportion of low-income individuals served increased substantially in the second year of the grants.

Table 5-1

DISTRIBUTION OF TYPES OF USERS IN
OHDS COORDINATED TRANSPORTATION DEMONSTRATIONS

Sites	PERCENTAGE OF CLIENT TYPES SERVED ¹					Total No. of Users Surveyed ¹	Total No. of Individuals Using the System ²	Month of Data Collection
	Elderly (60+)	Non-Handicapped Children (0-5)	Physically Handicapped	Mentally Handicapped	Other Non-Handicapped			
Fayetteville	82.5	0	25.2	4.5	70.3	155	155	June 1978
	<i>78.7</i>	<i>1.3</i>	<i>20.0</i>	<i>14.7</i>	<i>62.7</i>	<i>75</i>	<i>117</i>	<i>May 1979</i>
Grand Rapids ³	48.2	10.2	37.3	22.3	34.3	166	1,539	June 1978
	<i>N.A.</i>	<i>N.A.</i>	<i>13.0</i>	<i>65.0</i>	<i>22.0</i>	<i>89</i>	<i>N.A.</i>	<i>Feb. 1979</i>
Howard County	32.5	0	27.7	47.9	29.3	123	123	July 1978
	<i>51.2*</i>	<i>0</i>	<i>28.6</i>	<i>23.8*</i>	<i>46.4*</i>	<i>84</i>	<i>123</i>	<i>June 1979</i>
Jacksonville	72.1	0	36.8	18.1	39.2	204	361	May 1978
	<i>65.6</i>	<i>33.9*</i>	<i>26.7</i>	<i>2.1*</i>	<i>55.4*</i>	<i>195</i>	<i>1,093*</i>	<i>May 1979</i>
Westchester	82.7	0	90.3	1.9	3.8	52	69	July 1978
	<i>51.2*</i>	<i>0</i>	<i>70.7*</i>	<i>7.3</i>	<i>2.4</i>	<i>41</i>	<i>64</i>	<i>May 1979</i>

Sources: ¹Passenger surveys conducted by Ecosometrics, Incorporated.

²Sampling statistics provided by each project (unduplicated count of persons).

³Second-year Grand Rapids statistics from local survey on METROVAN during February 1979.

Notes: No second year survey was conducted in Grand Rapids by Ecosometrics due to the small number of individuals being served (only 8 riders were being served when interviews were being performed in April 1979).

Results from the second year's survey are shown in italics.

* denotes major change from first to second survey.

Respondents may fit into more than one client type.

Table 5-2
 CHARACTERISTICS OF RIDERS OF THE
 FIVE OHDS DEMONSTRATION PROJECTS
 (percent responding positively)

Characteristics	DEMONSTRATION SITE				
	Fayetteville	Grand Rapids	Howard Co.	Jacksonville	Westchester
Female	77.4 <i>69.3</i>	73.5 <i>N.A.</i>	67.5 <i>67.1</i>	77.9 <i>89.3</i>	57.7 <i>55.9</i>
Household Income under \$4,000	72.3 <i>75.4</i>	34.3 <i>N.A.</i>	29.3 <i>81.6*</i>	63.7 <i>82.2*</i>	38.5 <i>91.3*</i>
Auto Driver	16.8 <i>12.0</i>	10.2 <i>N.A.</i>	6.5 <i>6.0</i>	8.3 <i>10.3</i>	0.0 <i>0.0</i>
Living Alone	58.7 <i>50.7</i>	30.7 <i>N.A.</i>	15.4 <i>25.6</i>	35.4 <i>41.2</i>	25.0 <i>12.2</i>
Non-White	5.2 <i>4.0</i>	16.9 <i>N.A.</i>	26.0 <i>31.0</i>	82.4 <i>72.3</i>	38.5 <i>17.1*</i>

Source: Passenger surveys conducted by Ecosometrics, Incorporated

Notes: No second-year survey was conducted in Grand Rapids by Ecosometrics due to the small number of individuals being served. The locally-conducted survey did not collect the statistics in this table.

Results from the second year's survey are shown in italics.

* denotes major change from first to second survey.

Respondents may fit into more than one client type.

MEASURES OF THE TRANSPORTATION PROVIDED BY THE DEMONSTRATION PROJECTS

Precisely how to measure and assess the performance of transportation systems is a subject that continues to generate much discussion without a final resolution.¹ To date, it has been agreed that a certain small number of descriptors are probably useful (although different ones are better for different uses) and that no one alone is a sufficiently global indicator of performance. After discussing appropriate performance measures and defining particular applications for this study, this portion of Chapter 5 presents the operational history of the five projects over the two-year demonstration period. While the projects are not directly comparable to each other, reviewing their relative performance is useful in assessing the achievements of each project. This section closes with a look at how some of these performance measures have changed over the demonstration period at each of the five sites.

Standard Transit and Paratransit Performance Measures

The performance of transportation systems cannot be expressed in a single measure — multiple measures are mandatory. A complete evaluation would include assessments of *efficiency* (how well a transportation system uses available labor and capital resources) and *effectiveness* (how well a transportation system meets its goals and objectives). A complete evaluation would include at least the following factors:

- Cost per passenger trip (one-way): Total system cost (all operating expenses plus administrative costs plus capital costs on a depreciation schedule) divided by the number of passenger trips. Costs and trips must be recorded over the same period.
- Cost per vehicle mile: Total system costs divided by the total distance traveled by all vehicles in the system.
- Cost per vehicle hour: Total system costs divided by the sum, for all vehicles, of the number of hours that each vehicle is operated.

¹For up-to-the-minute reviews, see K.C. Sinha and D.P. Jukins, "Stratified Approach to Evaluate Urban Transit Performance", N.R. Schneider and C.A. Keck "Economy, Efficiency, and Effectiveness: The Development and Application of Multimodal Performance Measures for Transit Systems in New York"; and L.G. Grimm and W.G. Allen, Jr., "Development and Application of Performance Measures for a Medium Sized Transit System"; all are papers presented to the 59th Annual Transportation Research Board meeting in Washington, D.C. (January 1980).

- Load Factor: The sum of the distances for each trip by each passenger divided by the sum of the seat miles provided by each vehicle (which is the product of the number of passenger seats times the miles the vehicle traveled).
- Operating ratio: Total system costs divided by total system revenues.
- Passengers per vehicle mile: The number of passenger trips divided by the number of vehicle miles provided by all vehicles.
- Passengers per vehicle hour: The number of passenger trips divided by the sum of the hours each vehicle is operated.
- Annual passengers per service area population: The number of passenger trips taken during a year divided by the population of the service area.

The first five are efficiency measures; the last three measure effectiveness. Other indicators (for example, cost per passenger mile; deadhead factor) have been proposed for transit systems,² but the eight shown are probably the most appropriate for paratransit and small-scale systems serving human service agency clientele, in that they can be readily collected, they are useful for comparisons, and they indicate performance and problem areas (but not solutions). These measures are usually but not always available at the same time. When they are available, one can be sure of getting a reasonably accurate picture of the system being analyzed.

For the five demonstration projects, several statistics were not available for the initial operations:

- Load factor: Statistics on passenger miles were generally not available, so it was impossible to calculate this ratio.
- Operating ratio: In this demonstration, the costs-to-revenues ratio was not a major issue because of the demonstration funding. When the systems attempt to continue without demonstration funds, the operating ratio will become more important.

²Gordon J. Fielding, Roy E. Glauthier, Charles A. Lave, "Applying Performance Indicators in Transit Management," in Proceedings of the First National Conference on Transit Performance, prepared for the Urban Mass Transportation Administration by Public Technology, Inc. (January 1978).

- Passengers per service area population: Although total population figures were available for each of the five sites, the transportation services were not available to all persons living there. In some cases, transportation services under the coordinated system were available only to clients of the participating agencies; in other cases (for example, Howard County), some services were available to agency clients only and other services were available to certain types of persons — in this case, the elderly and handicapped — whether or not they were agency clients. In summary, no figures existed at most sites for the total *eligible* population, and using the total area population would have made the demonstrations' market penetrations look lower than they actually were.

The rest of the major performance indicators are available at the five sites.

Working Definitions for this Evaluation Effort

Ridership

In this report, the basic definition of ridership is one-way trips per month achieved through coordination. These figures were reported by the projects. For consolidated systems, the total of monthly trips was the same as the ridership. For systems that did not control all vehicles at all times, the ridership attributed to coordination consisted of those trips made when the vehicles were operated in a coordinated fashion (for example, ride-sharing or time-sharing). Trips made in the same fashion as before the coordinated demonstration — for example, one agency using its vehicles to serve its own clients — were not credited to the coordination effort.

Costs

The demonstration projects furnished data on monthly costs to the evaluation team. Costs were divided into operating, administrative, and capital costs. These, in turn, were broken down into very detailed line items. There were 16 individual cost items in all, and the projects were asked to report quantities as well as costs for each item. The reporting format for costs is shown in Appendix D. For the purpose of reporting the overall project statistics and performance measures (Tables 5-3 to Table 5-7), the costs presented are those reported by the projects with the exception that some large one-time costs (e.g., payments of insurance premiums and large maintenance costs to bring fleets up to operating standards) are distributed over the life of the project so as not to bias the statistics for any one month. However, in the section comparing costs to participating agencies before and after coordination (Tables 5-11 to Table 5-15), all project and participating agency "before" costs have been inflated to May 1979 levels using the Consumer Price Index.³ These inflated costs are derived from the actual uninflated costs presented in the previous section.

³Bureau of Labor Statistics, U.S. Department of Labor, May 1979.

Site-by-Site Review of Operations

Fayetteville

The Fayetteville project proposed a clearinghouse concept for voluntary co-operation, combining features of ride-sharing and time-sharing. Agencies that were previously providing transportation services continued to administer these operations. In addition, they agreed to carry additional passengers when excess seats were available (ride-sharing) or to allow other agencies to use their vehicles when they were idle (time-sharing). The purpose of the demonstration — named Project RESPOND — was to serve as a clearinghouse or broker to connect agencies that wished to purchase trips with other agencies that were willing to furnish them. The clearinghouse was responsible for administrative functions such as billing those who received services. At the end of the second year of the grant, four agencies were providing services and nine agencies were purchasing services, both substantial increases over the end of the first year. The actual cross-agency transactions were somewhat complicated, and the reader is referred to Appendix A for further details.

The project staff concluded that "...a Clearinghouse mechanism for time- and ride-sharing among voluntarily participating human service agencies has not been cost-effective since the cost of operating the Clearinghouse has not been offset by a transportation service increase large enough to absorb the cost of the Clearinghouse."⁴ However, the time invested in the clearinghouse concept enabled the project staff to gain sufficient credibility in the community to work with other transportation providers to establish the basis for a consolidated transportation program focusing on only a portion of the original service area of Project RESPOND. Thus, the third-year grant received by the project will be used with a substantially different coordination concept than that of the first two years.

This site is large (3,267 square miles), mostly rural, and sparsely populated. It has a mountainous terrain that causes travel problems during inclement weather. The two agencies currently providing transportation services have 20 vehicles to cover the entire region; among the nine agencies listed as possible transportation providers, there are 46 vehicles.

⁴Community Resource Group, Two-Year Transportation Program Report (draft), Fayetteville, Arkansas (May 1979), page IX-2.

The voluntary nature of participation in the project was both its major strength and its major weakness. This weakness led to data-gathering problems that may have had the effect of understating the project's achievements.

The operations of each participating agency should have been more efficient due (in the case of Fayetteville) to ride-sharing and time-sharing. To determine if such changes actually occurred, it is necessary to have complete data on all operations of each participating transportation provider. These data were not available in Fayetteville. What we have instead is a ridership count that shows only the number of rides in the ride- or time-sharing modes and does not count any other riders. On the cost side, we have costs directly attributable to ride- and time-sharing plus the administrative costs of all the coordination efforts. These data may thus understate the ridership impact of coordination — and therefore neglect some probable cost savings of coordination. However, the integrity, independence, and privacy of the participating agencies have been protected, and this protection is supposedly a benefit of the clearinghouse concept.

The operational data for the demonstration reflect the activities of Project RESPOND only. These activities involved the administration of the clearinghouse function for provider and purchaser agencies. Therefore, to get a true per trip cost, for example, one would have to add the administrative costs of Project RESPOND (shown in Table 5-3) to the actual service costs of the agency providing the vehicles and driver. Before coordination, these costs were reported to range from \$1.10 to \$2.28 per trip for the provider agencies. It is probable that the unit cost per trip under the clearinghouse is greater than before coordination, since the administrative cost alone under the clearinghouse ranged from \$1.52 to \$6.39 per shared trip. Although the operating history of the project was not consistent, some definite improvements in productivity and efficiency were noticeable in the project's final months.

Table 5-3

OPERATIONS OF COORDINATED DEMONSTRATION IN FAYETTEVILLE, ARKANSAS

	1978								1979					TOTAL
	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	
Shared Trips ¹	370	1,262	2,466	733	468	512	478	530	270	419	1,266	1,272	1,164	11,210
Managed Trips ²	0	349	757	974	1,144	1,268	1,224	999	479	635	1,110	995	970	10,904
Total Trips	370	1,611	3,223	1,707	1,612	1,780	1,702	1,529	749	1,054	2,376	2,267	2,134	22,114
Vehicle Hours	40	236	838	463	451	455	421	408	212	444	549	557	533	5,607
Vehicle Miles	666	2,779	7,593	6,547	6,368	6,241	5,937	4,971	2,325	3,838	8,460	7,790	7,436	70,941
Administrative Costs ³	\$2,366	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$4,899	\$61,154
Cost/Total Trips ³	\$6.39	\$3.04	\$1.52	\$2.87	\$3.04	\$2.75	\$2.88	\$3.20	\$6.54	\$4.65	\$2.06	\$2.16	\$2.30	\$ 2.77
Trips/Vehicle Hour	9.25	6.83	3.85	3.69	3.57	3.91	4.04	3.75	3.53	3.17	4.33	4.07	4.00	3.94
Trips/Vehicle Mile	.56	.58	.42	.26	.25	.29	.29	.31	.32	.28	.28	.29	.29	.31

¹These do not represent total trips after coordination but only time-shared and ride-shared trips.

²These represent trips taken on system managed by RESPOND and do not represent shared trips.

³These costs are not comparable to the costs per trip figure shown for the other four projects. This figure is only the expression of administrative costs for Fayetteville from their final project report.

Source: Monthly reports provided by the project.

Grand Rapids

The major coordination concept of the project in Grand Rapids — named METROVAN — is the administrative coordination of the vehicle operations of several agencies. For most of the project, the Grand Rapids Transit Authority (GRATA) and the Kent County Community Action Program (Kent CAP) were the only agencies coordinating services. Kent CAP ceased its participation in both the coordinated dispatching and the coordinated maintenance programs in December 1978, citing the traditional points of contention between transit authorities and human service agencies: low cost versus "helping people," quality of service, and treatment of vehicles and drivers. The Pine Rest Rehabilitation Hospital was informally coordinating with GRATA up to the end of the demonstration grant, providing less than ten coordinated trips per month. Grand Rapids was not awarded a third-year grant from HEW.

When GRATA and Kent CAP coordinated, each of the participating agencies retained their separate transportation operations and continued to provide services to their own client groups. A centralized dispatching function coordinated service requests so that GRATA also, on occasion, provided trips to Kent CAP clients and Kent CAP provided services to GRATA clients. This coordination led to more efficient use of the transportation services of both organizations by increasing the utilization of vehicles that would probably have been operating anyway. The project also involved other coordination functions (e.g., maintenance).

The project served one primarily urban county of about 900 square miles and 400,000 people. The only adverse operating condition in the area is occasional heavy snow. Before the demonstration program, there were 22 agencies providing transportation to their own clients. Some of these agencies were purchasing rides from the transit authority's specialized demand-responsive service for the elderly and handicapped (Go-Bus). The continued operation of that service at a substantially lower fare than that provided by METROVAN was a fatal flaw that the project never adequately resolved.

The operating history of the project is shown in Table 5-4. Most of the statistics show increases from the project's inception up past the middle of its 16-month operating history, when vehicle hours, vehicle miles, and total trips decline. Unfortunately, the costs do not show a comparable decline, so the project ends with increases in unit costs and declining efficiency.

Table 5-4

OPERATIONAL AND FINANCIAL DATA FOR GRAND RAPIDS, MICHIGAN

	1978											1979					TOTAL
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	
Vehicle Hours	1,616	2,193	2,342	2,636	2,630	2,427	2,602	2,453	2,680	2,482	2,289	2,183	1,834	1,653	1,663	1,719	35,399
Vehicle Miles	21,883	26,791	31,285	27,279	34,969	31,090	32,549	36,102	36,711	33,033	28,018	27,902	24,322	24,991	24,102	24,428	465,455
Trips	6,862	7,660	7,566	8,731	6,638	6,698	6,444	6,510	9,893	8,680	6,518	4,021	4,857	5,432	4,427	4,475	105,404
Total Costs	\$30,992	\$38,804	\$36,040	\$38,561	\$38,280	\$36,777	\$41,247	\$61,444	\$43,869	\$56,140	\$41,986	\$46,597	\$50,017	\$43,641	\$47,538	\$48,043	\$99,980
Cost/Hour	\$19.18	\$17.69	\$15.39	\$16.32	\$14.56	\$15.15	\$15.85	\$25.05	\$16.40	\$22.62	\$18.34	\$21.34	\$27.27	\$26.40	\$28.59	\$27.95	\$19.77
Cost/Mile	\$1.41	\$1.45	\$1.15	\$1.41	\$1.09	\$1.18	\$1.27	\$1.70	\$1.19	\$1.70	\$1.50	\$1.67	\$2.06	\$1.75	\$1.97	\$1.97	\$1.50
Cost/Trip	\$4.52	\$5.07	\$4.76	\$4.42	\$5.77	\$5.49	\$6.40	\$9.44	\$4.43	\$6.47	\$6.44	\$11.59	\$10.30	\$8.03	\$10.74	\$10.74	\$6.64
Trips/Vehicle Mile	.31	.29	.24	.32	.19	.22	.20	.18	.27	.26	.23	.14	.20	.22	.18	.18	.23
Trips/Vehicle Hour	4.25	3.49	3.23	3.31	2.52	2.76	2.48	2.65	3.69	3.50	2.85	1.84	2.65	3.29	2.66	2.60	2.98

Source: Monthly reports provided by project.

Howard County

Howard County is the easiest of the projects to conceptualize. Transportation operations were consolidated under the authority of one provider — the Urban Rural Transportation Alliance (URTA) — which was the sole provider of services for the consolidated transportation efforts in the county. The project proposed to consolidate the transportation operations of five human service agencies and did so (the last began receiving services October 1, 1979). Drivers, vehicles, and transportation budgets were pooled under URTA's management, which included all operating functions (e.g., dispatching, maintenance, administration, purchasing, etc). Coordination by pooling funding sources (instead of by purchasing services) was a crucial aspect of this project. The project operated with 11 drivers and 12 vehicles and served a basically rural county of approximately 200 square miles and 111,000 people (including one new urban center). This site was one of the three to receive a third-year grant from HEW.

The project appeared to be on a strong growth trend until beset by substantial management problems. The first project manager (and his administrative assistant) resigned in July of 1978. The project's operations committee then managed the project on an ad hoc basis, with the project's dispatcher responsible for day-to-day operations. The second project manager, hired in October, lasted 22 days. The board hired an acting manager on a one day a week basis, and eventually appointed this person project director in January. Since January, operations have been more productive again (except for the unusual disruption of service in February due to very heavy snowfall). The project generally became more efficient over time by reducing duplication and carrying more riders for the same dollar and service inputs. Idle vehicle time was also substantially reduced.

The operational data for the project are shown in Table 5-5. It should be noted that the data for February through August 1978 differ from those reported in the first year's evaluation report. The figures in Table 5-5 represent a substantial time investment on the part of the new project director and provide, we believe, a much more accurate accounting of actual expenditures than that available previously. (This problem arose, it will be recalled, because the first project manager reported no operating statistics before his sudden departure and all statistics for that period had to be reconstructed by the technical assistance contractor.)

Table 5-5

OPERATIONAL AND FINANCIAL DATA FOR HOWARD COUNTY, MARYLAND

	1978											1979					
	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	TOTAL
Vehicle Hours	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	733	1,470	1,214	1,380	4,797
Vehicle Miles	20,237	26,271	24,181	25,756	25,451	19,812	16,845	15,482	22,234	19,337	18,878	23,003	14,535	26,634	24,331	29,992	352,979
Trips	2,236	3,482	3,788	4,491	4,247	3,350	3,489	3,640	3,959	2,916	N.A.	4,170	2,113	4,336	3,787	4,713	54,717
Total Costs	\$17,717	\$18,668	\$18,288	\$18,478	\$18,478	\$16,163	\$15,698	\$15,484	\$16,543	\$16,088	\$16,016	\$16,592	\$14,928	\$17,232	\$16,871	\$17,759	\$271,003
Cost/Hour	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	\$ 20.37	\$ 11.72	\$ 13.90	\$ 12.87	\$ 13.92
Cost/Mile	\$.87	\$.71	\$.75	\$.72	\$.73	\$.82	\$.93	\$ 1.00	\$.74	\$.83	\$.85	\$.72	\$ 1.03	\$.65	..69	\$.59	\$.77
Cost/Trip	\$ 7.92	\$ 5.36	\$ 4.83	\$ 4.11	\$ 4.35	\$ 4.82	\$ 4.50	\$ 4.25	\$ 4.18	\$ 5.12	N.A.	\$3.98	\$ 7.06	\$ 3.97	\$ 4.45	\$ 3.77	\$ 4.66 ¹
Trips/Vehicle Mile	.11	.13	.16	.17	.17	.17	.21	.24	.18	.15	N.A.	.18	.15	.16	.16	.16	.16 ¹
Trips/Vehicle Hour	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	2.88	2.95	3.12	3.42	3.11 ²

¹Based on 15 months of data.

²Based on 5 months of data.

Source: J. Pfetterkorn and B. Standish, Draft Final Report on Urban Rural Transportation Alliance, Inc., Urban Rural Transportation Alliance, Columbia, Maryland (January 1980).

Jacksonville

As the largest of the demonstration operations, Jacksonville presented unique opportunities and problems. Its initial objectives were quite ambitious and included three distinct coordination concepts: consolidation of the transportation operations of seven agencies (including the elderly and handicapped transportation services of the local transit authority), coordination of operations with ten more agencies, and purchase-of-service agreements with three more agencies. While claiming to have served 30 agencies at one time or another, and documenting a total ridership of over 44,000 passengers in one month (more than the combined total of two of the other demonstrations over their entire operations), the private non-profit agency established to provide the coordinated transportation services was for all practical purposes, bankrupt⁵ and had ceased to function by the end of the second year. Transportation services were being provided on a reduced scale by the Community Action Agency, the original grant recipient and subsequently the recipient of the third-year HEW grant.

The demonstration project served all of Duval County, Florida, an urban area with a population of 580,000 persons and an area of 766 square miles. Before the project, 29 social service agencies in the area were independently providing or purchasing transportation services for their clients. At its peak, RIDE had consolidated the operations of five agencies and was selling transportation services on a regular basis to nine more. At the end of the second year's grant, only three subunits of the Community Action Agency remained within the consolidated system.

Until its collapse, RIDE had achieved some impressive statistics. Vehicle miles and passenger trips increased dramatically over time, as shown in Table 5-6. Total costs increased, but unit costs declined. The performance indicators of the project were good. The productivity of RIDE in terms of passengers per hour and mile were good and the unit costs were quite acceptable. Most of the statistics were steadily improving, and it appeared as if the project would achieve substantial economies of scale in its operations.

⁵No papers have been formally filed to establish the legal condition of bankruptcy. However, the debts of the corporation are very large and the corporation has little or no prospect of repaying these debts.

Table 5-6
OPERATIONAL AND FINANCIAL DATA FOR JACKSONVILLE, FLORIDA

	1978										1979					TOTAL
	MAR ¹	APR	MAY	JUN	JUL	AUG	SEP ⁵	OCT	NOV	DEC	JAN	FEB	MAR	APR ²	MAY ³	
Vehicle Hours ⁴	1,357	1,947	2,010	2,493	2,828	3,689	5,413	5,131	5,164	4,313	4,260	3,854	3,959	2,928	5,415	54,781
Vehicle Miles	18,108	26,440	37,377	47,438	30,799	35,089	60,284	82,126	62,620	42,162	67,169	68,640	69,910	31,266	30,907	710,335
Trips (one-way)	5,941	10,002	10,647	10,069	10,904	11,231	40,233	42,895	40,775	27,998	44,534	36,517	40,170	28,749	30,621	391,286
Total Costs	\$9,760	\$27,778	\$27,590	\$24,012	\$30,950	\$39,884	\$43,638	\$47,438	\$47,054	\$36,812	\$35,832	\$34,876	\$35,381	N.A.	N.A.	\$441,005
Cost/Vehicle Hour	\$ 7.14	\$ 14.27	\$ 13.73	\$ 9.63	\$ 10.94	\$10.81	\$ 8.06	\$ 9.24	\$ 9.11	\$ 8.54	\$ 8.41	\$ 9.05	\$ 8.94	N.A.	N.A.	\$ 9.57
Cost/Vehicle Mile	\$.54	\$ 1.05	\$.74	\$.51	\$ 1.00	\$ 1.37	\$.72	\$.58	\$.75	\$.87	\$.53	\$.51	\$.51	N.A.	N.A.	\$.68
Cost/Trip	\$ 1.64	\$ 2.78	\$ 2.59	\$ 2.38	\$ 2.84	\$ 3.55	\$ 1.08	\$ 1.10	\$ 1.15	\$ 1.31	\$.80	\$.96	\$.88	N.A.	N.A.	\$ 1.32
Trips/Vehicle Mile	.33	.38	.28	.21	.35	.32	.67	.52	.65	.66	.66	.53	.57	.92	.99	.52
Trips/Vehicle Hour	4.35	5.14	5.30	4.04	3.86	3.04	7.43	8.36	7.90	6.49	10.45	9.48	10.15	9.82	5.65	7.23

¹Less than a full month of service. These data are not included in the calculation of monthly averages.

²RIDE terminated operation April 13. Data shown are total of RIDE and NFCAA operations.

³Service provided by NFCAA.

⁴Vehicle hours are not available from project data. They have been estimated by taking 87 percent of the driver payroll hours, since RIDE's fringe benefit policy stipulated a maximum average of 87 percent of a driver's hours could be applied to work duties.

⁵Statistics after August 1978 cannot be independently verified due to lack of grantee cooperation with the evaluation effort.

Source: Northeast Florida Community Action Agency, Inc., Preliminary Project Report-HDS Transportation Demonstration Project-Jacksonville, Florida, November 12, 1979.

But the project was operating with a fatal flaw — it was charging the participating agencies less than half the actual cost of transporting passengers. Because of the very large number of clients being transported, this billing procedure very quickly caused a severe cash flow problem that RIDE, Inc., an independent private non-profit agency, had no way of resolving. Thus, severely in debt to staff, suppliers, the Internal Revenue Service, and others, RIDE ceased providing transportation services on Friday April 13, 1979. The following Monday, NFCAA was providing transportation to three of the seven major participants in the RIDE system. However, the system under NFCAA never got back to the volume of trips generated by RIDE.

Westchester

The system proposed in Westchester County — the Westchester Coordinated Transportation Project (WCTP) — was based on the concept of consolidating the transportation operations in the county. The first step was to be the consolidation of five human service agencies, eventually leading to the second phase, the development of a countywide paratransit system for all elderly and handicapped.

Westchester County is part of the New York metropolitan area and is located just north of the city. The southern part of the county is densely settled, but the northern part is quite rural.

WCTP experienced a combination of start-up problems unique among the five demonstrations (excessive insurance requirements, political problems, lack of vehicles, high costs, and operations delays). Because of such problems, the project was the last to begin operations. It also began at a very low level of efficiency. As shown in Table 5-7, the project became substantially more efficient over time. However, it never achieved acceptable levels of productivity and efficiency due to its inability to generate enough riders to justify its higher than average administrative costs. Furthermore, the project was never able to resolve the political issues that plagued it from the beginning. The project did not apply for third-year funding from HEW.

Several factors contributed to the relatively low ratio of outputs to inputs. Partly because of a dispute over billing procedures, one of the larger participating agencies assigned the coordinated project only the long-distance trips, continuing to serve the shorter (and cheaper) trips itself. On the cost side, the use of CETA workers for drivers necessitated payments for a 35-hour work week even if there were no passengers to be carried. The combination of such factors seriously affected the overall efficiency of this project.

Table 5-7

OPERATIONAL AND FINANCIAL DATA FOR WESTCHESTER, NEW YORK

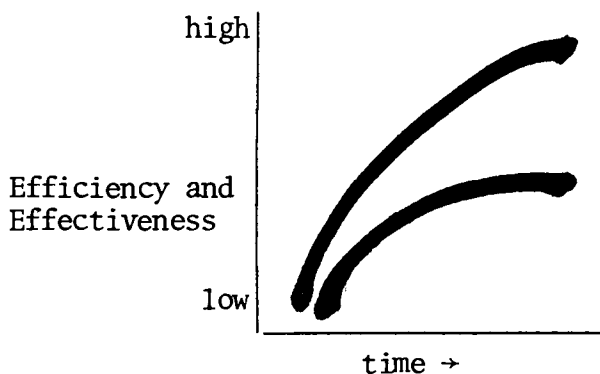
	1978							1979					TOTAL
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	
Vehicle Hours	79	173	231	263	285	272	235	246	218	342	370	351	3,065
Vehicle Miles	1,032	3,171	5,282	5,848	6,688	6,225	5,598	5,604	5,219	8,220	8,301	8,524	69,712
Trips	255	393	354	568	674	683	554	546	508	888	1,043	1,026	7,492
Total Costs	\$8,698	\$8,284	\$9,465	\$10,322	\$9,859	\$10,325	\$10,010	\$10,868	\$9,364	\$10,214	\$10,437	\$9,853	\$117,699
Cost/Hour	\$110.10	\$47.88	\$40.97	\$39.25	\$34.59	\$37.96	\$42.60	\$44.18	\$42.95	\$29.87	\$28.21	\$28.07	\$38.40
Cost/Mile	\$8.43	\$2.61	\$1.79	\$1.77	\$1.47	\$1.66	\$1.79	\$1.94	\$1.79	\$1.24	\$1.26	\$1.16	\$1.69
Cost/Trip	\$34.11	\$21.08	\$26.74	\$18.17	\$14.63	\$15.12	\$18.07	\$19.90	\$18.43	\$11.50	\$10.00	\$9.60	\$15.71
Trips/Vehicle Mile	.25	.12	.07	.10	.10	.11	.10	.10	.10	.11	.13	.12	.11
Trips/Vehicle Hour	3.23	2.27	1.54	2.16	2.36	2.52	2.36	2.22	2.33	2.60	2.82	2.92	2.44

Source: Monthly reports provided by project.

Learning Curves: Changes Over Time

The evaluation report of the first year's experience under the coordinated transportation demonstration stated that "it is anticipated that the operations [of the projects] will become more efficient and effective over time, although the extent of such improvements cannot be estimated now."⁶ In fact, the second year of the projects generally showed only slight improvements over the first year and then, not even for all sites or all performance measures. While improvements were made, the time series data for the various performance statistics did not show the amount or extent of improvements expected at the five sites.

"Classic examples" of learning curves would fit the pattern shown in Figure 5-1. Projects typically begin at a relatively low level of efficiency.



The efficiency levels increase rapidly at first, then continue to increase but more slowly than before. A point may be reached where no further improvements are noticeable. The improvements are constant and continue until the steady-state point is reached.

Figure 5-1: "CLASSIC" LEARNING CURVES

Most of the projects did not exhibit classic learning curves because improvements of one month would be offset by declines the following month. See Figures 5-2 through 5-8. Thus, the improvements were not steady over time. Actually, operations in the real world seldom exhibit constant improvements, so the fact that steady month-to-month improvements were not made is more of an observation than a criticism.

More of a criticism is the fact that, although improvements were made, the performance measures did not change markedly over time. (There were a few exceptions to this statement.) The project in Fayetteville showed some small improvements in passenger trips, vehicle miles, vehicle hours, and cost per trip. In Grand Rapids, things got worse over time and early advances were

⁶Jon Burkhardt, et al., Evaluation of the Office of Human Development Services Transportation Demonstration Program: Results of the First Year's Activities prepared by Ecosometrics, Incorporated for OHDS/HEW (March 1979).

reversed as fewer and fewer passengers used the system before its demise. Howard County showed operations that were pretty much the same over the two-year demonstration period, with slight improvements in the cost per passenger trip. Jacksonville showed some substantial improvements over time, but the project's outputs peaked in the fall of 1978, declined slightly thereafter, and dropped dramatically when RIDE ceased providing services in April. Thus, while improvements occurred, it was hard to maintain them once achieved. The Westchester County project showed some dramatic improvements, partly because its initial operations were quite inefficient. Westchester's cost per vehicle mile history comes the closest to a classic learning curve, showing a very substantial (and mostly consistent) improvement over time. (See Figure 5-7.) The cost per trip also dropped dramatically, although not as consistently, and the cost per vehicle hour declined. However, the performance of the Westchester project in terms of these efficiency measures was, in general, still not up to the levels exhibited by the other projects by the end of the demonstration period. Improvements were still required.

Turning our attention from specific sites to specific performance measures, we again find little in the way of a strong learning experience. The monthly costs for the projects did not really change, except to increase in one instance (see Figure 5-5). Thus, the potential for spending less money on transportation through coordination was not demonstrated by these projects. Overall, passenger trips, vehicle miles, and vehicle hours increased a little over time. (See Figures 5-2 to 5-4.) The cost measures — per trip, per vehicle mile, and per vehicle hour — show similarly small changes, except in Westchester, where the project became substantially more efficient over time (although not, in general, as efficient as the other projects at the end), and in Jacksonville, where less dramatic but significant improvements were also made. (See Figures 5-6 to 5-8).

The general lack of substantial changes over time is distressing. It may be that the demonstration period was too short, an idea supported by the award of third-year grants to three of the five sites. If major changes are expected in the third year, this would create a strong need for an independent evaluation of the third year's activities. (None is scheduled at the moment.) For major changes to occur, however, at least one of the major components — cost, outputs,

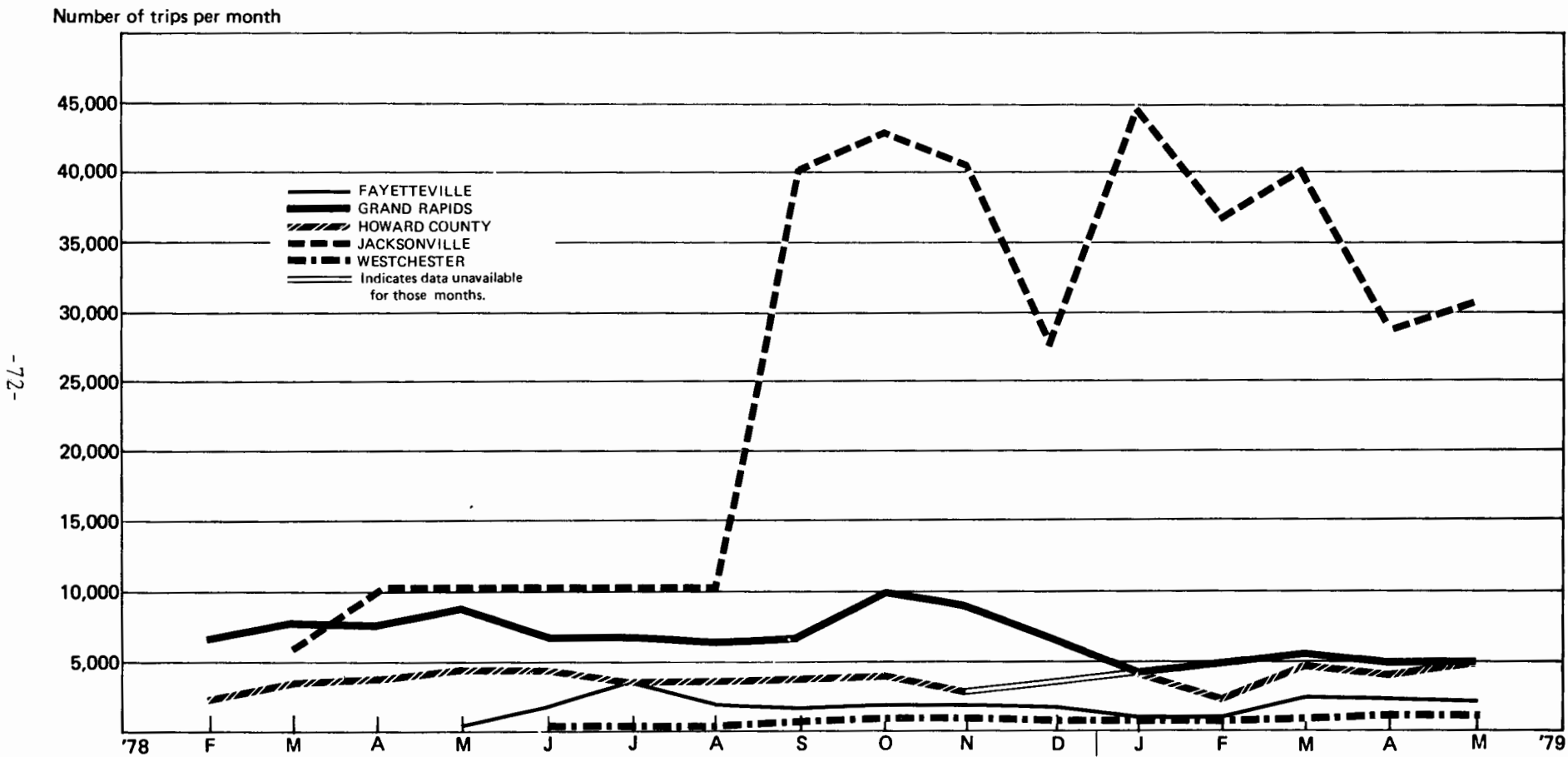


Figure 5-2: TRIPS PER MONTH OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

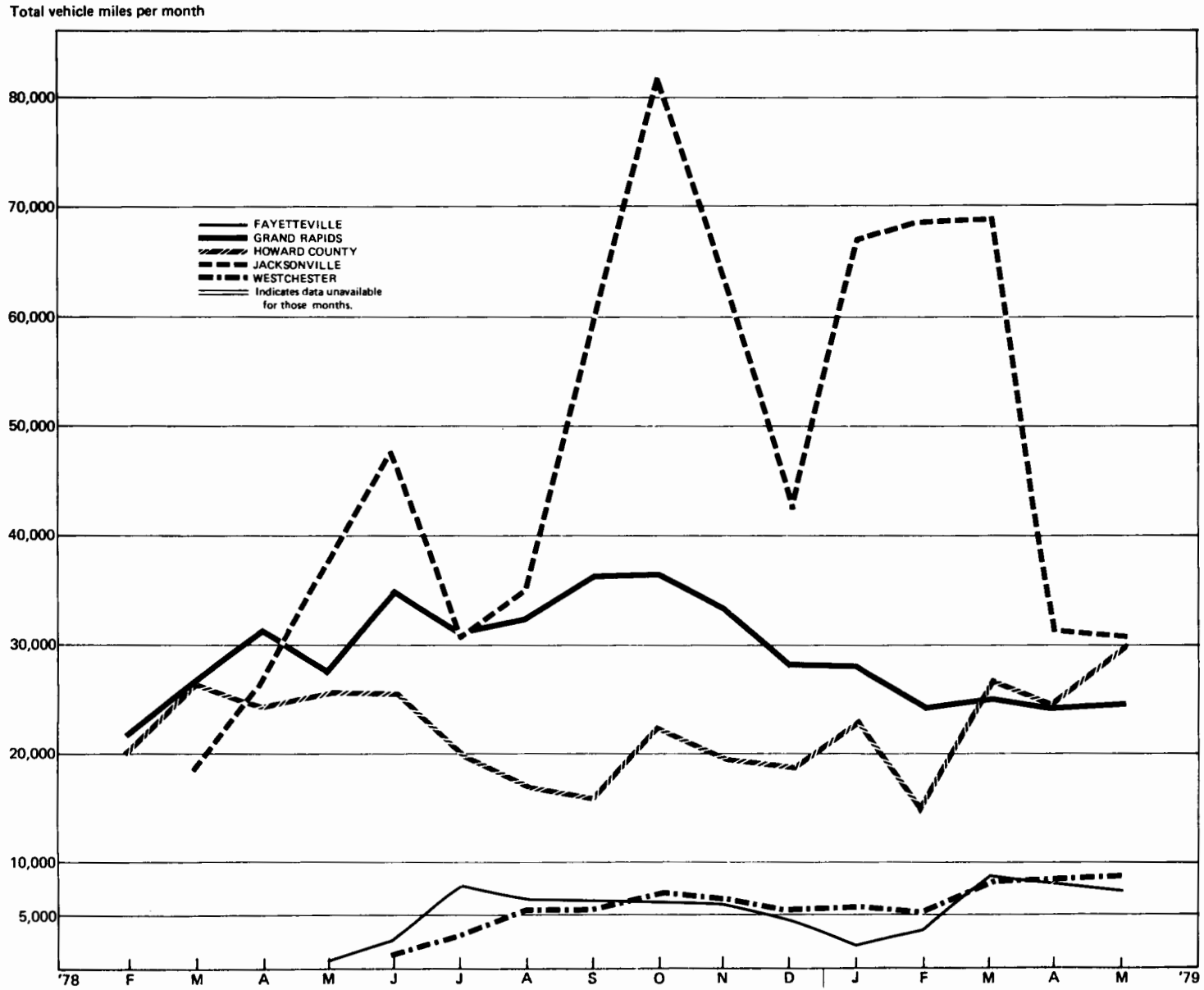


Figure 5-3: VEHICLE MILES PER MONTH OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

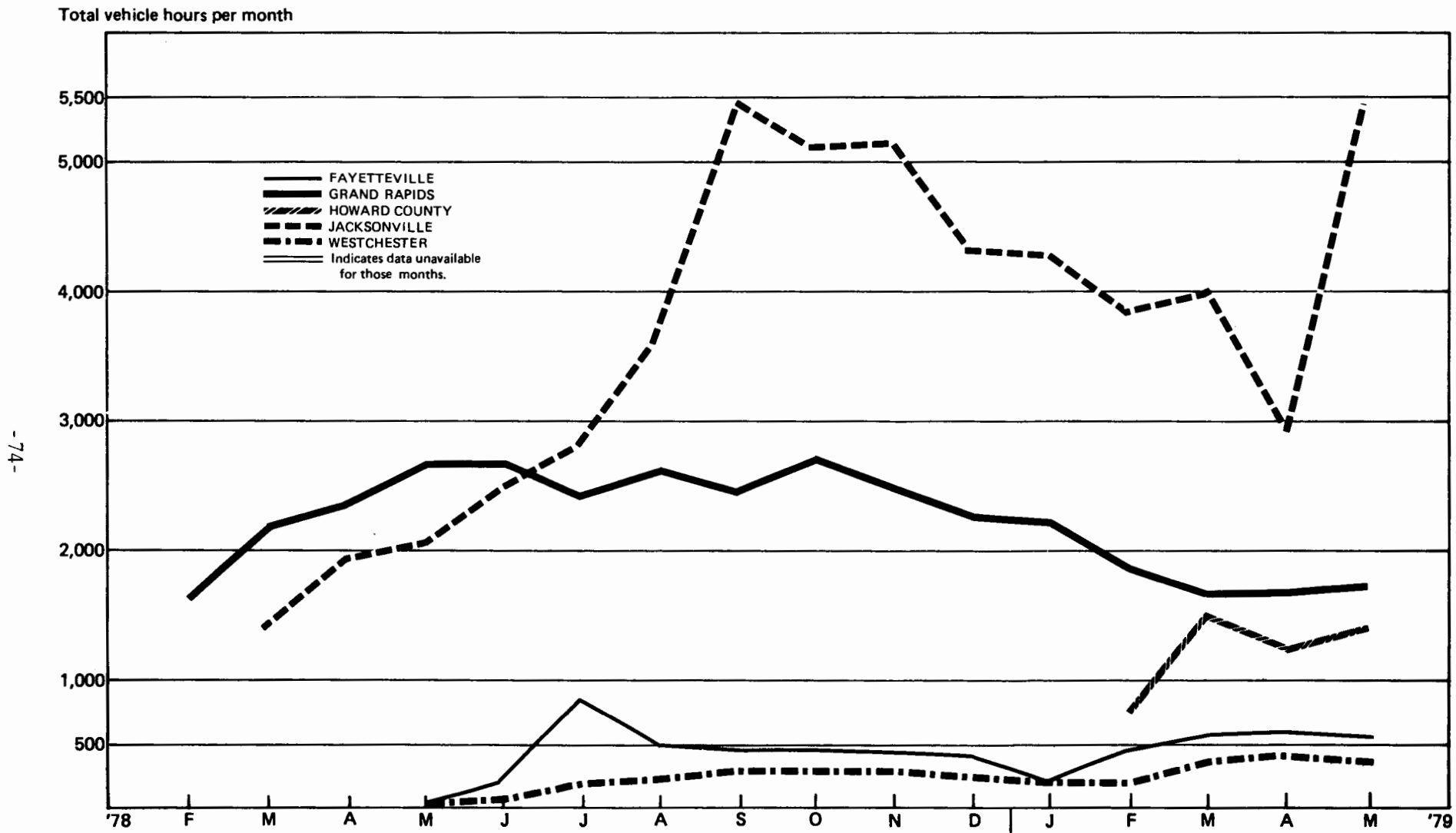


Figure 5-4: VEHICLE HOURS PER MONTH OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

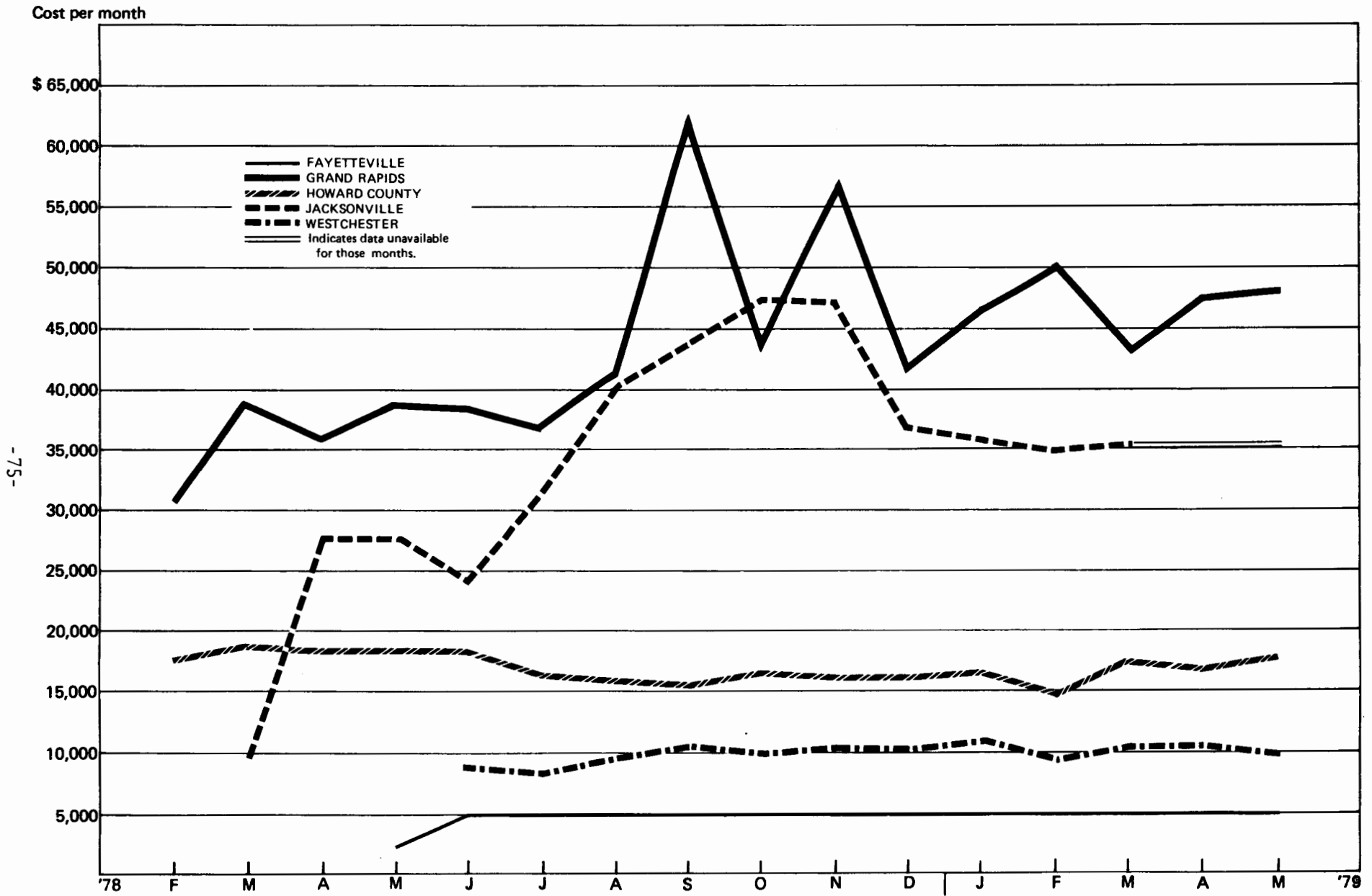
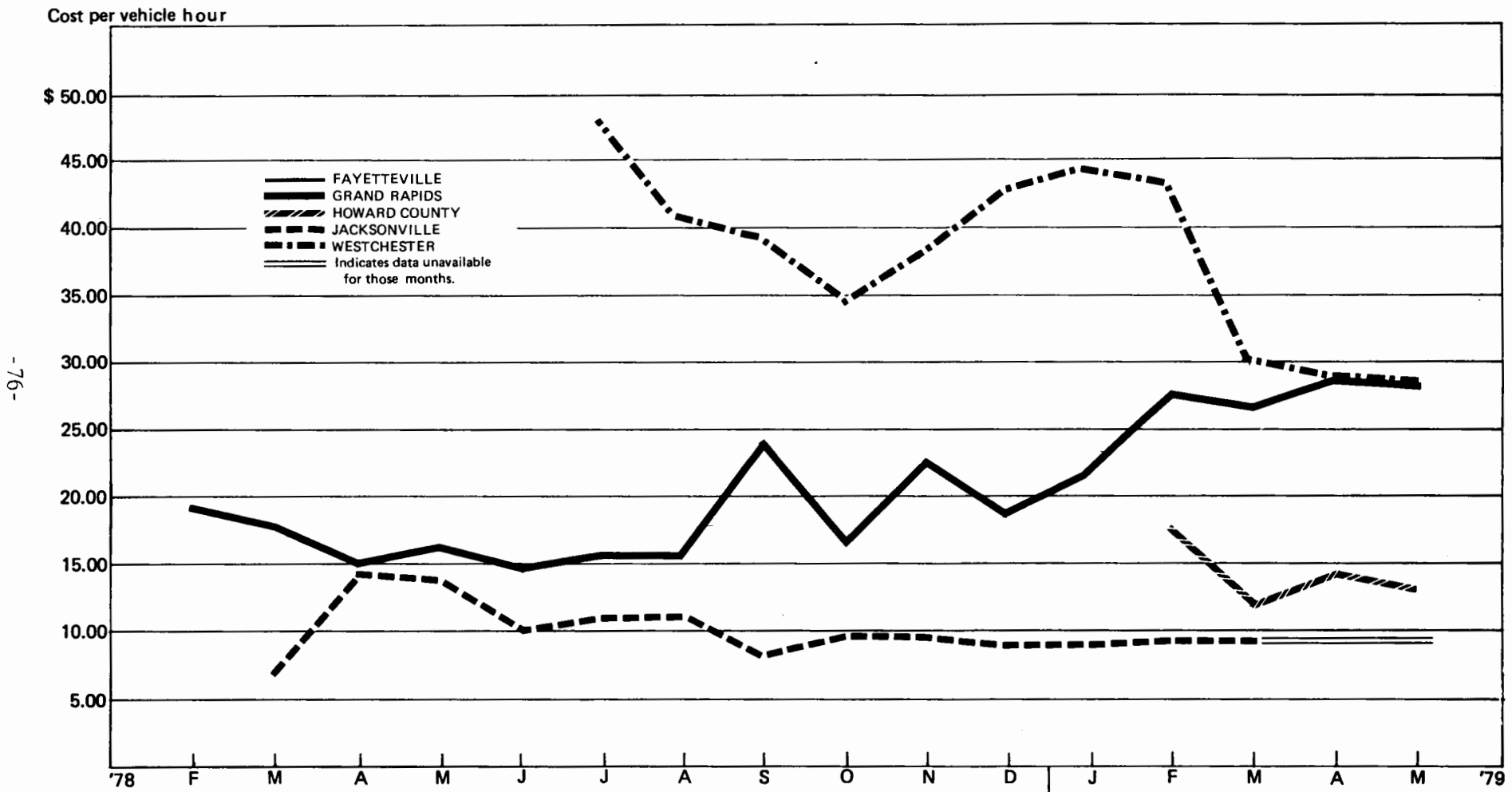


Figure 5-5: TOTAL COSTS PER MONTH OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION



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Figure 5-6: COSTS PER VEHICLE HOUR OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

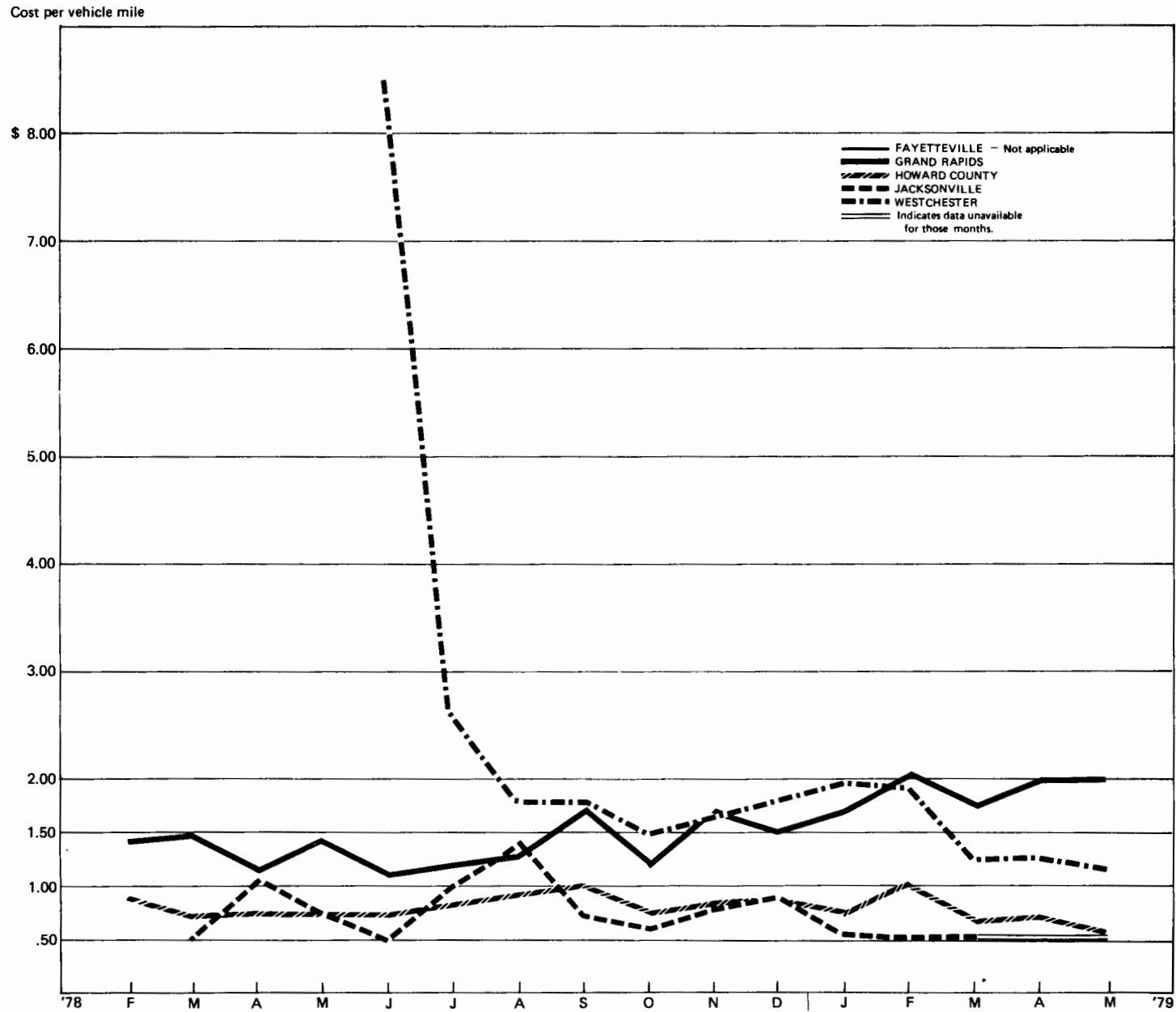


Figure 5-7: COSTS PER VEHICLE MILE OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

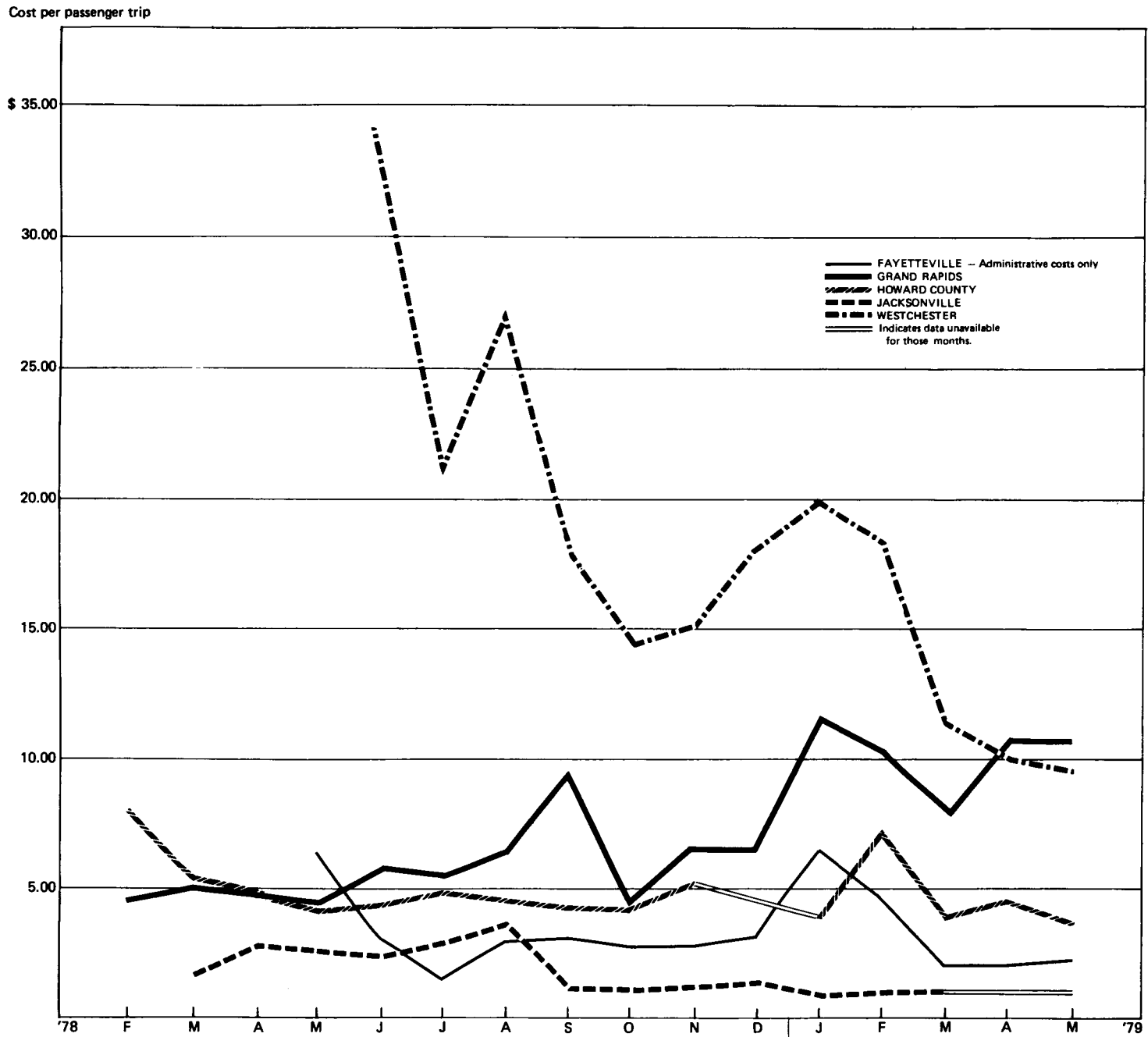


Figure 5-8: COSTS PER PASSENGER TRIP OVER THE TWO-YEAR OHDS COORDINATED TRANSPORTATION DEMONSTRATION

or quality — must change. Since the costs are not likely to change much, and service quality is an elusive (though important) area, this leaves outputs — particularly, the number of riders or trips — as the focal point for changes in efficiency or effectiveness.

Increasing the number of riders or trips probably requires a continual expansion of the number of persons served. If the system's clientele is primarily drawn from social service agency clients, then 1) the social service agency must serve more clients, or 2) more social service agencies and their clients (or other persons, such as the general public) must be brought into the coordinated transportation service. For a variety of reasons, the second strategy is easier to accomplish than the first. This, then, becomes the key to increasing efficiency and effectiveness in transportation systems through coordination. However, the Jacksonville experience shows all too clearly that service quality can easily be a victim of a rapid growth strategy. In that case, normal management strategies were overlooked due to the preoccupation with rapid growth.

COMPARATIVE PERFORMANCE IN PROVIDING TRANSPORTATION SERVICES

The five demonstrations were not particularly more or less cost-effective than other paratransit systems across the country, when compared to the operations of such systems. This is an improvement from the previous year's finding that the coordinated demonstration projects were generally not as effective as similar uncoordinated systems. Except for Grand Rapids, the projects performed better in the second year than in the first.⁷ The Westchester project showed the greatest degree of improvement, although its overall performance still did not match that of the other projects. From a statistical point of view, the Jacksonville system showed the best performance over all five projects. In fact, its performance statistics are remarkable in comparison with most paratransit operations.

⁷A quick comparison of this evaluation report with the previous evaluation report would indicate that unit costs were higher during the second year in Howard County. This is not in fact the case, as a review of Table 5-5 will show. The figures in Table 5-5 are believed to be much more accurate than the estimates available when the first report was written.

Performance Measures from Other Systems

As previously discussed in Chapter 2 and in the first year's report, there is a general lack of knowledge about the costs and benefits of coordinated transportation systems. Another way of expressing this is that there are no universally accepted standards of cost or other performance measures that can be used to evaluate the five demonstration sites.

Despite this lack of directly comparable data, there are many paratransit operations with physical characteristics quite close to those of the five OHDS demonstrations, even though these other systems do not provide coordinated services. In fact, many of these similar services are provided for (and sometimes by) social service agencies. Therefore, if coordination is to lead to benefits in efficiency and effectiveness, the demonstration projects should do even better than these uncoordinated social service agencies once the operations of the demonstrations stabilize.

Sources of statistics for similar operations include:

- specialized systems serving the elderly and handicapped,
- the rural public highway transportation demonstration program,
- taxi and other demand-responsive transit services, and
- small city transit services.

These sources establish probable ranges of operating costs and indicate some extremes that could be classified as goals for which the demonstration might strive. The advantages and disadvantages of using data from each of these sources is discussed in the first year's report.⁸

The ranges of operating statistics can be quite broad. This is due to a variety of causal factors, such as the type of service provided (demand-responsive, fixed-route, or some combination), the population and population density of the service area, the types of trips served, the amount of service provided, the frequency and other amenities of the service, fares, and competition from other modes. Unfortunately, it is not possible to specifically predict the influence of each factor at this time.

Some of these variations are summarized in Table 5-8, which focuses on the overall costs per passenger trip. A close examination of these sources shows that one might expect the five OHDS demonstrations to operation somewhere between over \$1.60 to just under \$6.00 per trip, based on systems that are most like those operated by the demonstration.

⁸Burkhardt, et al., Result's of the First Year's Activities, Appendix E, "Costs of Paratransit Operations Comparable to the OHDS Demonstration Projects."

Table 5-8
 COMPARISON OF COSTS PER PASSENGER TRIP
 FOR VARIOUS PARATRANSIT SYSTEMS
 UPDATED FOR INFLATION

System or System Type	Source	Mean	S.D.	High	Low
Taxi systems throughout U.S.	(1)	\$1.55	—	\$<4.40	\$>.63
Michigan demand-responsive small urban systems	(2)	1.58	—	2.75	0.68
Michigan demand-responsive urban systems	(2)	2.12	—	5.11	1.14
Michigan DOT guidelines for E&H transportation services	(3)	under 2.72	—	—	—
Pennsylvania 16(b)2 program	(4)	3.04	4.27	17.71	0.39
14 E&H systems in Rochester, New York	(5)	3.55	2.33	7.02	0.26
18 systems serving E&H in U.S.	(6)	3.87	3.32	16.24	1.12
107 DOT rural demonstration projects	(7)	4.30	5.23	29.09	0.34
8 systems serving the elderly	(8)	4.70	4.25	12.61	1.64
8 E&H agencies in Greensboro, N.C.	(9)	7.76	4.24	12.29	1.12
Michigan rural systems	(2)	8.82	—	13.85	2.17

Data Sources:

- (1) Taxicab Operating Statistics, prepared by Control Data Corporation and Wells Research Company for U.S. Department of Transportation, Washington, D.C., March 1977.
- (2) Small Bus Demand-Responsive Training Conference, Bureau of Urban and Public Transportation, Michigan Department of State Highways and Transportation, Lansing, August 1977.
- (3) Michigan Small Bus Program Management Handbook, Bureau of Urban and Public Transportation, Michigan Department of State Highways and Transportation, Lansing, June 1978
- (4) William W. Millar and William R. Kline, "Operating Costs and Characteristics of Selected Specialized Transportation Services for Elderly and Handicapped Persons in Rural and Urban Areas," in Proceedings of the Transportation Research Forum XV11:1(1976), Oxford, Indiana.
- (5) V. Clayton Weaver, "Human Service Agency Transportation Coordination: An Evaluation Method," presented to the Transportation Research Board, January 1978.
- (6) Alice E. Kidder, et al., "Cost of Alternative Systems to Serve Elderly and Handicapped in Small Urban Areas," in Proceedings of the Transportation Research Forum, XV11:1(1976), Oxford, Indiana.
- (7) Tabulations from Section 147 Rural Public Highway Transportation Demonstration Program, August 1978, by Ecosometrics, Incorporated.
- (8) Joseph S. Revis, et al., Transportation for Older Americans, the Institute of Public Administration, Washington, D.C., April 1976.
- (9) Alice E. Kidder, "Transportation Policy and the Delivery of Social Services in a Small City," Transportation for the Poor, the Elderly and the Disadvantaged: Transportation Research Record No. 516, Transportation Research Board, Washington D.C., 1974.

Finally, Table 5-9 gives some ranges of performance indicators that one might expect from the coordinated transportation projects, in light of the previous review of the operating characteristics of a wide range of systems. In fact, to make a strong case for the efficiency and effectiveness of coordinated transportation, the demonstrations should exceed the "best" values indicated in the table.

Performance Measures for the OHDS Demonstrations

Table 5-10 shows the most recent operating statistics for the performance of the five coordinated transportation demonstrations. The statistics show three-month averages for March, April, and May of 1979, except where noted.

Three of the five projects — Fayetteville, Howard County, and Jacksonville show operations within an acceptable range. Jacksonville is noteworthy as a high-volume, high-productivity, low-cost operation. Its second-year operations improved significantly over those previously reported, and it stands out as an effective system among the five demonstrations and among comparable operations. The Howard County operation shows up well because of its ability to control costs; the project still needs to improve its productivity. The Fayetteville project has substantially increased the number of passengers served and thereby reduced the cost per trip (in the case of Fayetteville, only administrative costs are shown). All three of these projects received third-year grants from HEW to continue the demonstration operations.

What do these statistics mean? They show that coordinated transportation systems can be cost effective, although not necessarily more so than uncoordinated systems. They also show slight improvements over time. Does this mean that given a third or even fourth year of experimentation, the demonstration projects would become much more cost effective? If the trends shown in Figures 5-2 to 5-8 are any guide, there is no current evidence to support the notion that substantial changes would occur, although one suspects that improvements would continue. Even if one were to assume, despite the lack of evidence, that substantial improvements would occur during the third or fourth year, it would be necessary to admit that this means waiting much longer than expected for coordinated systems to out-perform other systems.

Table 5-9
 PROBABLE RANGES FOR OPERATING STATISTICS OF
 COORDINATED TRANSPORTATION DEMONSTRATION PROJECTS¹

MEASURE	LOW	HIGH
<i>Efficiency measures</i>		
● cost per passenger trip (one-way)	\$1.60 ²	\$ 6.00
● cost per vehicle mile	\$0.40 ²	\$ 1.00
● cost per vehicle hour	\$6.20 ²	\$18.00
● load factor	6%	35% ²
● operating ratio (revenues ÷ operating and administrative costs)	0.25	1.0 ²
<i>Effectiveness measures</i>		
● passengers per vehicle mile	0.20	2.0 ²
● passengers per vehicle hour	3.0	10.0 ²
● annual passengers per service area population	3.0	20.0 ²
<i>Other descriptors</i>		
● one-way passengers per month	1,000	8,000 ²
● monthly vehicle miles per vehicle	2,000	7,000 ²

¹These figures are 1980 estimates based on the procedures outlined in Appendix E of last year's report.

²"Best" values that truly efficient/effective systems should approach or exceed. Approximately the top 20 percent of all comparable systems exceed these "best" values.

Table 5-10

RECENT¹ OPERATING STATISTICS OF OHDS COORDINATED TRANSPORTATION DEMONSTRATION PROJECTS

Measure	"Acceptable Range" ²		Fayetteville	Grand Rapids	Howard County	Jacksonville	Westchester
	Low	High					
<i>Efficiency Measures</i>							
● cost per passenger trip (one-way)	\$1.60	\$6.00	\$2.17 ³	\$9.84	\$ 4.06	\$0.88	\$10.37
● cost per vehicle mile	\$0.50	\$1.00	N.A.	\$1.90	\$.64	\$0.51	\$ 1.22
● cost per vehicle hour	\$6.20	\$18.00	N.A.	\$27.64	\$12.83	\$8.94	\$28.72
<i>Effectiveness Measures</i>							
● passengers per vehicle mile	0.20	2.0	0.29	0.20	0.16	0.82	0.12
● passengers per vehicle hour	3.0	10.0	4.13	2.85	3.16	8.54	2.78
<i>Other Descriptors</i>							
● one-way passengers per month	1,000	8,000	2,259	4,775	4,279	33,180	986
● monthly vehicle miles per vehicle	2,000	7,000	N.A.	2,042	2,249	1,376	1,391

¹Figures shown are averages for March, April, and May, 1979 except in Jacksonville, where cost figures are available for March only.

²From Table 5-9.

³For reasons described in the text, this figure is not strictly comparable to those of the other projects. A more comparable figure would probably be between \$4.00 and \$5.00 per trip.

COSTS TO PARTICIPATING AGENCIES BEFORE AND AFTER COORDINATION

As described in Chapter 2, a major premise of this demonstration was that coordination or consolidation would lead to increased efficiency and effectiveness. In addition, almost one-half of the participating agencies at all sites expected more efficient transportation services and one-third expected actual cash savings for their agencies. As shown on the following pages, the agencies participating in the demonstrations sometimes did and sometimes did not realize the expected financial benefits of coordinated transportation.

One caveat is important. It must be noted at the outset that social service agencies are notoriously poor judges of the true costs of transporting their clients.⁹ This occurs for the following reasons:

- Transportation costs are often not even identified distinctly as one line item in budgets or expense records, let alone broken out into components.
- Many vehicles are obtained by grants or donations, eliminating the need to budget for such expenses.
- Drivers are often professional personnel who transport clients in addition to their regular duties.
- System managers are often supervisory staff with a variety of transportation and non-transportation duties whose salaries are paid regardless of what subtasks they engage in.
- Social service agencies often do not recognize any overhead costs attributable to their transportation operations, since rent, utilities, telephones, and other such expenses are necessary for the agencies' basic operations.

It has been suggested that, due to the factors above, the actual dollar costs for the provision of transportation by social service agencies are more than 30 percent higher than the agencies perceive them to be.¹⁰

⁹For example, see Walter L. Cox and Sandra Rosenbloom, Social Service Agency Transportation Services: Current Operations and the Potential for Increased Involvement of the Taxi Industry, Center for Highway Research, University of Texas at Austin, August 1977, pp. 28-31.

¹⁰Alessandro Pio, "The Cost and Productivity of Elderly and Handicapped Transportation: A Comparison of Alternative Provision Systems," paper presented to the 59th Annual Transportation Research Board Meeting, January 1980.

For these and other reasons, we have tried to be especially careful about the "before" data reported by participating agencies. In instances where the before data were missing or obviously inaccurate, personnel from Ecosometrics made phone calls and in-person visits to collect and verify them. In the end, however, we were finally dependent on agency records for reporting or estimating of the data. Most of the data are accurate at this point; if errors still remain, their effect is to understate the true costs of transportation services provided before coordination and thus to understate the benefits achieved by the coordinated systems. However, the reported results do accurately reflect the perceptions of the participating agencies.

Site-by-Site Analysis

Fayetteville

For reasons previously discussed, before and after comparisons of costs and ridership are nearly impossible in Fayetteville. The provider agencies did not furnish total cost figures to Project RESPOND for their current operations and the purchaser agencies had no records of transportation expenses before coordination. In addition, various rates were charged to the purchaser agencies for trips received, and no composite record of costs exists. We do not know how the costs of transportation services to participating agencies in Fayetteville changed, if at all, as a result of coordination.

Grand Rapids

In Grand Rapids, neither of the two participating agencies were benefiting financially from the coordination of their activities. As shown in Table 5-11, per trip expenses (adjusted for inflation) for GRATA increased by almost 140 percent, to \$8.15 a trip, and Kent CAP experienced an increase of one-half, to \$4.00 per trip. In general, as shown in Table 5-12, per trip costs for the entire system increased by 126 percent and per hour costs increased by 101 percent. The overall efficiency of the system increased slightly (in terms of trips per hour).

The increase in unit costs appears to result from significant increases in costs rather than decreases in service. Some of these costs are attributable to new equipment (e.g., two-way radios) and personnel transferred from other positions in GRATA (dispatchers and service representatives) whose effectiveness was not reflected over the duration of the project. As previously reported, the current costs are not close to the established billing rate of \$2.25 per trip and, in fact, are even farther away than last time.

Table 5-11

COMPARISON OF THE COST AND EFFICIENCY
OF TRANSPORTATION SERVICES BEFORE
AND AFTER COORDINATION FOR PARTICIPATING AGENCIES
GRAND RAPIDS, MICHIGAN

	Before ¹ Coordination	Before with Costs Inflated to May 1979 Level	After Project Implementation ^{2,3}
GRATA			
Trips/Month	4,530	4,530	4,891
Hours/Month	1,028	1,028	N.A.
Cost/Month	\$12,654	\$15,479	\$39,879
Cost/Trip	\$2.79	\$3.42	\$8.15
Cost/Hour	\$12.31	\$15.06	N.A.
Trips/Hour	4.41	4.41	N.A.
Kent CAP			
Trips/Month	2,838	2,838	2,463
Hours/Month	1,170	1,170	N.A.
Cost/Month	\$6,220	\$7,608	\$9,858
Cost/Trip	\$2.19	\$2.68	\$4.00
Cost/Hour	\$5.32	\$6.50	N.A.
Trips/Hour	2.43	2.43	N.A.

¹Calculated from annual 1976 figures presented in the Grand Rapids first-year proposal, page 27.

²All project costs have been inflated to May 1979 levels using the Consumer Price Index of the Bureau of Labor Statistics, U.S. Department of Labor. These costs are comparable to the actual, uninflated costs presented in Table 5-4.

³Based on 16 months of operations for GRATA and 11 months for Kent CAP.

Table 5-12

COMPARISON OF THE TOTAL SYSTEM COSTS
AND EFFICIENCY OF TRANSPORTATION SERVICES
BEFORE AND AFTER COORDINATION
GRAND RAPIDS, MICHIGAN

	Before ¹ Coordination	Before with Costs Inflated to May 1979 Level	After Project Implementation ^{2, 3}
Trips/Month	7,368	7,368	6,588
Cost/Month	\$18,874	\$23,087	\$46,655
Hours/Month	2,198	2,198	2,212
Cost/Trip	\$2.56	\$3.13	\$7.08
Cost/Hour	\$8.59	\$10.50	\$21.09
Trips/Hour	3.35	3.35	2.98

¹Calculated from annual 1976 figures presented in the Grand Rapids first-year proposal, page 27. The before costs include data from GRATA and Kent CAP as the only participating agencies.

²All project costs have been inflated to May 1979 levels using the Consumer Price Index of the Bureau of Labor Statistics, Department of Labor. These costs are comparable to the actual, uninflated costs presented in Table 5-4.

³Based on 16 months of operations for GRATA and 11 months for Kent CAP.

Howard County

In line with the total consolidation philosophy operating in Howard County, which includes treating passengers as individuals rather than as clients of particular agencies, no agency by agency records of activities were kept. Part of the reason for this was the finding in the first year's evaluation report that the total consolidation of transportation budgets had lowered the per unit costs to some agencies while raising them to others. This became a very sensitive issue.

The results of coordination are more impressive in the last months of the second year than over the two-year demonstration, and since these figures are probably a better indicator of the overall achievements of the project, the most recent data will be used. The number of trips per month and per hour increased, but overall costs also increased, although not by much. (See Table 5-13.) The per trip costs were up by one quarter, the per mile costs were up by 36 percent, and the per hour costs were up by almost 90 percent. This again shows the importance of being able to offset cost increases by productivity increases as a means of controlling unit costs.

Jacksonville

In Jacksonville, agency-by-agency trip data were not available either. However, in this case the lack was due to inadequate recordkeeping rather than a conscious decision.

Table 5-14 compares the total operations of the participating agencies before and after coordination in Jacksonville. The productivity and efficiency increases are striking. At the end of the second grant year, the project had more than doubled the number of passengers served and had increased the trips per hour and trips per mile by approximately one-third. Total costs rose by two-thirds. The project showed an over 40 percent decline in costs per trip, an 8 percent reduction in cost per vehicle hour, and a 45 percent reduction in cost per vehicle mile. The first-year report found substantial variations in the benefits received by individual agencies, and firsthand reports indicate that this pattern has continued. This would indicate that some agencies are receiving even greater benefits. Added to this consideration is the fact that

Table 5-13
 COMPARISON OF THE TOTAL SYSTEM COSTS
 AND EFFICIENCY OF TRANSPORTATION SERVICES
 BEFORE AND AFTER COORDINATION
 HOWARD COUNTY, MARYLAND

	Before ¹ Coordination	Before with Costs ² Inflated to May 1979 Level	After Project Implementation	
			Project Average ^{2, 3}	Latest Data ⁵
Trips/Month	3,804	3,804	3,648	4,279
Cost/Month	\$10,142	\$12,401	\$18,235	\$17,287
Hours/Month	1,815	1,815	1,199 ⁴	1,354
Miles/Month	26,444	26,444	22,273	26,986
Cost/Trip	\$2.67	\$3.26	\$ 4.99	\$ 4.06
Cost/Hour	\$5.59	\$6.83	\$15.21	\$12.83
Cost/Mile	\$.38	\$.47	\$.82	\$.64
Trips/Hour	2.10	2.10	3.04	3.16
Trips/Mile	.14	.14	.16	.16

¹Based on annual 1976 data.

²All project costs have been inflated to May 1979 levels using the Consumer Price Index of the Bureau of Labor Statistics, U.S. Department of Labor. These costs are comparable to the actual uninflated costs presented in Table 5-5.

³Based on 15 months of operation, except as noted.

⁴Based on the last four months.

⁵Based on the average of the last three months: March, April, May 1979.

Table 5-14
 COMPARISON OF THE TOTAL SYSTEM COSTS
 AND EFFICIENCY OF TRANSPORTATION SERVICES
 BEFORE AND AFTER COORDINATION
 JACKSONVILLE, FLORIDA

	Before ¹ Coordination	Before with Costs ² Inflated to May 1979 Level	After Project Implementation	
			Project Average ^{2, 3}	Latest Data
Trips/Month	14,354	14.354	25,532	33,180
Cost/Month	\$18,593	\$21,634	\$36,287	\$35,381 ⁵
Hours/Month	2,225	2,225	3,572	4,100
Miles/Month	22,925	22,925	49,859	44,028
Cost/Trip	\$1.30	\$1.51	\$ 1.42	\$.88
Cost/Hour	\$8.36	\$9.72	\$10.16	\$8.94
Cost/Mile	\$.81	\$.93	\$.73	\$.51
Trips/Hour	6.45	6.45	7.15	8.54
Trips/Mile	.63	.63	.51	.83

¹Based on annual 1976 data from the Jacksonville first-year proposal, page 45.

²All project costs have been inflated to May 1979 levels using the Consumer Price Index of the Bureau of Labor Statistics, U.S. Department of Labor. These costs are comparable to the actual uninflated costs presented in Table 5-6.

³Based on 13 months of data.

⁴Based on the average of the last three months: March, April, May 1979 — except as noted.

⁵Based on March 1979 data.

before and after comparisons show actual costs, while the agencies were actually billed for less than the true costs of the service. Therefore, the costs to the participating agencies after coordination were generally substantially less after coordination than before (but see the comments on service quality in the following section).

Westchester County

Three of the five participating agencies in Westchester County received cost savings through the coordinated transportation service, as shown in Table 5-14. However, these cost savings were based on billed rather than actual costs, as can be seen in Table 5-15. In Westchester County, billing was done according to vehicle hours of service received. (In fact, agencies were billed in advance for expected hours of service and adjustments made as required after the month ended.) Therefore, while the actual per trip cost rose 200 percent over the life of the project (or 87 percent from before the project until the project's most recent operations, as shown in Table 5-10), the coordination demonstration program subsidized the trips of these agencies by charging them less than the actual expenses. Had they been charged for actual expenses, a number of these agencies would probably not have been participants. As it was, the changes in the per trip costs for the participating agencies in Westchester were +154 percent, +128 percent, -68 percent, -1 percent, and -4 percent, respectively.

Summary

In Jacksonville, costs to participating agencies declined dramatically. In Westchester, out-of-pocket costs declined more often than not, but true costs increased substantially. Howard County showed small cost increases and Grand Rapids showed large increases.

The experiences at the sites were so different that conclusions are hard to draw. However, one is struck by the fact that the site with the greatest improvement in efficiency (Jacksonville) is also the site that produced a very substantial increase in total ridership and other productivity measures. One would suspect that greater efficiencies will be obtainable through productivity increases than from cost savings.

Table 5-15

COMPARISON OF COST AND EFFICIENCY
OF TRANSPORTATION SERVICES
BEFORE AND AFTER COORDINATION
WESTCHESTER COUNTY, NEW YORK

	Before ¹ Coordination	Before with Costs Inflated to May 1979 Level	After Project ^{2,3} Implementation
TOTAL/ACTUAL FIGURES			
Cost/Month	\$26,473	\$32,377	\$10,318
Trips/Month	5,843	5,843	624
Hours/Month	N.A.	N.A.	255
Cost/Trip	\$4.53	\$5.54	\$16.54
Cost/Hour	N.A.	N.A.	\$40.40
Trips/Hour	N.A.	N.A.	\$2.44
UNITED CEREBRAL PALSY⁵			
Cost/Month	\$3,448	\$4,217	\$1,097 ⁴
Trips/Month	2,183	2,183	224
Hours/Month	313	313	N.A.
Cost/Trip	\$1.60	\$1.93	\$4.90
Cost/Hour	\$11.00	\$13.47	\$13.00
Trips/Hour	6.97	6.97	N.A.
LIGHTHOUSE⁵			
Cost/Month	\$1,725	\$2,110	\$870 ⁴
Trips/Month	1,223	1,223	220
Hours/Month	169	169	N.A.
Cost/Trip	\$1.41	\$1.73	\$3.95
Cost/Hour	\$10.18	\$12.48	\$13.00
Trips/Hour	7.24	7.24	N.A.
BURKE REHABILITATION⁵ HOSPITAL			
Cost/Month	\$10,000	\$12,230	\$261 ⁴
Trip/Month	834	834	55
Cost/Trip	\$11.99	\$14.66	\$4.75
Cost/Hour	N.A.	N.A.	\$13.00
BLYTHEDALE HOSPITAL⁵			
Cost/Month	\$5,625	\$6,879	\$1,302 ⁴
Trip/Month	520	520	99
Cost/Trip	\$10.82	\$13.23	\$13.15
Cost/Hour	N.A.	N.A.	\$13.00
WESTCHESTER DEVELOP- MENTAL SERVICES⁵			
Cost/Month	\$5,675	\$6,941	\$750 ⁴
Trip/Month	1,083	1,083	122
Cost/Trip	\$5.24	\$6.41	\$6.15
Cost/Hour	N.A.	N.A.	\$13.00

¹Based on annual 1976 figures. "Before" data includes data for five of the ten participating agencies representing 96% of the trips taken. 82% of the remaining trips are new trips/services generated after the project was implemented.

²All project costs have been inflated to May 1979 level using the Consumer Price Index of the Bureau of Labor Statistics, Department of Labor. These costs are comparable to the actual uninflated costs presented in Table 5-7.

³Based upon 12 months of data.

⁴Billed rather than actual costs.

⁵Data for the before period includes all transportation services by the participating agencies. Since only a portion of these services was consolidated within the project, the absolute values for costs, trips and hours cannot be compared for the before and after periods.

LOCAL PERCEPTIONS OF THE IMPACTS OF THE DEMONSTRATION PROJECTS

This section examines impacts on the users of the services, on transportation services, and on the local social service systems. These data come from personal interviews, so they represent perceptions that may or may not fit closely with the reported statistics (but they generally fit well).

Impacts on the Users of the Projects

The riders of the demonstration projects were asked about specific changes in their travel habits as a result of this service. However, a great many riders did not perceive that an organizational change had taken place and that the service that formerly provided them trips as an independent service now provided them trips as a component of a coordinated system. This is not surprising since, in some cases, there had been no change in vehicles and no change in drivers. (About 20 percent of the respondents reported using the service before the HEW grants.) With these caveats in mind, Table 5-16 presents the changes in travel behavior that respondents attributed to the system they were riding.

The major benefits seen by the users were that they could travel more often and go more places. (Almost half the respondents were traveling more since the systems began operations; this figure rose to two-thirds in Fayetteville.) Greater benefits were generally seen in the second year of operations than in the first. Significant increases in travel frequencies of the users were reported at all sites, and there were also significant increases in the percent of passengers who reported cash savings.

The riders were also asked what this transportation service had done for them and their families. The results are shown in Table 5-17. With the same caveats in mind as before, very few saw no changes at all to their lifestyles. Having some means of transportation to their desired destinations was the benefit most often cited by the respondents, and getting out and meeting people was the second most frequent benefit. Not having to depend on others, an important response in the first survey, declined substantially in importance in the second survey.

Table 5-16
 CHANGES IN TRAVEL HABITS OF USERS DUE TO
 THE DEMONSTRATION PROJECT
 (percent of users responding positively)

	Fayetteville		Grand Rapids		Howard Co.		Jacksonville		Westchester	
Spend less money for transportation	14.8	38.3*	11.14	---	1.6	16.7*	9.3	6.7	0.0	7.3*
Travel more often	51.6	65.3*	25.3	---	30.1	46.4*	14.7	41.5*	0.0	36.6*
Go to more places	51.6	50.7	21.7	---	29.3	32.1	15.7	26.2	0.0	34.1*

Sources: Passenger surveys conducted by Ecosometrics, Incorporated.

Notes: No second-year survey in Grand Rapids, and no comparable data from local survey.
 * denotes significant change from first to second survey.
 Multiple responses possible.

Table 5-17
 WHAT HAS THIS TRANSPORTATION SERVICE DONE
 FOR YOU AND YOUR FAMILY?
 (percent of users responding positively)

	Fayetteville		Grand Rapids		Howard Co.		Jacksonville		Westchester	
No response	11.0	21.3*	16.3	---	13.8	17.9	22.1	17.4	1.9	48.8*
Don't have to depend on others	23.2	8.0*	11.4	---	35.8	2.4*	14.2	15.3	21.2	4.9*
More easy to do business	14.8	8.0*	38.6	---	7.3	4.8	13.7	6.7	1.9	0.0
Greater independence	1.9	8.0*	3.0	---	8.1	13.1	2.0	8.2	3.8	1.4
Get out and meet people	40.0	21.3*	6.0	---	15.4	23.9	19.6	33.3*	73.1	26.8*
Have transportation to desired destination	49.0	49.3	34.3	---	41.5	53.6*	40.2	54.9*	17.3	21.9

Sources: Passenger surveys conducted by Ecosometrics, Incorporated.

Notes: No second-year survey in Grand Rapids, and no comparable data from local survey.
 * denotes significant change from first to second survey.
 Multiple responses possible.

One of the major concerns of human service agencies asked to participate in coordinated transportation systems has been that their clients will not want to ride with clients of other agencies. Data collected in both passenger surveys did not support that concern. First, we assessed the amount of client mixing that actually occurred. Most clients of the coordinated demonstration projects did ride with the elderly, did not ride with children, and did not ride with the mentally impaired. About half actually rode with low-income and physically handicapped people. Half the agencies reported client mixing on the coordinated transportation systems. Less than 5 percent of the riders objected to riding with the elderly, low income or physically handicapped. Less than 10 percent objected to riding with the mentally impaired and 16 percent objected to riding with children. Furthermore, when asked what they disliked about the service, not one person responded that he disliked riding with other types of people. Thus, since the actual objections are very few (and since some of these were objections to riding with their own client group), the contention that coordination should not occur because human service agency clients will object to riding with each other is simply not valid. (Reports from the grantee agencies also substantiate this conclusion.)

Impacts on Transportation Services

Amount of Service Provided

Participating agencies and the grantees were asked if the demonstration project had changed the amount of transportation available in the community. Fayetteville again had the largest proportion of respondents attributing a "great increase" to the demonstration project (46 percent); two-thirds of the respondents thought that transportation had increased since the previous year, all to the credit of the coordinated demonstration project. Jacksonville showed by far the greatest proportion of participating agencies reporting an overall decrease in the transportation services provided during the past year (43 percent), which probably resulted from the termination of all service for some agencies the time RIDE, Inc. ceased operations. When service was re-established by GJEO (subsequently called NFCAA), not all of those agencies being served by RIDE were served by GJEO. Many of the participating agencies reported no change in the number of persons served during the last year; only in Fayetteville was any great increase noted. Seventy-two percent of the participating agencies felt there were still unmet needs, primarily in terms of transportation at other times, to other locations, and to more activities.

Cost

Participating agencies were asked if the coordinated operations had changed the cost of trips for their clients. More participants thought there was a slight decrease in cost, which is an improvement in the general "no change" position reported during the first year. Participants in Jacksonville felt there had been "great increases" in costs. These perceptions do not fit with the actual cost data previously examined. Some participants perceived a reduction in costs at all sites except Jacksonville. The Howard County demonstration had the most favorable perceptions of per trip cost changes, with 60 percent of those with an opinion feeling that costs had declined or remained the same. (However, per trip costs did increase for one agency according to the actual cost figures.) In general, the perceptions of cost changes across all five sites fit very well with the actual data.

Quality of Service

The quality of transportation service is a concept that ranks in importance with cost and productivity. Just as it is important to track the effect of coordination on costs and productivity, it is also important to assess the impacts of coordination on service quality. This is a particularly critical issue since expected declines in service quality have often been cited as reasons for not coordinating transportation services. Most persons interviewed had no problems expressing very definite opinions about service quality. Among the participating agencies, most respondents at most sites felt there had been some slight increase in service quality, which is more positive than the "no real change" generally reported before. Improvements were seen by some respondents in all sites except Jacksonville. Some respondents saw a decline in service quality in Grand Rapids and Jacksonville; in fact 57 percent of the respondents in Jacksonville said that the quality of service had "decreased greatly." This agrees with the observations of the survey team. RIDE's substantial growing pains were reflected in poor performance at the time of the interviews during the first year and the project failed to resolve those problems during the second year, despite reports from the project director that the service quality problems were being resolved. The coordinated transportation demonstrations were universally given the credit or the blame for the changes in service quality noted by participating agencies during the second project year.

The participating agencies and grantees were asked how the quality of service had changed, and their responses are instructive. The most frequent positive change was better routing and scheduling, a change from the increase in the amount of transportation for their clients reported during the first year. Fayetteville evoked by far the greatest variety of positive comments, and Jacksonville the most negative. Delays in picking up clients and not telling clients of delays were again the specific problems most often cited in Jacksonville.

As in the first year's interviews, many more of the users interviewed during the second year found something to like rather than something to dislike about the service at each of the five sites, suggesting again that the users generally approved of the quality of service. (On the other hand, interviewers reported a reluctance on the part of some respondents to be critical of even low-quality service for fear that the service would be terminated.)

Major likes and dislikes of the riders are shown in Tables 5-18 and 5-19. It is important to note that there are real site-to-site differences expressed by the users, and that there are real differences between the responses to the first and second surveys. For example, the drivers were well liked by many users in the second year except in Howard County, where the percent liking the drivers fell to the level of Grand Rapids during the first year (only one quarter of the respondents citing this as a positive factor). Convenience was also a factor often mentioned. Increases in the positive comments from the first to second surveys were particularly noticeable in Westchester. Service dislikes also showed significant site-to-site variations in the second year. Lateness and undependability continued to be serious problems in Jacksonville, as shown in Table 5-19 and a series of their questions as well. It should be noted that some of the perceived safety problems with the vehicles in Howard County and Westchester had disappeared by the second year. Overall, the responses indicate that the users felt that the coordinated services were at least as good (and probably better than) the previously uncoordinated agency-provided or agency-purchased services. These tables show the importance of surveying the clients of a transportation system, for their responses clearly indicate current strengths and weaknesses of each operation, plus favorable and unfavorable directions of change.

Since no survey was administered by Ecosometrics in Grand Rapids during the second year, due to the low number of riders on coordinated vans, it is important to note the results of the survey administered by the project itself during February 1979. In that survey, about one-third of the METROVAN respondents

Table 5-13

WHAT DO YOU LIKE ABOUT THIS TRANSPORTATION SERVICE?
(percent of users responding positively)

	Fayetteville		Grand Rapids		Howard Co.		Jacksonville		Westchester	
Drivers	40.6	37.3	25.9	---	43.1	25.0*	45.1	42.1	40.4	80.5*
Door-to-door service	5.2	4.0	24.1	---	9.8	9.8	13.2	11.8	5.8	14.6*
Service saves money	3.2	12.0*	10.8	---	0.8	0.8	1.0	2.1	1.9	7.3*
Convenience	25.8	20.0	41.0	---	22.0	17.9	19.1	18.5	30.8	17.1*
Destinations	21.3	10.7*	5.4	---	3.3	3.3	6.9	12.8*	3.8	2.4
Comfortable vehicles	4.5	1.3	2.4	---	12.2	1.2*	2.5	2.1	11.5	0.0*
Prompt service	0	0	6.0	---	6.5	6.5	6.4	6.4	1.9	1.9

Sources: Passenger surveys by Ecosometrics, Incorporated.

Notes: No second-year survey in Grand Rapids, and no comparable data from local survey.

*denotes significant change from first to second survey.
Multiple responses possible.

Table 5-19

WHAT DO YOU DISLIKE ABOUT THIS TRANSPORTATION SERVICE?
(percent of users responding positively)

	Fayetteville		Grand Rapids		Howard Co.		Jacksonville		Westchester	
Buses run late	6.5	4.0	24.7	---	4.9	11.9*	24.5	25.6	7.7	4.9
Buses not dependable	5.2	4.0	12.7	---	3.3	4.8	14.7	16.4	5.8	12.2*
Unsafe, uncomfortable vehicles	6.5	1.3	10.8	---	10.6	0*	9.8	4.6	21.2	0*
Bad drivers	1.3	0	1.2	---	4.9	3.6	3.9	4.6	1.9	2.4

Sources: Passenger surveys by Ecosometrics, Incorporated.

Notes: No second-year survey in Grand Rapids, and no comparable data from local survey.

* denotes significant change from first to second survey.
Multiple responses possible.

stated that they often couldn't get a ride. Another 30 percent stated that the bus sometimes failed to pick them up. Both of these indicate serious capacity and reliability problems. In addition, while driver courtesy was ranked the best, the leading problems were on time performance, bus availability and vehicle comfort.

Impacts on the Social Service System

Many of the individuals interviewed felt that the coordinated transportation efforts had positive impacts on local social service systems. Once again, the responses varied by the type of respondent and according to the closeness of the respondent to the actual operations — the grantees saw the greatest impacts and many State agencies simply did not know if the projects had had any effect.

All of the grantees felt that the projects had slightly positive impacts on the local social services systems, except one interviewee in Jacksonville who reported major positive impacts. Participating agencies were not so complimentary, although over half attributed positive impacts to all projects except Jacksonville. The Howard County and Fayetteville systems were thought to have the greatest positive impacts and, since the major problem of both was seen to be the lack of adequate resources, these two projects may have had more of an impact if they had more to work with. Planners, funders, and influential persons knew more about the projects' impacts during the second year than they did during the first. Substantial site-to-site variations were evident in their assessments. Howard County was particularly well thought of by this group, and Fayetteville was second. None of the respondents in Grand Rapids thought this project had any impacts on the local social service system.

Non-participating agencies were much more likely to know about the impacts of the demonstration during the second year than they had during the first. Non-participants in Howard County thought the system had more of an impact on social services than did non-participants elsewhere, and Jacksonville was second. Once again, Jacksonville was the only site to evoke strong negative feelings (but these were not as large as the positive feelings).

Finally, one-half of the State agency personnel interviewed had no opinion about the project's impact on the local social service system. Only 14 percent of the State counterparts of local participating agencies were involved in the demonstration, according to the participating agencies. Among respondents who knew of the projects, Howard County once again received the highest rating, while Grand Rapids received the lowest (no impact).

6

RESULTS OF THE DEMONSTRATION PROGRAM

To maximize the lessons learned from this important demonstration, this chapter assesses the results of the program. The results are organized into the following subjects:

- Progress Toward Demonstration Objectives. The program had some specific objectives when initiated. As it turned out, only some of these objectives were actually met. What was learned from the process of trying to meet these objectives?
- Degree of Coordination Achieved. Varying degrees of coordination were achieved at each site. The relative degree of coordination is considered first, by comparing the sites' objectives (as set forth in their proposals) with their achievements of those objectives. The degree of coordination is then considered by looking at the absolute level of coordination achieved.
- Linkages Between Coordination and Operational Changes. The evaluation team originally hypothesized that the greater the degree of coordination achieved, the greater the degree of operational changes. It was further presumed that operational changes lead to the anticipated benefits. To what degree do these expectations hold true?

- Classic Lessons of the Demonstration Program. The two years of experiences at the five sites has produced a wealth of experiences useful for persons elsewhere who may also wish to coordinate transportation services. Tactics to emulate and to avoid were both evident. Which of these have the most applicability in other situations?
- Prerequisites for Successful Coordination. Among the lessons learned, a variety of factors stand out as those that significantly influence the probable success or failure of a project from its very beginning. What are these elements and how does one work within their influence?
- Overall Assessment. What have we learned about coordination as an overall strategy? How and when can it best be used?

Each of these subjects is discussed in turn below.

PROGRESS TOWARD DEMONSTRATION OBJECTIVES

The OHDS coordinated transportation demonstration program has provided a wealth of information and observations about coordinated transportation and the coordination process. Despite this substantial achievement, most of the officially espoused objectives of the demonstration program were not met during the program's first two years.

Some ideas about practical approaches to coordination have resulted, although not because each project was always or even finally practical. In fact, being practical emerged as a major feature of successful approaches to coordination — not trying to change everything all at once, recognizing the need to change unworkable concepts, and developing realistic expectations among all those coordinating became key elements of practical approaches to coordination. However, as noted by the grantee in Fayetteville, the demonstration has not necessarily identified "appropriate solutions", only "appropriate directions."¹

Transportation services have not been more efficient after coordination than before except at one site. Although the projects generally made slight improvements in their efficiency, many social service agencies paid more for

¹Community Resource Group, Project RESPOND OHDS Transportation Coordination Demonstration: Two-Year Report (draft), Fayetteville, Arkansas (January 1980), page 9.

trips after coordination than they did before. The consolidated systems appear to offer the best possibilities for increased efficiencies, despite some authors' perceptions of problems with consolidated systems.²

Transportation services have not been more effective after coordination except, again, at one site. New riders have not been attracted to any great extent and there has been little measurable impact on the delivery of other human services as a result of the coordination of transportation services.

Greater coordination with existing public and private transportation providers was not achieved. At one site, the public transportation provider does no more than before the demonstration project. At two other sites, the public transportation authorities have taken very passive roles regarding the demonstrations. None of the original antipathy between the public transportation organizations and the human service agencies was lessened as a result of the demonstrations. The greatest coordination between human service and transit agencies occurred with a brand new transit program. Private transportation providers have generally not been involved at all with the demonstration projects, except for isolated instances of adversary relationships at two sites.

A much clearer picture of the barriers to coordination is now available. This demonstration has shown that, in most cases, the barriers are primarily, as expected,³ administrative and operational, dealing with such day-to-day matters as operations, staff, funding, billing and accounting, insurance, and general resistance to change. In a few cases, the barriers are due to Federal requirements that should be streamlined — such as divergent planning, funding, eligibility, services, and reporting requirements even for closely-related programs. These barriers make the coordination process substantially more difficult, complex, and time-consuming than had been imagined. Substantial start-up efforts are required before vehicle operations begin. A minimum of 18 months should be set aside between initial planning efforts and the expected beginning of operations.

The premise of minimal incentive funds required for coordination is not valid, particularly if one cares about the results of coordination efforts. The stimulation of coordination may not be difficult in the short run since a

²Frank W. Davis, Jr. and Tim L. Cleary, The Transportation Coordination Dilemma, Transportation Center, The University of Tennessee (no date) esp. pp. 8-15.

³Dolores A. Cutler, Coordinating Transportation Services for the Elderly and Handicapped, prepared for the Office of the Secretary, U.S. DOT by Ecosometrics, Incorporated, January 1978.

number of agencies appear willing to coordinate anyway. However, it is important that OHDS guide those who are stimulated to an accurate understanding of the costs and benefits of coordination and when it is useful and when it is not. Otherwise, a large number of disappointing coordination efforts will occur, possibly obscuring the real potential of coordination. Second, OHDS should probably dismiss the notion of any case-by-case assistance to "help implement" coordination because of the enormous cost involved. The technical assistance contractor spent an average of more than \$100,000 per site on direct and indirect technical assistance, and reported that each site could have used "much more" aid. Another major need is for staff salaries. Only one of the five demonstration projects has achieved enough status that it could turn to local sources to pay staff salaries for coordination if Federal funds were not available. Some period of Federal support for salaries may be required to provide sufficient incentive for projects to undertake coordination.

The transportation systems begun under the auspices of the OHDS demonstration grants will probably continue operations in three of the five sites. One of the three will not be serving many of the area's social service agencies and another will probably serve a substantially reduced service area. Still, they are likely to be long-term operations.

A review of these objectives and results is shown in Table 6-1.

DEGREE OF COORDINATION ACHIEVED

This section presents the degree of coordination achieved at each site by comparing the coordination objectives (as set forth in the first-year proposals for each of the five sites) with their achievement. The three measures of coordination are:

- 1) Percent of Proposed Agency Participation Achieved: $\frac{\text{Number of Agencies Participating in the Coordination Effort}}{\text{Number of Agencies Expected to be Participating in their Proposal}}$.
- 2) Percent of Proposed Vehicle Coordination Achieved: $\frac{\text{Number of Vehicles Coordinated}}{\text{Number of Vehicles Expected to be Coordinated in the Proposal}}$.
- 3) Percent of Proposed Trips on Coordinated Vehicles Achieved: $\frac{\text{Average Monthly Number of Trips on Coordinated Vehicles}}{\text{Proposed Number of Trips on Coordinated Vehicles}}$.

Table 6-2 presents these measures for each of the demonstration sites. In addition, this section presents an analysis of the degree of coordination achieved by the projects in the absolute sense.

Table 6-1

RESULTS OF THE OHDS COORDINATED TRANSPORTATION DEMONSTRATION
PROGRAMS IN TERMS OF INITIAL OBJECTIVES AND PREMISES
(combined results of all five sites)

Objective or Premise ¹	Achieved?	Summary
Show that minimal OHDS incentive funds are required to stimulate and help implement coordination of existing transportation services.	No	Substantial OHDS efforts to disseminate the lessons of this demonstration are called for. The need for technical assistance to achieve local transportation coordination is substantial and is beyond the funding capability of OHDS.
Show that coordination leads to more efficient transportation services.	No	Transportation services were generally <u>not</u> more cost effective after coordination. Most participating agencies are experiencing <u>increases</u> in unit costs.
Show that coordination leads to more effective transportation services.	No	Very little growth in the number of persons transported or in the use of social service programs.
Develop practical approaches to coordinated or consolidated transportation at the local level.	Yes	Fairly complete examples of what to do and what not to do now exist.
Develop methods for greater coordination of existing public and private transportation providers with human service agency transportation.	No	No measurable effect on preexisting problems or attitudes.
Identify statutory, regulatory, or administrative barriers to organizing and financing coordinated transportation.	Yes	Barriers are primarily not statutory or regulatory in nature, but are administrative and operational. They require <u>much</u> more time and effort to surmount than originally anticipated.
Establish transportation systems that will continue after the demonstration period.	Varies	Probably will be achieved in three out of five sites.
Establish a local transportation system responsive to the needs of human service agencies.	Varies	Probably will be achieved in two out of five sites.

¹Sources: Official OHDS announcements and letters to projects (see pages 11-12).

Table 6-2

DEGREE OF COORDINATION: PROPOSED VS. ACHIEVED

Site	Average Monthly Trips on Coordinated Vehicles			Number of Vehicles Coordinated			Number of Agencies Coordinated		
	Proposal ¹	Peak ²	Average for Last 6 Months Reported ²	Proposed ¹	Peak ²	May 1979 ²	Proposed ¹	Peak ²	May 1979 ²
Fayetteville, Arkansas	3,700	3,223 (87%)	1,685 (46%)	46	14 ³ (30%)	14 ³ (30%)	18	13 ³ (72%)	13 ³ (72%)
Grand Rapids, Michigan	67,575	9,893 (15%)	4,955 (7%)	101	18 (18%)	0 (0%)	7	2 (28%)	0 (0%)
Howard County, Maryland	6,124	4,713 (77%)	3,673 (60%)	12	12 (100%)	12 (100%)	5	4 (80%)	4 (80%)
Jacksonville, Florida	38,810	42,895 (111%)	34,765 (90%)	43	36 (84%)	28 (65%)	14	14 ⁴ (100%)	1 (7%)
Westchester County, New York	8,000	1,043 (13%)	761 (10%)	9	7	7	7	9 (128%)	9 (128%)

Sources ¹Projects' grant proposals for first-year grant award.

and ²Data reported by individual sites.

Notes: ³For Fayetteville, the number of agencies and vehicles reported as coordinated are those that were actually ride-shared or time-shared.

⁴Approximately 12 more agencies participated at low levels from time to time.

In general, the degree of coordination achieved by the five projects was moderate. The overall number of agencies coordinated at the peak of coordination activities was fairly high (67 percent) when compared with the number proposed, but this decreased by May 1979 to 39 percent. The percentage of proposed vehicles coordinated is lower than the number of agencies (with 41 percent of the vehicles coordinated during the peak period and 28 percent coordinated in May 1979). This is explained by the fact that the projects found it easier to involve agencies without vehicles than agencies with. Again, the number of trips coordinated compared with the number proposed is moderate, with 50 percent coordinated during the peak period and 37 percent coordinated on an average during the last six months studied (to May 1979).

It is important to note that the degree of coordination achieved overall is drawn down by the extreme lack of coordination achieved in Grand Rapids. Without Grand Rapids, the projects' overall coordination ratios for the peak periods were 92 percent of the trips coordinated, 73 percent of the agencies coordinated, and 62 percent of the vehicles coordinated.

Each demonstration site is discussed in turn below.

Fayetteville

Fayetteville has coordinated a fairly high number of the participating agencies and trips it proposed to, but only a moderate number of the vehicles. This discrepancy is attributable to the fact that the percent of proposed provider agencies that are actually participating is lower than the percent of proposed purchaser agencies. This has meant that the project has been able to coordinate proportionally fewer vehicles than expected. In this project, the peak period for coordination was during May 1979, the last month reported.

Grand Rapids

Grand Rapids coordinated only 28 percent of the agencies it proposed to. The reason for this is that three of the agencies were only to be involved in centralized maintenance, purchasing, or outreach (which was not implemented except for the agencies coordinating vehicles). Even though 50 percent of the agencies proposed for operational coordination were coordinated during the peak, the project achieved little vehicle and trip coordination. This happened because the two proposed agencies that did not participate — Grand Rapids Public Schools and Pine Rest Rehabilitation Center — were the largest agencies in the proposal. Together, they accounted for 85 percent of the vehicles proposed and 83 percent of the trips. The peak period for this project was about half way through the project period, in the fall of 1978.

Howard County

Howard County coordinated 80 percent of the agencies/programs and 100 percent of the vehicles included in its original proposal. The only program not coordinated was the CAC Head Start program,⁴ which explains why the percent of coordinated trips achieved was lower than the other two measures of coordination. (The Head Start program accounted for approximately 54 percent of the proposed coordinated trips.) The peak period for Howard County was the end of the demonstration period.

Jacksonville

The Jacksonville project coordinated exactly the number of agencies it proposed to. In the process, it coordinated a slightly smaller number of vehicles and approximately the same number of trips as proposed. The peak period for coordination activities in Jacksonville was when the Head Start program began coordination in the fall of 1978. There was a large decline in the coordination achieved when the operating agency, RIDE, terminated operations in April 1979.

Westchester County

The Westchester project coordinated 128 percent of the agencies included in the original proposal. It succeeded in coordinating 78 percent of the vehicles proposed and yet only 13 percent of the trips at the peak period. Part of the reason for the discrepancy in the percent of agencies and vehicles being coordinated versus the percent of trips being coordinated can be explained by looking at the involvement of the participating agencies. Many of the agencies, United Cerebral Palsy and Blythedale Children's Hospital in particular, coordinated only a small portion of the vehicles and trips they originally intended to. The peak period in Westchester was in the last months of the project.

Summary of the Absolute Level of Coordination Achieved

In addition to considering degree of coordination achieved by the projects relative to their proposed coordination objectives, it is also important to consider the absolute level of coordination they achieved. The absolute level

⁴This program was being served in the project's third year.

of coordination achieved is difficult to define since we have no specific measures for coordination levels. However, using the following rationale, we are able to rank the five sites on absolute coordination relative to each other.

Two of the five demonstration sites implemented concepts which, by their very nature, are at a lower level of coordination. Both Fayetteville and Grand Rapids implemented coordination clearinghouse functions that involved less operational coordination than the consolidation concepts implemented in Westchester, Howard County, and Jacksonville. Of the two, Grand Rapids had a higher degree of coordination since the project included central dispatching where Fayetteville did not. In addition, Grand Rapids coordinated more trips and vehicles than Fayetteville.

Of the three consolidated projects, Westchester consolidated the fewest number of vehicles and trips. It consolidated more agencies than Howard County, but only a portion of each agency's transportation services were consolidated.

The Howard County project consolidated more trips and vehicles than Westchester and many fewer than Jacksonville. The Jacksonville project consolidated the greatest number of trips, vehicles, and agencies of any of the five demonstrations.

LINKAGES BETWEEN COORDINATION AND OPERATIONAL CHANGES

It has been hypothesized that the greater the degree of coordination, the greater the degree of operational changes. It is further presumed that the operational changes will be beneficial. From the evaluation of the five demonstration projects, it does appear that the greater the degree of coordination achieved, the greater the beneficial operational changes realized.

For this analysis, we have to look at the absolute degree of coordination achieved rather than the coordination achieved relative to that proposed. As presented in the previous section, in absolute terms, the projects would probably be ranked as follows, from the least degree of coordination to the most:

- 1) Fayetteville — coordination/clearinghouse without central dispatch.
- 2) Grand Rapids — coordination/clearinghouse with central dispatch.
- 3) Westchester — consolidation
- 4) Howard County — consolidation
- 5) Jacksonville — consolidation

Operational changes will be considered and assessed in terms of changes in the measures of efficiency (cost per trip, cost per mile, cost per hour) and effectiveness (trips per mile and trips per hour) presented in Chapter 5.

Fayetteville

Until Project RESPOND, the EOA Dial-A-Ride and the 147 transit project were consolidated during the last month of the demonstration period, Fayetteville probably achieved the lowest degree of coordination among the projects. It is difficult to determine what operational changes, positive or negative, were realized by the project since we do not have the data necessary to make this determination. Theoretically, the operations of each participating agency should have become more efficient due to ride-sharing and time-sharing, but we do not know in fact whether that happened. As far as unit costs are concerned, it is probable that they increased after the project was implemented, since before coordination, the reported unit costs of participating agencies ranged from \$1.10 to \$2.28 per trip, and after coordination, the administrative costs alone ranged from \$1.52 to \$6.39 per shared trip.

Grand Rapids

The Grand Rapids project probably achieved the second lowest degree of coordination. It had an overall (140 percent) increase in cost per trip from before to after the project was implemented and the cost per hour increased 101 percent. The unit costs also increased over the time the project operated. In addition, the productivity (trips per hour) of the system decreased 11 percent from before to after coordination and also decreased steadily over the life of the project.

Westchester County

The middle project in terms of degree of coordination was probably Westchester County. This project decreased greatly its unit costs during the time the project operated. However, due to its inability to generate enough riders to justify the added administrative costs of coordination, its unit costs after coordination were still much greater than before.

Howard County

Howard County had the second greatest level of coordination. The project achieved greater productivity after implementation than the individual agencies had before and its productivity improved slightly over the life of the project. While its unit costs were higher after coordination than before, they were nowhere near as high as in Westchester or Grand Rapids, and its unit costs for vehicle miles and trips decreased over the time the project operated almost to the level of the unit costs before coordination was attempted.

Jacksonville

By far, Jacksonville achieved the greatest degree of coordination among the five sites. It also realized the greatest positive operational benefits. Its final productivity was greater than that of the uncoordinated operations before the demonstration. Also, its productivity continued to increase over the life of the project until the project's financial collapse. It is the only project where the unit costs actually decreased after services were coordinated and where most participating agencies realized direct cost savings.

CLASSIC LESSONS OF THE DEMONSTRATION PROGRAM

In that this demonstration program has provided a wealth of well-documented learning experiences, both positive and negative, the program itself has been successful. Those who are aware of the lessons learned will be substantially more likely to succeed in their attempts to provide transportation to human service agencies and their clients.

Many of the lessons learned have as much to do with common sense as with systems analysis or operations research. To structure these lessons in a meaningful way, they are presented under the following headings:

- overall approaches, and
- transportation systems planning and management.

Overall Approaches

A major failing of the demonstration projects was the lack of a clear understanding of how specific activities could contribute to their coordination objectives. In fact, most of the projects did not choose strategies that were

closely related to local problems that suggested a need for coordination. Once chosen, the strategies were not measured or monitored with statistics to assess how well or how rapidly the objectives were being met. Consequently, the projects lacked firm and consistent directions.

Given the newness of the task, the projects themselves achieved a good deal. Those who follow in their footsteps should be able to achieve a great deal more.

The difference between successful and unsuccessful coordination attempts often depends on the ability of the implementors to specifically identify and utilize appropriate coordination objectives and strategies. Clear understandings of which strategies are being used for which purposes are crucial.

The major types of coordination objectives are:

- reduce actual expenditures,
- increase amount of service,
- improve use of resources (efficiency), and
- improve provision of services (effectiveness).

The choice of a particular strategy depends on the problems and objectives that have been identified in the service area.

Each of the objectives is, of course, subject to further substrategies in implementation. For example, actual expenses could be reduced by consolidating the following kinds of overhead functions: dispatching, bookkeeping, system management, scheduling, and financial applications. (Consolidation here probably means releasing some persons from jobs they currently perform and expecting others to work harder at those tasks.)

The benefit of identifying particular strategies is that it changes coordination from a general concept into a specific plan. When someone says, "I want to reduce direct costs by lowering system maintenance charges," it is very easy to see if this has been accomplished or not. By making the objectives specific, they become possible to achieve.

Table 6-3 begins the process of establishing a specific coordination planning process. While more refinements are obviously possible, and should be a focus of immediate activities by HEW, use of the process outlined in Table 6-3 will begin to substantially refine coordination activities.

Table 6-3
COORDINATION OBJECTIVES AND STRATEGIES

Coordination Objectives	Measures	Desired Change	Strategy for Achieving Objective	Comments
REDUCE ACTUAL EXPENDITURES				
Reduce capital expenditures on • vehicles	number of vehicles	decrease	Joint use of existing vehicles Purchase services instead of vehicles	The sight of idle vehicles creates the most obvious incentive for coordination
• special equipment	number of radios, wheel-chair lifts, etc.	decrease	Lease, not purchase vehicles Joint use of vehicles with special equipment	
• maintenance facilities and equipment	dollar value of facilities and equipment	decrease	Coordinated maintenance operation	May not be as important as direct cost savings
Reduce overhead expenditures on • system management • dispatching/scheduling • accounting and recordkeeping	\$ \$ \$	decrease decrease decrease	Combine functions of existing personnel who are not used to capacity; develop common management tools (e.g. accounting system)	May result in liability for employee job protections (Section 13c of UMTA law)
Reduce direct costs on • drivers	\$	decrease	Hire fewer drivers; use more volunteers and part-time drivers	• May cause Section 13c problems • The largest single line-item expenditure
• supplies	\$	decrease	Bulk purchases for all participants	Some important savings possible
• taxes (gas, tires, sales and excise)	\$	decrease	Obtain exemptions from taxes	Hard to get approval
• maintenance costs	\$	decrease	Preventive maintenance; obtain volume contract; pay on only-as-needed basis	Can generate substantial savings
• insurance costs	\$	decrease	Obtain fleet price for insurance; better driver training and selection procedures can reduce insurance costs	Increases productivity can change rate category and result in substantial rate increase
INCREASE AMOUNT OF SERVICE				
Increase passenger trip making • provide more service	number of trips	increase	More service hours per day; more frequent service; more destinations served; larger vehicles; promotional campaigns	These strategies also substantially increase costs unless they can be achieved by using excess capacity of uncoordinated operators
• combine existing services	number of trips	increase	Eliminate unused capacity by joint dispatching and advance scheduling	A key factor
Increase geographic area served	Service area in square miles	increase	Redesign routes and schedules; use existing vehicles during idle time	Depends on existence of underutilized vehicles; very large geographic areas may require purchase of new vehicles
Increase number of persons served	Number of individuals making trips	increase	Information and referral service	If excess capacity exists, this can be highly cost-effective
Increase impacts on different target populations • more client groups served • more agencies served	number of client groups number of agencies	increase increase	Use excess capacity in uncoordinated system to bring in newcomers Negotiate purchase of service contracts with agencies needing transportation	May require a transportation audit to convince some agencies to purchase instead of provide their own services

Table 6-3 (continued)

Coordination Objectives	Measures	Desired Change	Strategy for Achieving Objective	Comments
<u>IMPROVE USE OF RESOURCES</u>				
Increase cost-efficiency <ul style="list-style-type: none"> ● lower costs per unit service ● more service for same costs 	<ul style="list-style-type: none"> ● cost per trip, per hour, per vehicle mile, etc. 	decrease	Obtain economies of scale through joint actions allowing same service outputs for reduced resource inputs	These are the ultimate efficiency measures
Improve labor productivity <ul style="list-style-type: none"> ● greater driver utilization 		<ul style="list-style-type: none"> ● driver hours per day ● vehicle miles per driver hour ● passengers per driver hour 	increase increase	Increase average working hours and set objectives for daily mileage and passengers
<ul style="list-style-type: none"> ● more output by <ul style="list-style-type: none"> ● administrative staff ● maintenance 	<ul style="list-style-type: none"> ? ? 	increase increase	Better supervision Better supervision	Hard to define and achieve Hard to define and achieve
Improve vehicle utilization <ul style="list-style-type: none"> ● better use of capacity and greater vehicle occupancy ● greater use of vehicles 	<ul style="list-style-type: none"> ● passengers per vehicle mile or vehicle hour ● vehicle miles 	increase increase	Joint dispatching, advance scheduling, ride-sharing	The key productivity issue
	<ul style="list-style-type: none"> ● hours of service per day 	increase	Time sharing of vehicles; second agency uses first agency's vehicles during times when first agency isn't using them	Helps to reduce total number of vehicles
<u>IMPROVE PROVISION OF SERVICES</u>				
Increase service effectiveness <ul style="list-style-type: none"> ● productivity 	trips per vehicle mile per vehicle hour, per employee, per capita percent of population served	increase	Eliminate unused capacity by joint dispatching and advance scheduling; apply idle vehicle hours to new uses	Productivity increases may be one of the most readily obtainable benefits of coordination
<ul style="list-style-type: none"> ● accessibility 		increase	Redesign routes and schedules	May be difficult except when unused capacity exists
Increase service quality <ul style="list-style-type: none"> ● reliability 	<ul style="list-style-type: none"> ● percent of on-time service ● average percent of vehicles on line ● accident statistics ● availability of emergency equipment ● number of passengers assisted 	increase	Preventive maintenance and more professional management; spare vehicles; driver training; better supplies and equipment	Coordinated systems should only accept vehicles in excellent condition
<ul style="list-style-type: none"> ● passenger safety 		increase		
<ul style="list-style-type: none"> ● passenger concern 		decrease increase		
		increase	Driver helps passenger into vehicle or through doors; periodic checks and surveys to get passenger opinions	May conflict with union work rules of transit operations, but seen as a vital part of service by human service agencies

Table 6-3 (continued)

Coordination Objectives	Measures	Desired Change	Strategy for Achieving Objective	Comments
Improve management <ul style="list-style-type: none"> ● more funding sources ● longer term, more stable funding ● better accounting and recordkeeping ● more stable cash flow 	number of funding sources length of funding commitment in years fewer conflicts over bills number of months that organization could operate if no more revenues were received	increase increase increase increase	Joint use of existing funding sources Assistance in the planning process Professional assistance in setting up uniform, simple set of accounts Prepare bills on time; insist on prompt payment; bill in advance	Has not yet occurred at the Federal level Very important Crucial for organizational viability
Build political and community support <ul style="list-style-type: none"> ● greater political impact ● institutionalize service 	support from politicians, media, and voters number of formal community commitments	increase increase	Consolidate small fragmented operations into one large organization Provide low cost, quality service meeting community needs	More powerful organizations may also be more threatening to other service providers. Larger systems more likely to experience disputes with other carriers, unionization, and greater expectations from those served.
Increase provision of primary social services <ul style="list-style-type: none"> ● new clients with access ● agency personnel freed from transportation functions 	number of new clients attending because of transportation percent of hours devoted to transportation	increase decrease	Contract out transportation functions formerly performed in-house	Hard to attribute change to transportation alone Poor accounting of time previously spent on transportation means that actual benefit may be greater than it appears
Obtain Non-transportation benefits <ul style="list-style-type: none"> ● coordinate <u>social</u> services ● mainstreaming clients 	degree to which planning and delivery of non-transportation services is integrated percent of clients who now mix with other client groups and general public who did not do so before	increase increase	Meetings to coordinate transportation leading to increased interaction on other subjects Mix client groups during trips	Hard to attribute to transportation efforts While client mixing on trips may reduce client stereotypes and increase individual abilities for social interaction, this is but a small component of the counseling and training that must occur to achieve mainstreaming.

The major elements of the table are the coordination objectives, measures of the relative achievement of each objective, and a set of strategies for achieving the objectives. The first benefit of this framework is that it clearly separates objectives and strategies. The second is that it shows how particular strategies have effects on particular objectives. It also shows that particular objectives have multiple strategies for their achievement, and conversely, particular strategies can be used for more than one objective. For example, coordinating the dispatching operations of a variety of social service agencies could be done to reduce direct dispatching costs and also to increase vehicle utilization.

This table is a major output of the evaluation effort. Its use should substantially increase the potential for successful coordinated transportation operations. Which of the objectives and strategies are actually chosen in a given case depends primarily on local conditions.

Results for the Five Projects

Table 6-4 presents the coordination objectives proposed, pursued, and achieved by the five demonstration projects. The objectives presented include reductions in actual expenditures, increases in the amount of service provided, improvements in the use of resources (efficiency), and improvements in the provision of services (effectiveness). An assessment of each project's attempt to achieve its objectives is presented in the cells of the matrix according to whether the project pursued a particular objective, pursued it but was not successful in achieving it, or failed to achieve it and thus created a situation that was worse after coordination than before. Refer to Table 3-2 for a further explanation of the objectives and strategies for each project.

In general, the projects were not able to reduce actual expenditures by serving the same number or more persons at a lower cost. The greatest successes were realized by the projects in improving their use of resources (efficiency). (All projects except WCTP were able to improve their use of resources.) In some cases, the projects were able to increase the amount of service provided (RESPOND, URTA and RIDE). And all projects, except METROVAN, were able to improve the provision of service to clients in one way or another (effectiveness). It should be cautioned that in addition to these successes, there were failures, some of which created a situation that was worse than before coordination, as noted on Table 6-4.

Table 6-4
COORDINATION OBJECTIVES OF THE
OHDS COORDINATED TRANSPORTATION DEMONSTRATION PROJECTS

Coordination Objectives	SITES				
	Fayetteville	Grand Rapids	Howard County	Jacksonville	Westchester County
<i>REDUCE ACTUAL EXPENDITURES</i>					
Reduce capital expenditures on					
• vehicles					
• special equipment					
• maintenance facilities and equipment					
Reduce overhead expenditures on					
• systems management	*	*	○	○	*
• dispatching/scheduling		○	○	○	
• accounting and recordkeeping	○		○		
Reduce direct costs on					
• drivers					
• supplies	○	○	○	○	○
• taxes (gas, tires, sales, and excise)		○			
• maintenance costs	○	*	○	○	○
• insurance costs	○		*		*
<i>INCREASE AMOUNT OF SERVICE</i>					
Increase passenger trip-making					
• provide more service	●			●	
• combine existing services		○	●	●	○
Increase geographic area served	○				
Increase number of persons served	●	○		○	○
Increase impacts on target populations					
• more client groups served	○				
• more agencies served	●				
<i>IMPROVE USE OF RESOURCES (EFFICIENCY)</i>					
Increase cost efficiency					
• lower costs per unit service	*	*	●	●	*
• more service for same costs	*	*		●	*
Improve labor productivity					
• greater driver utilization			●		
• more output by					
• administrative staff				*	
• maintenance	●	●			
Improve vehicle utilization					
• better use of capacity; greater occupancy	●	○	●	●	○
• greater use of vehicles	●	○	●	○	○

Table 6-4 (continued)

Coordination Objectives	SITES				
	Fayetteville	Grand Rapids	Howard County	Jacksonville	Westchester County
<i>IMPROVE PROVISION OF SERVICES (EFFECTIVENESS)</i>					
Increase service effectiveness					
● productivity			●	●	
● accessibility	●			○	
Increase service quality					
● passenger concern		*			
● reliability			○	*	●
● passenger safety	●		○		
Improve management					
● better accounting and recordkeeping				*	
● more funding sources	●		●		
● longer term, more stable funding	●		●		○
● more stable monthly cash flow			●	*	●
Build political and community support					
● greater political impact	●	○	●		○
● institutionalize service	●		●	○	
Increase provision of primary social services					
● new clients with access	●	*		*	
● agency personnel freed from transportation functions	●	*	●	○	○
Non-transportation benefits					
● coordinate social services		*		*	
● mainstreaming clients			●		

LEGEND

- Coordination strategy not proposed
- Coordination strategy proposed but not successfully implemented
- Coordination strategy successfully implemented
- Failed; situation worse after coordination than before

Reduce Actual Expenditures

All sites proposed to reduce actual expenditures by the implementation of various strategies to reduce overhead expenditures or to reduce direct costs on certain time. Objectives to reduce overhead costs included the reduction of expenditures on system management (URTA, RIDE and WCTP), the reduction of expenditures on dispatching and scheduling (METROVAN, URTA, and RIDE), and the reduction of expenditures on accounting and recordkeeping (RESPOND and URTA). No project succeeded in reducing overhead costs and, in fact, three projects (RESPOND, METROVAN and WCTP) increased overhead costs on management by adding an additional administrative layer, and the costs associated with it, to the existing transportation system.

Objectives to reduce direct costs included the reduction of costs on supplies (all projects), taxes (METROVAN), maintenance (all systems) and insurance (RESPOND, URTA, and WCTP). This was to be accomplished by establishing centralized maintenance and purchasing and the acquisition of a fleet insurance policy and rate. Again, none of the projects succeeded in reducing direct costs and one (METROVAN) actually increased maintenance costs while two others (URTA and WCTP) increased insurance costs.

Increase Amount of Service

All projects proposed to increase the amount of service provided by increasing tripmaking, geographic areas served, number of persons served and/or by increasing the positive impacts on target populations. All projects proposed to increase the number of trips provided; RESPOND and RIDE by expanding service, and all projects except RESPOND by combining existing services. RESPOND, URTA and RIDE succeeded in increasing tripmaking. Only RESPOND proposed to increase the geographic area served but it was not successful. All projects except URTA proposed to increase the number of persons served but only RESPOND was successful. Again only RESPOND proposed to increase the positive impacts on the target population. They succeeded in serving more agencies and more people but did not succeed in serving more client groups.

Improve Use of Resources

The primary objectives of all projects was to use existing resources more efficiently by increasing cost efficiency, improving labor productivity and/or improving vehicle utilization.

All projects intended to increase cost efficiency by lowering the unit cost of service. In addition, all but URTA proposed to provide more service for the same costs. Of these attempts, URTA was successful in lowering unit costs and RIDE was successful both in lowering unit costs and in providing more service for the same costs. On the other hand, RESPOND, METROVAN and WCTP increased unit costs for service and either provided less service for the same costs or provided the same or more service for higher costs.

Only RESPOND, METROVAN and URTA proposed improving labor productivity. Of these, RESPOND and METROVAN utilized maintenance personnel more efficiently and URTA utilized drivers more efficiently. However, without intending to, the RIDE project seemed to obtain less output from its administrative staff than before coordination, especially regarding billing and accounting.

All projects proposed to improve their use of vehicles either by making better use of capacity on vehicles while they were operating or by increasing the use of vehicles at times when they were idle. RESPOND, URTA and RIDE were successful at making better use of available capacity and RESPOND and URTA were successful at using vehicles at times when they were idle.

Improving Provision of Services

Improvements in the provision of services (effectiveness) include increasing service effectiveness, increasing service quality, improving management, building political and community support, increasing the provision of primary social service and obtaining other non-transportation benefits. RESPOND, URTA and RIDE intended to increase service effectiveness, with URTA and RIDE successful at improving productivity and RESPOND successful in improving the accessibility of the target population.

All projects proposed to increase service quality. Improvements in service quality were proposed by RESPOND, URTA, and WCTP, with RESPOND and URTA proposing to improve passenger safety on vehicles through a preventive maintenance program and URTA and the WCTP proposing to improve quality by improving reliability

of service. Of these attempts, RESPOND was successful in improving passenger safety and the WCTP was successful in improving the reliability of services. On the other hand, METROVAN decreased quality by exhibiting less concern for passengers after coordination and RIDE decreased quality by a deterioration in the reliability of the services they provided.

Improvements in management were sought by RESPOND, URTA and the WCTP. All of these projects were somewhat successful, with the successes by RESPOND and URTA resulting in more funding sources and the success by URTA resulting in both more funding sources and in longer-term, more stable funding, and the success by WCTP resulting from the establishment of a stable monthly cash flow. However, in RIDE and the WCTP, a decline in overall management capabilities was indicated by a deterioration in the quality of accounting and recordkeeping by RIDE and in the loss of funding sources by the WCTP.

The building of political and community support was an important integral part of all projects. RESPOND and URTA generated a great deal of political support and RESPOND, URTA and RIDE succeeded in institutionalizing services they provided. METROVAN and the WCTP did not succeed in either area.

Attempts to increase the provision of primary social services were made by all projects except METROVAN. URTA succeeded in freeing agency personnel from transportation functions. RESPOND succeeded both in providing new people with access to social services and in freeing agency personnel for activities other than transportation. Both the WCTP and RIDE did not free agency personnel from transportation as they intended and METROVAN actually increased the amount of time required of agency personnel for transportation. In addition, METROVAN and RIDE provided fewer clients with access to social services after coordination.

The other non-transportation benefits that were proposed were the coordination of social services and the mainstreaming of clients. Only URTA succeeded in mainstreaming clients, while METROVAN and RIDE had a negative impact on the perceptions of local agencies toward the coordination of social services in general.

Transportation System Planning and Management

The lessons of this demonstration with relation to transportation system planning and management are best understood in typical transportation system categories, including:

- the planning process,
- management,
- vehicle selection and maintenance,
- financial matters,
- system performance,
- monitoring and evaluation, and
- the implementation process.

In each category, a variety of "rules" has been suggested by this demonstration program as particularly applicable to coordinated transportation efforts. Intelligent transportation system operations would require the application of other rules as well, but only those highlighted by this demonstration program are discussed here.

The Planning Process

Have a Clear Idea of What You're Doing. The number one lesson is to be able to precisely and concisely express what the system is supposed to accomplish. Without a clear plan of action, and strategies closely tied to objectives, the project will flounder.

Resolve Major Problems Before Operating. Several proposals contained logical contradictions — for example, service areas too large for the number of vehicles available, inconsistent fare structures among participating agencies, and unresolved lines of political authority. The fundamental nature of such issues is obvious. Left unresolved, they will destroy the coordination efforts.

Do Your Political Homework. The support of the local community is the key. It may be worth delaying operations while tending to consensus building. Get political support committed as soon as possible.

Make the Proposal Reasonable. Small and simple may not be a terribly dramatic strategy, but it appears to be an effective one. A modest plan closely tied to local realities will lead to more successes than widely ambitious schemes.

Don't Promise More Than You Can Deliver. Unhappiness with coordination, when it occurred, was often attributable to unrealistically high expectations. Coordination will work in some instances to achieve some goals, but is not a universal cure.

Management

The Director is the Key. Hire a person with as much talent and energy as possible. At the same time, make this person accountable for all his actions. Interestingly enough, the project directors with the worst records in this demonstration program were those with the most experience in transportation. While the full meaning of this observation is difficult to ascertain, one possibility is that those directors with experience were able to talk their boards into accepting too much at face value without questions. The director is a crucial individual and should be well paid.

Don't Create Conflicts of Interest for Boards of Directors. Boards of directors whose members are social service agency personnel must necessarily wear two hats at all times. Management decisions that adversely affect the human service agency — for example, increases in the cost per trip for persons transported — may be rejected despite their overwhelming logic vis-a-vis the transportation system. Perhaps a consortium of social service agencies should contract with another organization to provide transportation services instead of trying to operate those services themselves.

Match Personnel Skills and Job Requirements. Some of the staffing decisions made by the demonstration project were absurd: for example, assigning statistical reporting to mentally handicapped individuals. People's capabilities should match their positions within the organization. This will require a definition of skills for each position (on paper, preferably), plus an organizational framework linking the positions.

Don't Overwork the Staff. People have limits for productive efficiencies. Regular 60-plus hour weeks are damaging to personnel and to the project itself. If so much work is required, hire additional staff. People need enough time and energy to think.

Select a Lead Organization with Sufficient Financial Resources. Coordinated human service agency transportation often entails substantial time between the provision of and payment for services. The transportation provider must either not allow this lag in payment to occur or must be prepared to finance its own operations until payment can be made. On this issue, private non-profit agencies are particularly vulnerable unless they possess a sizeable endowment. Sufficient borrowing potential is a key issue.

Operate in a Business-Like Fashion. According to the chairman of the board of directors of a very troubled demonstration site, "We didn't realize when we got all those Federal dollars that we were going to have to run this thing like a business." A transportation system cannot operate for long without receiving revenues that cover expenses. It cannot operate without intelligent leadership, or without adequate recordkeeping and financial management.

Vehicle Selection and Maintenance

Acquire Only Well-Maintained Vehicles. Four of the five projects had problems with the poor operating condition of vehicles that were to be contributed by participating agencies. Preventive maintenance is seen as a luxury by many social service agencies. The projects lost substantial amounts of time and dollars in bringing these vehicles up to minimum operating standards.

Plan Ahead for Vehicle Procurement Delays. Despite the note in the technical assistance contractor's proposal that the grantees should not expect any UMTA funds during the demonstration period, several of the projects based their plans on the early delivery of Federally-funded vehicles. These plans were, predictably, not fulfilled when the vehicles failed to materialize.

Financial Matters

Establish an Accurate Billing and Accounting System. Participating agencies need to be able to prove to their auditors that their funds were judiciously spent on transportation and other items. Therefore, the participants need legible and well-documented invoices to be able to track expenditures.

The project itself needs to be able to account for its use of supplies and manpower. The ability to project and anticipate revenues and expenditures several months in advance is crucial to the intelligent management of a transportation system. These projections should carefully take into account the probable effects of inflation on the major line items of the budget.

Billing systems based on vehicle-hour charges proved to be difficult for some participating agencies to accept. Furthermore, they contain few incentives for productivity. Per-trip systems were generally more workable.

Careful Attention to Contracting is Mandatory. The major contractual question is how to protect the finances of both parties. Transportation providers often found that they could not recover all costs from the participating agencies because the contracts were too tightly drawn. The effects of inflation were thus borne

primarily by the providers. On the other hand, several of the providers tried to (somewhat arbitrarily) change their prices in midstream, despite the presence of a valid contract lacking a cost escalation clause.

System Performance

Focus on Service. Many participating agencies were more understanding of gaps between objectives and actual performance in terms of cost, than gaps in terms of quality. The reason for a transportation program is to transport people. Unreliable service can be worse than no service at all, particularly for those human service agencies that receive funding based on the number of individuals inside their facility at a given time. Cost savings were not acceptable trade-offs for declines in service quality, according to many respondents, and some of them were quite adamant about this issue.

Focus on Viable Operations. Some of the participating agencies coordinated only a portion of the transportation services they had been providing previously. When this occurred, they usually kept the cheap, high-density, low-distance trips for themselves and turned over less productive routes to the coordinated system. There should be no reason for the coordination effort to take on tasks that are essentially unaccomplishable. Refuse impossible jobs.

Monitoring and Evaluation

Change Bad Ideas. Services that are not being utilized, objectives unrealized, and unproductive situations should be changed. The demonstration projects with the attitude of continual changes were those with the greatest accomplishments; those that remained stuck on one track accomplished the least.

The Implementation Process

Make a Realistic Time Schedule. Coordination takes a long time. If all parties are aware of this from the beginning, the problem of unrealized expectations will not occur. In particular, the vehicle acquisition process is lengthy.

Don't Grow Too Fast. With all the possible pitfalls in the coordination process, excessive growth can lead to the neglect of other pressing problems. The director must run the system instead of vice versa. If growth is an objective, a staged plan of inputs and outputs is required to prevent severe mishaps.

PREREQUISITES FOR SUCCESSFUL COORDINATION

The lessons of the previous section lead to a set of factors that can almost be considered preconditions for successful coordination. These are the highlights of the lessons learned:

- definite plans with specific strategies tied to specific objectives;
- realistic expectations of the coordination process, particularly with regard to the amount of time and effort involved and the scope and magnitude of the potential benefits;
- the consolidation of the transportation programs of some but not all of the social service agencies in an area;
- the existence of one lead agency with substantial cash or cash potential to handle problems such as vehicle maintenance and cash flow;
- adequate billing and accounting procedures;
- an outside authority able to fund the initial planning, start-up and technical assistance;
- local expertise and the commitment of local government officials to support the project; and
- an exceptional individual to direct and lead the coordination effort.

Many of the factors are identical to those essential to the successful operations of any transportation system, whether coordinated or not. The fact that coordination is involved does not lessen their importance.

OVERALL ASSESSMENT

As this demonstration program began, coordination was being oversold as a panacea, a strategy to eliminate duplication and to provide high-quality services in the face of impending budget cuts.⁵ The expectations were extremely high. Now, as a result of this demonstration program and other efforts, coordination is seen as a less universal solution than had been imagined. Its critics cite both philosophical and substantive objectives:

⁵For example, see John W. Huddleston (ed.), Proceedings of the Southwest Conference on Coordinating Mobility Programs for the Transportation Disadvantaged, prepared for the U.S. Department of Transportation by the University of Texas at Austin (February 1977).

"In ancient times alchemists believed implicitly in the existence of a philosopher's stone which would provide the key to the universe and, in effect, solve all of the problems of mankind. The quest for coordination is in many respects the twentieth-century equivalent of the medieval search for the philosopher's stone. If only we can find the right formula for coordination, we can reconcile the irreconcilable, harmonize competing and wholly divergent interests, overcome irrationalities in our government structures, and make hard policy choices to which no one will dissent...

By holding out the promise of a perfect coordinating formula, we have provided a plausible excuse for not facing up to the hard political choices that now confront us. Layers of coordinating machinery can conceal but not cure the defects and contradictions in our governmental system."⁶

The author of these comments served as an assistant director for management of the Bureau of the Budget, and had some authority to coordinate innumerable Federal programs.

The technical criticisms against coordination as a panacea are even more compelling. The basic selling point for coordination has been that it saves money. In fact, this is not generally true — it is only in very special circumstances that coordination costs less. While cost savings from coordinating transportation operations are more readily achievable for fixed costs (for example, overhead expenses) than for variable costs (driver wages, fuel and oil, etc.), variable costs make up the largest portion of the typical transportation agency budget. Coordination is much more costly and time-consuming than any of us had initially anticipated. There are substantial front-end costs of planning and administration that usually will not (or cannot legally) be borne by any of the participants. There are certain agencies that have not made their transportation expenses explicit for the valid reason of not being able to include a line item for transportation in their budgets. Other agencies have developed "deals" to get people to where they need to go at less than full costs. Such agencies cannot benefit from a system that makes all costs explicit and fully chargeable. Forcing other agencies into a formal purchasing structure reduces their flexibility for special trips. Thus, not all agencies can realize cost savings from the coordination of their transportation operations.

Coordinated transportation projects still must face the usual problems that beset non-coordinated transportation operations, such as:

- major staffing problems,
- vehicle maintenance,

⁶Harold Seidman, "Coordination: The Search for the Philosopher's Stone," Chapter 7 of Politics, Position and Power: The Dynamics of Federal Organization Oxford University Press: New York, (1975), pp. 190-217.

- licensing and certification,
- vehicle acquisition, and
- cash flow.

In addition to such problems, it also appears that coordination between social service agencies and existing public and private transportation providers will be much more difficult than previously assumed and that substantial Federal monetary assistance will be necessary to fund the staff and technical expertise needed to make coordination work.

Coordination can work extremely well in specific instances. Such instances must include the kinds of conditions discussed in the previous section.

CONCLUSION

New ideas in transportation tend to run in cycles. The development of specialized transportation systems — those providing limited services to limited target groups — was necessary because the transportation needs of people in certain areas were not being met. (Reasons for unmet need included the lack of any public transportation at all, the inconvenience or inadequacy of existing public transit services (in terms of destinations, types of services offered, etc.), or the inability of particular client groups to use existing public transit services.) Suddenly, everybody had his own transportation system. Closer observation showed that many of these systems operated without regard to certain basic principles of economic efficiency, and that some of these principles were achievable through coordination. Thus began the coordination cycle.

Now the next reassessment cycle can begin. Coordination is a useful concept in some but not all instances. For the potential cost savings in transportation operations to be realized from coordination, substantial planning and administrative expenditures are necessary. Because of certain fiscal structures, volunteer contributions, or special service requirements, some agencies will never benefit from coordinating their operations with others. Coordination will enable others to substantially increase the amount of services they deliver.

It is possible to become so wrapped up in the intricacies of implementation techniques — like coordination — that we lose sight of the original objective. Coordination is only one of the many steps along the way to achieve a broader goal — increased mobility for those persons not able to provide their own transportation. Seen in the proper perspective, coordination can be an effective means of achieving that goal.

7

IMPLICATIONS OF THE DEMONSTRATION FOR HEW

NATIONAL POLICY AND PROGRAMMING

The overall goal of the OHDS Transportation Demonstration Program is to test the feasibility of coordinating human service transportation systems at the local level "for the purpose of affecting national policy and programming".¹ This evaluation has identified many considerations which can be used to shape HEW's policy concerning the coordination of the transportation services it funds. A primary concern for HEW is establishing a clearly enunciated position vis-a-vis its possible policy spectrum that ranges from discouraging through encouraging to mandating coordination. Based upon our evaluation, we recommend that HEW adopt a policy of actively assisting the coordination of transportation services through programs to provide technical assistance at the local level and to eliminate coordination barriers at the Federal level. Thus, the HEW role would be one of facilitating the efforts of localities that have already decided that coordinating their transportation resources could benefit them, and of educating localities that have not yet decided as to the potentials and problems

¹"Guidelines for the Preparation and Submission of an Application for a Project Grant under the Office of Human Development Transportation Demonstration Program", The Federal Register, May 20, 1976.

of coordination. We most emphatically recommend that HEW not mandate coordination at the local level since our evaluation found that coordination is not appropriate or beneficial in all cases. Accordingly, we recommend that HEW not offer monetary incentives to coordinate transportation services, to ensure that localities focus on the end product of improved transportation systems rather than on the process of achieving them.

We recommend that the responsibility for these activities be vested in one unit within the Department and that this unit be charged with:

1. providing technical assistance to local and state agencies on coordination (including dissemination of information on this demonstration program, the issuance of technical guidance memoranda on coordination, and on-site technical assistance),
2. initiating legislative and regulatory reforms to eliminate the barriers to coordination, and
3. initiating research into local coordination issues that need resolution on local, state, or Federal levels.

Two related issues — lack of a clear-cut endorsement of the concept of coordination and a lack of knowledge concerning permissible efforts and their effects — substantially curtailed the activities of the five projects. According to one, "the most substantial barrier to local coordination/consolidation of transportation is the difficult task of understanding and managing the diffuse spectrum of human service decision making at the local, state, and federal level. Compounding this problem is the widespread confusion that exists at the local, state and federal level due to the absence of a clear human service transportation policy."² This supports the contention of GAO that "...the most significant hindrance is confusion at all governmental levels about the extent of coordination federally funded projects may engage in."³

In addition to shaping policy, the evaluation has identified many issues that could be addressed by HEW as part of its effort to facilitate coordination of transportation services on the local level. The issues are discussed below in two categories: project planning and organization, and project operations and

²Community Resource Group, Project RESPOND OHDS Transportation Coordination Demonstration Two-Year Report, Fayetteville, Arkansas (January, 1980), p. 9.

³Hindrances to Coordinating Transportation of People Participating in Federally Funded Grant Programs, Volume I, Report of the Comptroller General of the United States (October 1977), p. 11.

service management. The issues are addressed in terms of potential responses by HEW, including general dissemination of information on the demonstration projects, legislative reforms, regulatory reforms, new and improved program guidance, technical assistance, and research priorities. While HEW should consider immediate action on some of these items, no attempt has been made to rank these opportunities in any particular order.

PROJECT PLANNING AND ORGANIZATION

Observations of the planning and organization activities of the coordinated transportation demonstration projects revealed implications for HEW that fall into several categories.

Understanding Coordination Concepts

As pointed out in previous chapters, a great deal was learned about the concept and realities of coordination over this two-year demonstration. HEW should widely distribute information on the demonstration program and the knowledge gained from it. More particularly, instructions about when coordination is and is not an answer to human service transportation problems should be widely disseminated. HEW could usefully distribute information on coordination concepts, the implications of becoming involved in coordination attempts, and criteria for determining when it is appropriate to try to coordinate transportation services.

Project Planning Requirements

It is clear from the experiences of all the demonstration projects that coordination system planning and start-up takes more time and money than had been anticipated. OHDS may want to consider a legislative initiative that would include support for the planning of coordinated systems.

Project Organization

OHDS should offer technical assistance on how to develop contractual agreements among agencies participating in coordinated projects, including public and private transportation providers. The technical assistance could include advice on model maintenance and purchase-of-service agreements. It would also be useful to provide performance standards and membership criteria for boards

of directors. Finally, HEW could sponsor research aimed at exploring functional relationships that could be developed between coordinated human service transportation projects and public transit authorities.

Staffing

HEW should provide program guidance on staffing levels and capabilities to agencies considering transportation coordination. It seems, for example, that different staff capabilities are appropriate for designing and building a coordinated project as opposed to managing and operating one. In addition, HEW could offer training assistance to the staff of agencies that are planning coordination projects. Finally, some direct HEW funding for coordinator's salaries is probably mandatory for the full implementation of potential coordinated systems.

Grantee Readiness

Specific requirements should be developed regarding the readiness of a grantee intending to use grant-in-aid funds for transportation coordination. These requirements could take the form of program guidance, or regulations, and would address participating agency commitment and the grantee's capacity to cope with the initial cash flow problems that may be encountered.

Funding Opportunities and Constraints

The five demonstration projects were not particularly aggressive or creative in their use of Federal assistance programs. HEW should disseminate information on assistance available in general, and should provide technical assistance to local agencies on how to use these programs. Most important, HEW should sponsor legislative initiatives to remove joint-use restrictions from the enabling legislation of some of its program administrations.

Most of the funding barriers encountered by the five projects were local or state barriers (such as the use of school buses in Grand Rapids). HEW should also sponsor research on and provide technical assistance to local areas on how these barriers can be overcome.

Insurance

HEW could help local agencies in their attempts to acquire insurance for coordinated transportation projects. Assistance could be offered in the form of model insurance policies and directories of vendors who specialize in such insurance.

PROJECT OPERATIONS AND SERVICE MANAGEMENT

Several implications are also apparent from the demonstration projects' operational experiences.

Billing and Accounting

All of the demonstration projects experiences some difficulty with their billing and accounting activities. In some cases, the problems had to do with how this activity was performed and managed. In other cases, they stemmed from how the billing and accounting procedures were set up in the first place. OHDS should publish billing and accounting models that have been designed for coordinated transportation systems.⁴ Moreover, OHDS should consider the development of billing and accounting training programs for grantees involved in coordinated transportation projects.

OHDS should develop, as a major incentive for coordination, procedures for waiving multiple reporting requirements for projects receiving multiple sources of funds. Newly-proposed unified reporting formats should be implemented as soon as possible. Waivers to other requirements limiting the joint use of Federal funds — for example, matching requirements, disparate planning cycles, cost-sharing among different client groups — should be granted as incentives for coordination.

Quality Assurance Procedures

OHDS should sponsor research on coordinated transportation service quality problems and on ways of ensuring minimum service quality levels.

⁴Sue F. Knapp, A Model Uniform Billing and Accounting System for Coordinated Transportation Systems, Vol. 2, prepared for U.S. Department of Transportation by Ecosometrics, Incorporated.

System Performance Measures and Standards

As observed in earlier chapters, there are widely accepted standards or typical ranges for the indicators of small coordinated transportation systems. OHDS and DOT should sponsor research into the development of common performance measures and standards. Without this information, managers of coordinated projects have little basis for judging their systems' performance and have no grounds on which to make corrective decisions.

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APPENDIX A

DETAILED DESCRIPTION OF THE FIVE DEMONSTRATION PROJECTS

This appendix presents a brief description of the five demonstration sites including information on: 1) the demonstration projects' coordination concept; 2) the socio-economic, demographic and political environment of each demonstration site; 3) transportation services provided in the demonstration area prior to the coordination project; and 4) the operational characteristics of the projects.

PROJECT RESPOND — FAYETTEVILLE, ARKANSAS

The demonstration grantee in Fayetteville, Arkansas, was Community Resources Group, Inc. (CRG), a private non-profit agency (consortium) formed by the three Community Action Agencies in the region for the purpose of research and program planning and development. As such, the only program actually operated by CRG was the demonstration project, Project RESPOND. Project RESPOND was one of the three projects which received a third year grant and is currently operating.

Coordination Concept

The Fayetteville project began basically as a coordination project, the main element of which was a clearinghouse for vehicle operations to keep track of vehicle movements and utilization. The concept of the clearinghouse was to match unmet transportation needs to available resources through ride-sharing and time-sharing. Ride-sharing allowed the clearinghouse to schedule a trip on a vehicle if the geographic and temporal patterns were similar and space was available. Time-sharing allowed the clearinghouse to purchase time on a vehicle which was not being utilized. The clearinghouse performed only administrative functions, including the billing of participating agencies. Agencies which needed service contacted RESPOND and purchased service from it (services which were operated by other "provider" participating agencies). Agencies which had underutilized vehicle space or vehicle time made these services available for RESPOND to sell and were reimbursed through RESPOND for those services. (It should be noted that participation in this project was purely voluntary and participating agencies were in no way committed to selling time or space on any particular vehicle at any particular time.)

An element of the project which emerged, and was implemented, at the end of the second year was the consolidation of the clearinghouse function under CRG with the Economic Opportunity Agency's (EOA) Dial-a-Ride program and EOA's FHWA Section 147 public transit program. The clearinghouse function continued to operate within the consolidated system. Agencies needing transportation service contacted the clearinghouse and the clearinghouse attempted to fill requests, first, on a consolidated vehicle. If this was impossible, attempts were made to secure time or ride sharing on vehicles of agencies participating in the clearinghouse effort.

The other elements of the original concept included centralized purchasing and coordinated maintenance programs, both of which were implemented in August 1978. The centralized purchasing program was to purchase vehicle parts and tires in bulk at a reduced rate. The coordinated maintenance program was established with the FHWA Section 147 project, utilizing their garage facility and their mechanic to perform maintenance on vehicles. Both of these services were sold to participating provider agencies.

There last concept which was to be implemented as part of the project was the setting up of a local and State task force on Title XX for the purpose of cutting down on the administrative time and money involved in using Title XX funds for transportation. While this concept was never operationlized, the project was successful in negotiating one Title XX contract with the State which was allocated among participating agencies.

There were nine provider agencies and seven purchaser agencies in the original proposal. Without regard to how much time-sharing and ride-sharing was taking place, the level of agency participation and commitment of resources grew over the life of the project almost to the level proposed in their original proposal. The following agencies signed interagency agreements and were part of the coordination effort as provider agencies:

1. Abilities Unlimited
2. Benton County Adult Development Center
3. Economic Opportunity Agency
 - Dial-a-Ride
 - Head Start
 - Elderly Nutrition (food delivery only)
 - 147 Rural Transportation
4. Madison County Brighter Day School
5. Office of Human Concern
6. Rainbow School

(Richardson Center and Fayetteville Youth Center signed one agreement but not the most recent interagency agreement.)

The following thirteen agencies signed agreements and were part of the coordination effort as purchaser agencies:

1. Arkansas Rehabilitation Services
2. Fayetteville Adolescent Center
3. Lifestyles, Inc.
4. Ozark Guidance Center
5. SCAN of Washington County
6. Siloam Springs Adult Development Center
7. Washington County Social Services

8. Youth Bridge
9. BOA/Children's House
10. Benton County Developmental Center
11. Summer Youth Program
12. Northwest Acres
13. Northwest Arkansas Legal Services

However, as stated previously, the clearinghouse function was purely voluntary and participating agencies were in no way committed to selling time or space on any vehicle at any particular time. When considering the issue of actual coordination in the form of ride-sharing and time-sharing, some of the original agencies did not coordinate and additional agencies purchased services. As of the end of the project, the following agencies had participated in some form of ride-sharing and/or time-sharing:

1. Economic Opportunity Agency
 - Head Start Program (Provider)
 - Dial-a-Ride Program (Provider)
 - Children's House (Purchaser-Provider)
 - Nutrition Program (Purchaser)
 - 147 Public Transit Program (Provider)
2. Abilities Unlimited (Provider)
3. Lifestyles (Purchaser)
4. Summer Youth Program (Purchaser)
5. CRG (Purchaser)¹
6. Northwest Arkansas Legal Services (Purchaser)
7. Northwest Acres (Purchaser)
8. Benton County Developmental Center (Purchaser)
9. Siloam Springs Developmental Center (Purchaser)

Socio-Economic, Demographic, and Political Environment in the Fayetteville Demonstration Project Area

The Arkansas demonstration area covered Benton, Carroll, Madison, and Washington Counties in the Northwestern part of Arkansas. The area covers a total of 3,267 square miles.

¹These are not client trips. They are trips used by CRG staff for board meetings and other administrative purchases.

The terrain of the area ranges from hilly in the western portion to mountainous and isolated in the eastern portion. The area is primarily rural with some dense developments in Washington and Benton Counties. About 40% of the project's bus miles were on unpaved roads, and while weather conditions are not particularly adverse, the amount of adverse weather, combined with the mountainous terrain and unpaved roads, does present some problems for transportation operations.

The estimated population in the demonstration area is 170,000 persons: 51% of which is in Washington County, 35% of which is in Benton County, 8% of which is in Carroll County, and 6% of which is in Madison County. The number of persons over 65 ranges from just over 10% in Washington County to just under 20% in Carroll County. The percentage of persons with income below the poverty level ranges from 15% in Washington County to over 33% in Madison County. It has also been estimated that Arkansas as a State has the highest percentage of disabled persons between the ages of 16 and 65, with approximately 15% of the population being handicapped.

There is no transit authority in the demonstration area, since Arkansas has no legislative basis for the establishment of such authorities. The area does have a rural transportation demonstration project funded by the U.S. DOT (FHWA Section 147) which serves Washington and Benton Counties.

Prior Transportation Services

Prior to the demonstration project, transportation services were uncoordinated and fragmented. There were, and are, approximately 34 human service agencies providing transportation services to their clients, 24 operating their own vehicles. In addition, as mentioned above, a public transportation system was being developed by the Economic Opportunity Agency of Washington County to provide fixed-route service to the general public in Washington and Benton Counties. This public transit system was not coordinated with human service agency transportation at the time this project was being implemented.

Description of the Demonstration Project

Services

The demonstration project did not offer transportation services directly until the end of the project when the clearinghouse consolidated with the EOA Dial-a-Ride and the 147 project. Rather it offered the administrative services

of coordinating unmet transportation needs with unutilized transportation resources. As described in the coordination concept, the project took transportation requests from purchasing agencies and matches them with available space or time on provider agency vehicles. RESPOND billed and reimbursed participating agencies for service as well as provided centralized purchasing of parts and tires and centralized maintenance for provider agency vehicles (it then charged the agencies for these).

Personnel

The administrative portion of the project employed three persons — a project director, a project coordinator, and a secretary. The number of drivers, dispatchers, and supervisory personnel in the project is an aggregate of personnel employed by all participating agencies.

Billing and Finances

As mentioned earlier, all agency billing and reimbursement for services provided under the coordination effort went through RESPOND. Monthly statements including amount owed and credited were prepared for each agency. Previous to October 1978, each provider had a different reimbursement based upon each agency's transportation costs. After October, all agencies participating in the project used a standard rate of \$3.07 per trip (with driver services) and \$1.27 per trip (without driver services). These rates did not include the administrative cost of RESPOND.

The first-year project budget was \$290,995, \$45,949 of which was the administrative budget provided by the OHDS grant. Only \$36,759 of the OHDS grant was used that year. The second-year project budget was \$377,033, \$54,000 of which is the administrative budget provided by the OHDS grant. Included in the second year budget is \$15,023 of unencumbered funds from the FY77 OHDS grant bringing the budget to \$80,023. During the second year, only \$53,890 of the grant was used. Also, \$26,300 was budgeted for a two-way radio system which was not purchased.

Vehicles

The agencies participating in the provider portion of the project had a total of 44 vehicles:

Abilities Unlimited	1
Benton County Adult Development Center	2

EOA, Administration	1
EOA, Dial-A-Ride	3
EOA, Head Start	7
EOA, 147 Public Transit	7
Fayetteville Youth Center	3
Madison County Brighter Day School	1
Office of Human Concern	12
Richardson Center	6
Rainbow School	<u>1</u>
	44

Of these, only 19 had actually participated in the ride-sharing or time-sharing as of the end of the project. At that time, only 14 were still participating. In addition, the project applied for 16(b)2 funds (approved October 1978) for the purchase of additional vehicles. Project RESPOND made an application on behalf of the entire group of agencies instead of the agencies acting separately and the vehicles acquired will be used within the coordination effort. The project is still awaiting the delivery of these vehicles.

The agencies participating only in the parts purchasing and maintenance portion of the project had a total of 16 vehicles:

EOA, Administration	2
EOA, Head Start	6
EOA, Family Planning	2
EOA, Weatherization	3
EOA, Elderly Nutrition	2
Youth Bridge	<u>1</u>
	16

METROVAN — GRAND RAPIDS, MICHIGAN

The Grand Rapids Transit Authority (GRATA) was the grantee and lead agency for the demonstration project in Michigan. The project adopted the name METROVAN.

Coordination Concept

The Grand Rapids project originally proposed implementation of four separate coordination concepts; outreach/information and referral, centralized maintenance, centralized purchasing, and coordination of vehicle operations with centralized dispatching.

Similar to Project RESPOND in Fayetteville, METROVAN had as its primary element the coordination rather than consolidation of vehicle operations. The project sold excess capacity on currently operating vehicles to agencies which need the transportation services. Unlike RESPOND, METROVAN included the concept of central dispatch. The original proposal intended that each of the vehicles participating in the coordination effort would be equipped with radios and when space was available on a vehicle and a request was made for a trip compatible with the course and timing of the vehicle, the vehicle was to be dispatched to make that trip. The only agency participating in central dispatch was the Kent County Community Action Council (Kent CAP). Coordination of a particular agency's vehicles was done during hours the vehicles were not being used to capacity by that agency.

In addition, according to the proposal, the project was to have 1) set up an information and referral service to make it easier for potential clients to obtain service through one central number, 2) set up centralized maintenance of participating agency vehicles, and 3) set up centralized purchasing for fuel, parts, and tires. All of the proposed concepts were to be coordinated under and incorporated into existing GRATA functions.

The original proposal had seven participating agencies, five in outreach services, five in centralized maintenance, five in centralized purchasing, and four in coordinated operations and centralized dispatch. The agencies involved in the coordination effort included the transit authority's specialized demand-responsive service for the elderly and handicapped (GO-Bus), the Grand Rapids Public Schools, Kent CAP (the county Community Action Program), and the Pine Rest Rehabilitation Home (most of these agencies were also involved in all other coordination components). Agencies involved only in the outreach/I&R concept were Vocational Rehabilitation and Senior Neighbor. The Kent County Mental Retardation Client Services was to be involved only in centralized purchasing and maintenance.

During the course of the project, each of the concepts was implemented. The outreach program was set up, services of two agencies (GRATA and Kent CAP) were coordinated, and the central maintenance and purchasing program was implemented. In addition, a number of agencies which previously purchased trips from GO Bus (GRATA) continued to do so. Most of these agencies purchased trips

for their clients at the GO Bus fare (60¢/trip) while some did purchase trips at the METROVAN fare (\$2.25/trip). In December 1978, however, Kent CAP ceased to participate in the project. In addition, GRATA's allocation of fuel was cut back and so they ceased to purchase fuel in bulk and sell it to participating agencies. All that remained by the end of the project was the outreach program.

Socio-Economic, Demographic, and Political Environmental in Grand Rapids

The Grand Rapids project served all of Kent County, which covers approximately 857 square miles. The county includes the City of Grand Rapids and a number of small towns.

Population in the county is approximately 411,000: 13% of the population is over 60 years old, 18% of the families have median incomes of less than \$6,000 and 7% of the population have restrictions on their mobility.

The operating environment in Kent County is primarily urban with some rural areas. The terrain is flat and the only environmental factor inhibiting transportation is the snow (the area has approximately 40 days of adverse weather conditions a year).

GRATA, the lead agency for the project, is the public transit agency for the area and has the authority to plan and operate services. The authority has a specialized demand-responsive service for the elderly and handicapped (GO-Bus), which participated in all aspects of the project.

Prior Transportation Services

Human service agency transportation services and public transportation services were all operated independently prior to the implementation of this project. There are approximately 22 agencies providing transportation services to their clients, most of which operate their own services.

While no prior coordination was taking place, it is interesting to note that approximately eight human service agencies were purchasing transportation services from the GRATO GO-Bus for their clients at \$0.60 per trip (i.e., the Board of Education, English Hills Nursing Home, Friendship Place, etc.)

Description of the Operations of the Project

Services

As in Fayetteville, the actual project services of the METROVAN project were administrative in nature and involved the matching of unmet transportation

needs with excess capacity. Demand-responsive services were provided by GO-Bus for the general elderly and handicapped public and were coordinated with the demand-responsive services of Kent CAP. (Kent CAP continued to operate its fixed-schedule service in an uncoordinated manner).

Neither agency provided escorts on their buses. While Kent CAP drivers were allowed to assist passengers in any manner needed, GO-Bus drivers were not allowed to assist the passenger in any way. All trip purposes were served by both agencies and clients of both programs rode on the same buses at the same time. Advance reservations were required on both demand-responsive services.

Personnel

The project staff consisted of a project director, assistant project director, a secretary, an accountant, a supervisory person, four dispatchers, and five service representatives. The project director devoted only about 50% amount of his time to the project. The dispatchers and service representatives were regular GRATA employees whose functions included dispatching, call taking, and providing information for both METROVAN and the regular fixed-route GRATA services.

Drivers on vehicles coordinated under the project included 7 full-time drivers for Kent CAP and 12 part-time drivers for GO-Bus. The GO-Bus drivers were GRATA drivers who were rotated from the regular line-haul service runs.

Billing and Finances

As the administrator for the coordinated project, METROVAN was responsible for billing and reimbursing agencies for transportation services provided. The project kept track of all trips provided on METROVAN vehicles, making the distinction between trips on Kent CAP vehicles as opposed to GO-Bus vehicles. It also kept track of rides provided to both agencies' clients. Then, subtracting the number of trips provided to an agency from the number of trips provided by an agency, the agency 1) billed for the number of trips it was provided over the amount it purchased, or 2) reimbursed for the number of trips it provided over the amount is purchased. The agencies were billed at a flat rate of \$2.25 per trip.

Kent CAP did not charge for its transportation services, while GRATA charged \$0.60 per ride on its GO-Bus.

The total project budget for the first year was \$1,169,762, \$98,531 of which was provided by the OHDS grant. The total budget for the second year is \$1,286,734, \$78,144 of which is provided by the grant. It is noted that these are budget figures (taken from first - and second - year grant proposals), not actual costs.

Vehicles

There were 18 vehicles being coordinated by the project: 11 from GO-Bus and 7 from Kent CAP.

URTA, INC. — HOWARD COUNTY, MARYLAND

The Community Action Council of Howard County, Maryland, Inc., was the grantee for the first-year demonstration grant in Howard County. The operating agency for the project was an independent non-profit corporation called URTA (Urban Rural Transportation Alliance, Inc.) URTA was an independent organization which was created in August of 1977 for the express purpose of operating the consolidated project. The second-year grant was awarded directly to URTA.

Coordination Concept

The coordination concept in Howard County was the total consolidation of the transportation resources of four human services in the county. Services and resources were consolidated under URTA which, as an independent organization, was then responsible for supplying transportation services to the participating agencies. Participating agencies pooled all their vehicles and transportation budgets; in return, URTA provided them with a set amount of transportation services. URTA assumed full responsibility for the transportation project including centralized dispatching, maintenance, purchasing, storage, management, and administration.

Centralized maintenance and purchasing was established by URTA entering into a group maintenance contract with a local maintenance service organization (the basic cost of this maintenance is \$9.00 per hour for labor and wholesale cost plus 15% on parts).

All interagency and vehicle leasing agreements were signed over to URTA, which became fully operational January 16, 1978. This included the physical transfer of drivers from participating agencies as well as vehicles, vehicle maintenance, and transportation responsibilities. Central dispatching was not implemented since radios were never installed in the vehicles.

The URTA Operations Committee, consisting of the executive directors of the four agencies plus the URTA project director, had operating authority over URTA and developed specific operating policies. The Board of Directors (a separate entity from the Operations Committee made policy for the project.

The four agencies which were consolidated are:

1. Community Action Council of Howard County, Maryland, Inc. (CAC)/ Ride-On Program
2. Howard County Association for Retarded Citizens — Activity Centers,
3. Howard County Workshop — Sheltered Workshops
4. Howard County Bureau of Citizens Services — Office on Aging

The CAC Head Start program is the only program in the proposal which was not consolidated. In addition to the above consolidating agencies, the project was also supplying transportation to the Kidney Fund, transporting patients to dialysis.

Socio-Economic, Demographic, and Political Environment in Howard County

The URTA project served all of Howard County, Maryland. This area covers approximately 200 square miles. It is basically a rural county with a recent urban growth in the New Town of Columbia. (Most of the development in this rapidly growing county is in Columbia). The only governmental jurisdiction is the county, although Columbia does have a citizens association which operates some governmental type services for the town.

The operating environment is a low-density, hilly rural environment with the exception of Columbia. There is little adverse weather and most of the roads are paved.

Howard County has a total population of 111,000 people. Approximately 5% of the population is over 60 years old, 4 percent are handicapped, and 11 percent of the families have a median income below \$6,000.

While the county government does oversee and plan for transportation services, there is no formal public transportation authority set up in Howard County to fund and operate services. There also is no public transportation system in the county aside from the intra-town service run by the Columbia association.

Prior Transportation Services

Before the project was implemented, transportation consisted of: 1) the Columbia association's intra-town fixed-route service; 2) the Community Action Council's demand-responsive service for poor, elderly, and handicapped (Ride-On); and 3) paratransit services of approximately seven human service agencies for their clients.

Most of the human service agencies ran fixed-route/fixed-schedule trips, especially the participating agencies. The participating agencies were all running their systems independently but, like the other human service agencies in the county, many were referring clients with special needs to Ride-On (which was subsidized by the county).

Description of the Operations of the Demonstration Project

Services

URTA served two basic needs: it served clients of participating agencies with its fixed-schedule/fixed-route runs and it served the general elderly, handicapped, and low-income public with its demand-responsive service. (In some cases, they did serve agency clients in the demand-responsive service.)

Clients of various agencies rode on the same buses. Advance reservations for the demand-responsive service were required up to three days ahead. All trip purposes were served. Escorts were not provided on the buses and drivers were not allowed to assist passengers to their doors. The drivers were allowed to assist passengers getting on and off the buses.

Personnel

The project staff fluctuated somewhat from the time operations began until the end of the project. However, the project generally employed 14 persons: 6 part-time and 5 full-time drivers, 1 dispatcher, 1 supervisory person, and 1 project director.

Billing and Finances

There were no fares charged for the general public demand-responsive service. In the beginning, the participating agencies paid a flat rate per month in exchange for a set amount of transportation services. At the end of the year, the project was in the process of developing agreements with participating agencies which tied the transportation services they received to a unit cost of service.

The first-year budget for the project was \$212,591, \$75,250 of which was provided by the OHDS grant. Only \$62,500 of the grant was used during the first year. The second-year project budget is \$231,510, \$52,285 of which is provided by the grant. (Funds were carried over into the second year from the first year grant). The project spent \$65,035 of grant funds during the second year.

Vehicles

The agencies participating in the consolidation effort leased their vehicles to URTA in exchange for services. URTA was responsible for maintaining the vehicles.

There were 12 vehicles leased to the project; 6 from Howard County CAC (Ride-On), 3 from Howard County Association of Retarded Citizens, 2 from Howard County Workshop, and 1 from Howard County Office on Aging. Seven of these vehicles were vans, 1 was a minibus, 1 was a regular bus and 3 were station wagons. They had a total capacity of 155 passengers. In addition, 2 of the participating agencies had applied, and been approved through UMTA 16(b)2, for 1 vehicle each — which would be turned over to URTA (probably for use as replacement vehicles).

RIDE, INC. — JACKSONVILLE, FLORIDA

The OHDS demonstration project grant was awarded to the Northeast Florida Community Action Agency (NFCAA, then Greater Jacksonville Economic Opportunity, Inc.) for the first year. NFCAA is the Community Action Agency for Duval County, Florida. The operating agency for the project was a multi-agency consortium, RIDE, Inc. (Rides for Infirm and Disadvantaged and Elderly). RIDE was a non-profit corporation which is a delegate agency of NFCAA.

The second-year demonstration grant was awarded directly to RIDE, which, in addition to operating the project, assumed the fiscal and administrative responsibilities for the project. NFCAA continued to be the major provider of vehicles and purchaser of transportation services.

Coordination Concept

The Jacksonville project originally proposed that four demonstration concepts be pursued simultaneously. The project involved 14 agencies (interest or intent to participate was elicited from an additional 17 agencies). The four coordination concepts proposed were as follows:

1. consolidation of agency vehicular resources under RIDE, Inc., with participating agencies purchasing transportation from them (this involved 7 agencies and 40 vehicles);

2. coordination of agency operations by RIDE, Inc. with participating agencies sharing either time or space on their vehicles (this involved 30 agencies and 10 vehicles). This coordination element included a centralized telephone number and information service;
3. purchase of transportation by non-consolidated agencies (this involved three agencies);
4. centralization of vehicle maintenance (10 agencies) and purchasing (15 agencies).

The original project schedule called for the initial consolidation of the paratransit services of six human service agencies and the Jacksonville Transportation Authority's (JTA) DART system (a demand-responsive system for elderly and handicapped). The next steps were to have the project provide 1) centralized purchasing for RIDE and the coordinating agencies, 2) centralized maintenance service for RIDE and the coordinating agencies, and 3) centralized telephone and dispatch to implement time-sharing and ride-sharing for RIDE and the coordinating agencies. The establishment of a centralized transportation information clearinghouse was the last step to be accomplished.

As of April 1979, the project had consolidated the vehicles of five agencies, had a total of ten agencies purchasing service (including the four agencies in the consolidation effort), and was providing services to an additional four agencies whose transportation services are contributed to NPCAA (before consolidation, NFCAA was providing free transportation services to these agencies and continued to pay RIDE for services rendered to them). Central maintenance and purchasing had been implemented for vehicles on the consolidated service (RIDE). Coordination in the form of a ride-sharing, time-sharing and central purchasing, maintenance, and dispatching for coordinating agencies was never accomplished. In addition, while JTA provided technical assistance and dispatching services, JTA never consolidated its' DART vehicles under the project.

The four agencies which consolidated their vehicles and were purchasing service from RIDE were:

1. Greater Jacksonville Economic Opportunity
 - senior services
 - social services
 - headstart
2. Duval County Association for Retarded Citizens
3. United Cerebral Palsy

4. Morning Star School
5. Calhoun Center School
6. State of Florida: District Office of Health Rehabilitation Center
 - Aging Adult Service
 - Medicare

Many more agencies purchased transportation from RIDE at one time or another for a total of 26 agencies participating in the operating aspect of the project.

In addition, the Cathedral Foundation had an arrangement with RIDE to provide back-up drivers and to participate in the coordinated maintenance and purchasing program.

However, by the end of the demonstration period, RIDE had ceased to operate the project. NFCAA resumed responsibility for operating its vehicles and continued coordinating the in-house transportation among its three units.

Socio-Economic, Demographic, and Political Environment in Jacksonville

The Jacksonville project served the urbanized area which includes all of Duval County, Florida. This area covers 766 square miles.

The transportation operating environment is a flat and urban setting with many narrow roads. Since the St. John's river runs through the center of the county, there are bridges, tolls, and some traffic congestion to contend with. The area has very little adverse weather and approximately 90% of the project's vehicle mileage is on paved roads.

Duval County has a total population of 580,000 persons, of which approximately 13% are over 60 years old, 6% have mobility restrictions, 25% are non-white, and 7% have an average family income under \$6,000.

The county currently has a central transportation authority in place called the Jacksonville Transportation Authority (JTA). JTA has the authority to plan, operate, and fund transportation services (it currently does not fund services even though it has this authority). JTA operates its own special transportation service called DART which uses four vehicles to provide demand responsive service to the elderly and handicapped (about 50% are non-ambulatory persons). In addition, the JTA has been designated by the Jacksonville City Council as the coordinator of non-profit paratransit in Duval County. It was the original concept that JTA would participate in the project by consolidating its paratransit operations (DART) with RIDE and by providing RIDE's dispatching service. While JTA did provide technical assistance and dispatching service, they did not consolidate operations.

The participating agencies were all operating independently. Even the separate service units under GJEO operated their transportation independent of one another. Non-provider agencies purchased from taxis, chaircar services, chartered buses, contracts with private carriers, and/or volunteers.

Description of the Operations of the Demonstration Project

Services

RIDE served only participating agency clientele. Both demand-responsive and fixed-route services were provided with most of the fixed-route services to particular facilities. No escorts were provided on the buses, but drivers were permitted to assist passengers in any way needed (including going to the door for them).

Clients of various agencies rode on the same bus in some cases. All trip purposes were served.

Personnel

The project employed 6 persons in addition to drivers: 1 dispatcher, 1 secretary, 1 billing clerk, 1 mechanic, and 2 administrative personnel. Most of the drivers were previously drivers for the various participating agencies and were hired by RIDE when consolidation took place.

Billing and Finances

In general, the participating agencies were billed by RIDE based on the vehicle hours of service. The rate was \$10.00 per vehicle hour for non-consolidating agencies and \$9.00 per vehicle hour for agencies which do not consolidate vehicles. However, RIDE did institute differing rate structures and billing procedures with some agencies. These hourly costs are prorated if clients from more than one agency are riding a particular vehicle at the same time.

The first-year budget for the project was \$504,617, \$99,279 of which was provided by the OHDS grant. \$96,776 of the grant was used. The second-year project budget is \$654,920, \$114,992 of which is provided by the OHDS grant, all of which was used.

Vehicles

The agencies participating in the consolidation portion of the demonstration project leased their vehicles to RIDE. In exchange for the use of the vehicles to RIDE maintained them and charged these agencies a lower vehicle hourly rate than agencies which only purchase service.

There were 36 vehicles in the project as of June 1978: 28 from NFCAA, 3 from United Cerebral Palsy, 1 from Morning Star School, and one from Duval County Association for Retarded Citizens and 3 from the Calhoun School. It was anticipated that 1) the four DART vehicles would be consolidated soon and 2) NFCAA would receive four more 16(b)2 vehicles (early 1978) which would be turned over to the project but this never happened.

WESTCHESTER COORDINATED TRANSPORTATION PROJECT (WCTP) — WESTCHESTER COUNTY,
NEW YORK

The Westchester County Department of Transportation was the grantee for the demonstration project award in Westchester County, New York. The operating agency for the project was the Westchester Community Service Council, a health and planning organization. Neither the county DOT nor the Community Service Council operated any direct services, other than the WCTP.

Project Concept

The WCTP was a consolidation type project which originally proposed a two-phase implementation strategy. The first phase included: 1) consolidation of transportation services by 5 agencies operating services; 2) purchase of transportation services by 7 agencies; 3) information/referral and planning assistance by an additional six agencies, and 4) centralized maintenance of consolidated vehicles. The second phase included the development of a county-wide paratransit system to provide door-to-door service for the general elderly and handicapped population. Only the first phase was implemented.

As of the end of the demonstration period, the project had consolidated part of the transportation services of five participating agencies and an additional four agencies were purchasing services from them. The preventive maintenance and vehicle repair programs had been implemented for the vehicles consolidated, with the WCTP entering into a preventive maintenance agreement with Burke Rehabilitation. This agreement was supplemented with a vehicle repair agreement with a local garage.

The agencies which consolidated vehicles were:

1. United Cerebral Palsy
2. Burke Rehabilitation Hospital
3. Blythedale Children's Hospital

4. Lighthouse
5. Westchester Developmental Service (an arm of State Community Support Services)

In addition, the following agencies purchased service:

1. RSVP
2. Mental Health Association
3. White Plains Child Care Association
4. Durland

Socio-Economic, Demographic, and Political Environment in Westchester

The WCTP served Westchester County, which includes the county seat (White Plains). The county is located just north of New York City and density ranges from very urban in the south to very rural in the north. The operating environment is hilly with no unpaved roads and some adverse weather.

There are approximately 870,000 persons in the service area, 13% of which are over 60 years old and 12% of which have a family median income of less than \$6,000.

The grantee, the Westchester County Department of Transportation, is the transit planning agency for the area. The Westchester County DOT does not currently operate services and, therefore, contracted with the Westchester Community Service Council to operate the WCTP.

Prior Transportation Services

No coordination among paratransit services in Westchester County was taking place prior to this demonstration project. There were approximately 20 agencies providing paratransit services, primarily to agency clientele. Some agencies were operating their own vehicles, some were purchasing services, and others were relying on volunteers. Many of the purchasers were purchasing from commercial carriers.

Description of the Operations of the Demonstration Project

Services

The WCTP served only participating agency clientele. It provided only the fixed schedule services previously provided by three agencies whose services were consolidated. Generally, clients of the agencies were not mixed and routes remained the same as they were before coordination took place.

Personnel

The project employed from seven to eight persons: a project director, an assistant coordinator, a part-time bookkeeper, a secretary, and from four to five drivers (as of the end of August, they had five).

Billing and Finances

The subscriber agencies were billed in advance for service rendered. They are billed monthly at a rate of \$13.00 per vehicle hour of service.

The first-year budget for the project was \$228,200, \$96,000 of which was to be provided by the OHDS grant. (The first-year grant was for \$96,000, \$46,000 of which was expended.) The second-year budget for the project is \$274,470, \$78,470 of which is provided by the OHDS grant (included in the overall budget is \$45,500 carried over from the first-year grant).

Vehicles

The participating agencies in the consolidation effort had agreements to lend their vehicles to the WCTP. The project had a total of seven vehicles: one from UCP, one from Lighthouse, one from Blythedale Children's Hospital, two from Burke and one from the State Community Support Services, and one from the Westchester County DOT.

In addition, the county was planning to order 16 mini-buses purchased under the UMTA Section 3 program. The buses were never ordered, as the Westchester County DOT could not find a vehicle that met their specifications.

APPENDIX B

MAJOR SOCIAL SERVICE PROGRAMS INVOLVED IN THE OHDS COORDINATED TRANSPORTATION DEMONSTRATION PROGRAM

Following is a list of the OHDS (and other) programs involved in the demonstrations and a brief description of each program.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Social Security Act of 1935, as Amended

Title XIX - Medicaid (Medical Assistance Programs). The purpose of this program is to provide assistance to States for the provision of medical assistance to low-income persons receiving Federally supported financial assistance who are age 65 or over, blind, disabled, or members of families with dependent children, and to persons with incomes sufficient for maintenance but not medical needs. States have the option of providing transportation as an item of medical service and they may use a variety of ways to provide the service (i.e., purchase-of-service contracts with vendors on a prepaid basis, direct reimbursement to clients for fares, etc.).

Title XX - Social Service for Individuals and Families. This program provides grants to States for the provision of a wide range of social services, including transportation, to low-income individuals and families.

The Rehabilitation Act of 1973, as Amended

Title I - Vocational Rehabilitation Services. This program provides grants to States for the provision of a range of services to handicapped individuals which will help them prepare for and obtain employment, or to maintain their independence and self-sufficiency. Under this program transportation is required as one of the services necessary to "render handicapped individuals employable" and, as such, the service is frequently provided in connection with other vocational rehabilitation services.

Developmental Disabilities Services and Facilities Act of 1970, as Amended

This program provides formula grants to States for the coordination and provision of services to persons with developmental disabilities. Transportation is one of the services that may be directed toward the alleviation or rehabilitation of developmental disabilities.

The Older Americans Act of 1965, as Amended

Title III - Grants for State and Community Programs on Aging. This program provides formula grants to State and Area Agencies on Aging for the purpose of establishing, improving, or expanding social services through the development of comprehensive coordinated service delivery systems for the elderly at the sub-State or area level. Transportation is one of a broad range of social services for which funds are available under this program. In order to be eligible for services provided under this program, an individual need only meet the criterion of age: generally age 60 and over, although some states have established age 55 or 65 as the lower limit age criterion. Many social services funded under this program also are directed toward serving primarily low-income, minority group elderly.

Title III - Part C - Nutrition Services for the Elderly. This program provides formula grants to States for the establishment of nutrition projects in local areas. The purpose of these projects is to provide low-cost, nutritious meals in congregate settings to persons aged 60 years and over, once a day, five days a week. Each nutrition project usually has several satellite nutrition meal sites located within its service area. Transportation is one of the "supportive social services" also provided under the program.

Community Services Act of 1974, as Amended

Title V - Part A - Head Start. This program provides grants to eligible community agencies for the establishment of Head Start project for preschool age children from low-income families. The Head Start programs must provide comprehensive health, nutrition, education, social, and other services. Transportation is provided to and from the Head Start facility by project-owned vehicles, through contracts with other providers, or by parents of Head Start children.

COMMUNITY SERVICES ADMINISTRATION

Community Services Act of 1974, as Amended

Title II - Section 221 - Urban and Rural Community Action Programs. This provides grants to local agencies to organize a range of services related to the needs of persons (of all ages) living in poverty. Community Action Programs are community-based and -operated. Components (service projects) of a Community Action Program may be administered by the agency or by other agencies; such projects may be eligible for funding under this program or may receive funding through other Federal, State, or local sources.

DEPARTMENT OF TRANSPORTATION

Urban Mass Transportation Act of 1964, as Amended

Section 3 authorizes Federal financial assistance for:

1. capital grants for acquisition, construction, reconstruction, and improvement of facilities and equipment; and
2. loans for the acquisition, construction, reconstruction, and improvement of facilities and equipment and for the acquisition of real property for future mass transportation use.

Section 5 authorizes Federal financial assistance for:

1. capital grants for acquisition, construction, reconstruction, and improvement of facilities and equipment which are located within urbanized areas; and
2. the payment of operating expenses to improve or continue mass transportation operations serving urbanized areas.

Section 3 and Section 5 projects are generally operated by local public transit authorities for the general public, with special efforts programming for the elderly and handicapped.

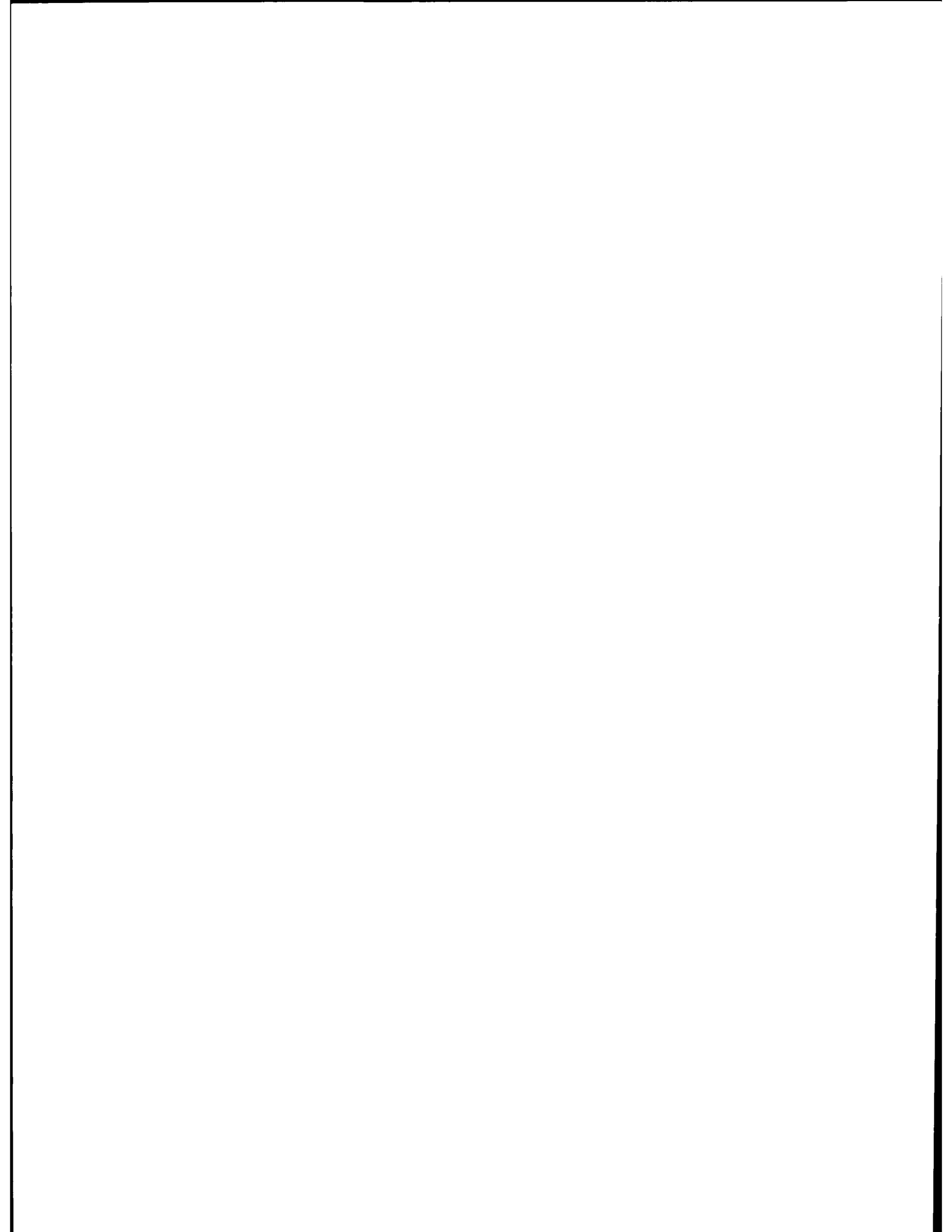
Special Projects for the Elderly and Handicapped

The special transportation needs of elderly and handicapped persons are addressed in Section 16 of the Act, which declares it to be 'national policy that elderly and handicapped persons have the same right as other persons to utilize mass transportation facilities and services.'

Section 16(b)(1) authorizes grants and loans to local public bodies to assist them in providing such specialized services and makes funds authorized under regular program authority (Section 3) available for these purposes.

Section 16(b)(2) is a supplemental program which is available only to private non-profit organizations to assist them in providing specialized services for elderly and handicapped persons.

Section 18 authorizes Federal financial assistance for capital and operating assistance for public transportation in rural and small areas. Eligible recipients of this assistance may include State agencies, local public bodies and agencies thereof, non-profit organizations, and operators of public transportation services in non-urbanized and small areas.



GLOSSARY OF TERMS

ACCESSIBILITY - Accessibility is a concept used in transportation planning to describe the ease with which an individual has an opportunity to participate in an activity. The more accessible the activity is, the fewer travel barriers and less travel friction need be overcome to reach the activity.

AVAILABILITY OF SERVICE - For fixed-route systems, this factor can be expressed as frequency (the number of times per day or per week that a particular route is served); for demand-responsive systems, it is the reservation time (the number of hours or days between a call for a ride and the pickup). Also see Fixed-Route, and Demand-Responsive.

CAPACITY - As used in traffic assignment, the number of vehicles per hour which can be served on a link at the speed indicated. The capacity may be directional or total two-way. It may also be indicated as a 24-hour traffic volume which would produce capacity conditions in the peak hour. As used in transit, capacity is the total number of passengers which can be carried by a vehicle or a fleet.

CERTIFICATION - Certification to operate transportation services generally is performed on a State level by the State public services or utility commission. Certification is generally in the form of a permit to operate which may or may not restrict the types of service that can be provided under the permit.

CLIENT POPULATION - This measure consists of those persons who participate in or benefit from an agency's program. Some of these will use their transportation system, some may not.

COORDINATION CONCEPT - The coordination concept involves all issues of operational, administrative, and financial coordination and is generally concerned with the degree of coordination achieved. The coordination concepts range from cooperation, through coordination, to consolidation (see these definitions).

COORDINATION OF TRANSPORTATION SERVICE - Sharing existing transportation resources through interagency cooperative arrangements.

CONSOLIDATION OF TRANSPORTATION SERVICES - Centralizing all transportation services into one unified system through which participating agencies negotiate purchase of service agreements or other contractual arrangements.

COST PER PASSENGER TRIP (ONE-WAY) - Total system costs (all operating expenses plus administrative costs plus capital costs on a depreciation schedule) divided by the number of passenger trips. Costs and trips must be recorded over the same period of time.

COST PER VEHICLE HOUR - Total system costs divided by the sum of the number of hours that each vehicle is operated.

COST PER VEHICLE MILE - Total system costs divided by the total distance traveled by all vehicles in the system.

DEADHEAD MILES - Mileage driven when no passenger or package service is being provided. For demand-responsive systems, this is the total of all mileages at times when no passenger or package is on the vehicle. For fixed-route systems, it is the mileage between the vehicle storage location and the start of the route (and vice versa at the end of the day). It does not cover mileage on the route.

DEMAND-RESPONSIVE - Demand-responsive refers to any mode of transportation in which passengers are picked up upon their request. This is opposed to fixed-route, fixed-schedule transportation in which vehicles run fixed routes and schedules. Demand-responsive service will provide transportation for the traveler when and where he wants to go (within certain limits). Also see Fixed-Route.

DESTINATION - Terminal end of a trip or the zone in which a trip terminates.

EFFECTIVENESS - For a transportation system, the effect is that people are moved from one place to another (i.e., trips). Measures of the effectiveness of a transportation system are, for example, the number of trips taken on it, or the number of individual persons that it serves. Or, a transportation system can be evaluated in terms of its effectiveness towards a social goal; for example, the number of persons who can take advantage of a particular social service because of the transportation system.

EFFICIENCY - The efficiency of a transportation system will be some measure of the relationship of system inputs to system outputs. Transit planning has generally expressed this efficiency measure in terms of the ability to minimize an input (i.e., costs) to produce a unit of output. The most often used measures are cost per passenger or cost per vehicle mile.

ELDERLY - The elderly are generally defined as those persons of 60 years or older; however, among the many Federal statutes (and supporting regulations) which are concerned with the needs of the elderly, there are variations in the age specified for eligibility ranging from no specific age designated to age 65 and older: Older Americans Act, Title VII - eligibility requires 60 or over Older Americans Act, Title III - no age-related eligibility requirements Older Americans Act, Title IX - eligibility specified as 55 or over, etc.

FEEDER SERVICES - Those services which provide access to already existing public transportation systems.

FINANCIAL AGREEMENTS - A formal contract stipulating the participation two or more agencies will play in carrying out a planning or implementation program.

FISCAL YEAR - The time period beginning October 1 and ending September 30 of the subsequent calendar year. Fiscal years are designated by the calendar year in which they end.

FIXED COSTS - Typically those costs that are less (or not at all) sensitive to changes in service. They include such items as general supervision, overhead and administration, rents, debt service, etc. Fixed costs are differentiated from variable costs because they represent those costs that must be met whether the service operates or not. If the project runs into operating problems (e.g., loss of traffic), fixed costs will continue.

FIXED-ROUTE - Fixed-route systems operate over the same route (with some small deviations possible) according to a pre-established schedule. The riders of such a system must schedule their activities around the times when service is being provided. This is in contrast to a demand-responsive system. Also see Demand-Responsive.

FREQUENCY OF SERVICE - Refers to the ratio of monthly vehicle miles to round-trip mileage in regard to some unit of time.

GRANTEE - The agency or organization which has been awarded the OHDS demonstration grant. (For the purpose of the agency interviews, if the operating agency was different from the grantee, the operating agency was interviewed as a "grantee".)

INSTITUTIONAL BARRIERS - Obstacles to cooperative efforts between agencies or between agencies and public transit, such as problems of franchise requirements, labor problems, insurance rating systems, vehicle registration and safety requirements, and restrictions on the use of school buses.

LEVEL OF SERVICE - In transportation literature, level of service is generally defined as a measure of the convenience, comfort, safety, and utility of a system or system component (vehicle, facility, etc.) A variety of measures can be used to determine a particular component's level of service. In transit, level of service measures incorporate such factors as availability, frequency, etc. Some standard is required in any measure of level of service. For example, if the private auto is used as a standard of convenience and availability, level of service for a transit operation might be calculated as:

$$\frac{\text{Travel Time By Transit}}{\text{Travel Time By Personal Auto}}$$

MEASURES OF OPERATING COSTS - For the measurement of operating costs, there are four major unit cost measures that can be used (either separately or together) in determining cost effectiveness: 1) cost per vehicle hour, 2) cost per vehicle mile, 3) cost per passenger trip, and 4) cost per passenger mile. See also Vehicle Hour, Vehicle Mile, Passenger.

MOBILITY - Access to a transportation service; mobility represents the supply function of transportation services facing an individual (or group) when he uses transportation services. If two people have access to the same transportation services at the same price, then they have equal mobility.

MOBILITY IMPAIRED/LIMITED - This term may be used to refer to any of the transportation disadvantaged; however, it is sometimes restricted to those with specific categories of physical or mental limitations to travel.

NON-REVENUE HOURS - Hours which reflect time spent waiting between pickups, deadheading, and carrying out some administrative task.

OFF-PEAK - Off-peak refers to those portions of a day in which demand for transportation service is comparatively low.

ONE-WAY PASSENGER TRIPS - Refers to the total number of boarding passengers carried on all routes.

OPERATING RATIO - An operating ratio is defined as total revenues divided by expenses. Thus, operating ratio indicates the financial performance of a system.

ORIGIN - The beginning end of a trip or the zone in which a trip begins.

PARATRANSIT - Paratransit is defined as those forms of passenger transportation which are distinct from conventional transit (scheduled bus and rail), and can operate over the highway and street systems. Types of paratransit include dial-a-ride, shared taxicab service, jitneys, subscription, bus, car-pools, van-pools, and short-term car-pools, either company-owned or rental, each of which has characteristics suitable for different types of urban travel.

PARTICIPATING AGENCY - For the purpose of this study we have defined a participating agency as one which has actually coordinated its operations or vehicles. This coordination includes: purchasing service, ride-sharing, time-sharing, consolidation of vehicles, or participation in a vehicle maintenance or purchasing program.

PASSENGER MILES - The sum of the trip distances traveled by all passengers.

PASSENGER TRIPS - The number of one-way trips by persons using the system. Each passenger counts as an individual trip even if there is group boarding and alighting at common points.

PASSENGERS PER VEHICLE HOUR - The number of passenger trips divided by the sum of the number of hours that each vehicle is operated.

PASSENGERS PER VEHICLE MILE - The number of passenger trips divided by the number of vehicle miles provided by all vehicles.

PASSENGERS PER SERVICE AREA POPULATION (ANNUAL) - The number of passenger trips taken during a year's time divided by the population of the service area.

PEAK HOUR - That hour period during which the maximum amount of travel occurs. Generally, there is a morning peak and an afternoon peak. Peak hour refers to that hour of the day in which a transportation system experiences its greatest demand.

POLICY COMMITTEE - An organized body of local elected officials or other agency personnel that are responsible for the general guidance and administrative coordination of the project.

POINT DEVIATION - A hybrid on the call and demand system; the vehicle travels from point to point under a pre-arranged and published schedule. The route which the vehicle takes to get from one point to the next varies according to the calls for service received. Thus, this system operates on a fixed schedule but the route is demand-responsive. Also see Route Deviation.

PRODUCTIVITY - The basic performance parameter that describes transit and para-transit service, defined as the number of passenger trips per vehicle hour of operation. Also see Trip. It is possible to also define productivity in terms of revenue hours once the utilization ratio is known. Also see Utilization Ratio.

$$\text{Productivity} = \frac{\text{Passenger Trips}}{\text{Vehicle Service Hours}}$$

QUALITY OF TRANSPORTATION SERVICES - This has to do with the attractiveness or desirability of the service to the users—how well the service meets their needs. Some measures of the quality of service are frequency of service, fares, comfort, etc.

RAMPS - Inclined passageway adaptable to mass transportation vehicles and capable of boarding and debarking a wheelchair user.

RETROFIT - To retrofit is to install some feature in an existing piece of equipment.

ROUTE - That combination of street and freeway sections connecting an origin and destination.

ROUTE DEVIATION - A hybrid of the call and demand system; vehicle will deviate from a particular route to pick up or discharge a passenger at a requested location and will then go back to the regular route. Deviations are generally small. See Point Deviation.

SAMPLE - The individual occurrence that represents a set or group of occurrences, usually trips.

SEAT MILES - The total number of seat miles for all vehicles used to provide passenger service. This is found by multiplying the number of seats on each vehicle by the number of miles driven by that vehicle and adding all of the products for each vehicle together.

SHARED-RIDE TAXI - Shared-ride taxi service is demand-responsive group riding where the riders may be traveling between different origins and destinations. A rider does not have exclusive use of the vehicle and fares are lower than conventional taxi service because of the economics associated with joint use of the vehicle. Taxi car-pooling refers to a subscription type shared-ride taxi service.

SPECIAL (OR SPECIALIZED) TRANSPORTATION SERVICE - This term refers to a transportation service usually provided for or paid for by a social service agency for transportation for disadvantaged people.

START MILES - Refers to the mileage showing in the odometer at the beginning of the daily run when the vehicle left the yard or storage facility.

STOP MILES - Refers to the mileage showing in the odometer at the end of the day when the vehicle reaches the storage (or yard).

TARGET POPULATION - Target population consists of those persons eligible to receive the benefits of the programs of each participating agency, whether in fact they take advantage of this opportunity or not.

TRANSIT AUTHORITY - The transit authority is a local or regional organization with responsibility for planning, funding, and sometimes operating public transportation services in an area.

TRANSPORTATION DISADVANTAGED - Are those who for reasons of age, disability, or income lack accessibility to that group of goods and services deemed necessary for at least a minimum standard of living. The transportation disadvantaged include: 1) The elderly and the handicapped who are unable to operate their own transportation and are unable to utilize the public transportation system due to steps being too high, etc. 2) The handicapped who are wheelchair users. 3) The low-income, including 1 and 2 above, the housewife without a car, etc.

TRANSPORTATION HANDICAPPED - Section 16(c) of the Urban Mass Transportation Act of 1964 defines a transportation-handicapped person as "any individual who, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, is unable without special facilities or special planning or design to utilize mass transportation facilities as effectively as persons who are not so affected." For comparison, see Transportation Disadvantaged.

TRAVEL TIME - The time required to travel between two points, not including terminal time.

TRIP - A one-direction movement which begins at the origin at the start time, ends at the destination at the arrival time, and is conducted for a specific purpose.

TRIP DISTANCE - The distance between origin and destination.

TRIP GENERATION - A general term describing the analysis and application of the relationships which exist between the tripmakers, the urban area, and the tripmaking. It relates to the number of trip ends in any part of the urban area.

TRIP PRIORITIES - Those trips which must be served, either because of the funding sources or by policy decision, before any optional trip purposes can be served. It is essential to identify these trip priorities because they represent a set of trips that must be considered fixed.

TRIP PURPOSE - The reason for making the trip. Normally, one of ten possible purposes, such as work, shopping, recreation, medical care, etc. Each trip may have a purpose at each end. For example, home to work.

TRIP RATES - This is a measure of travel demand. It is usually expressed in terms of the number of trips per person per day.

UNIT COST - The unit cost of transportation services are the cost of providing a specific unit of service (i.e., cost/trip, cost/vehicle mile, cost/vehicle hour). The unit cost is used chiefly to measure efficiency of the system.

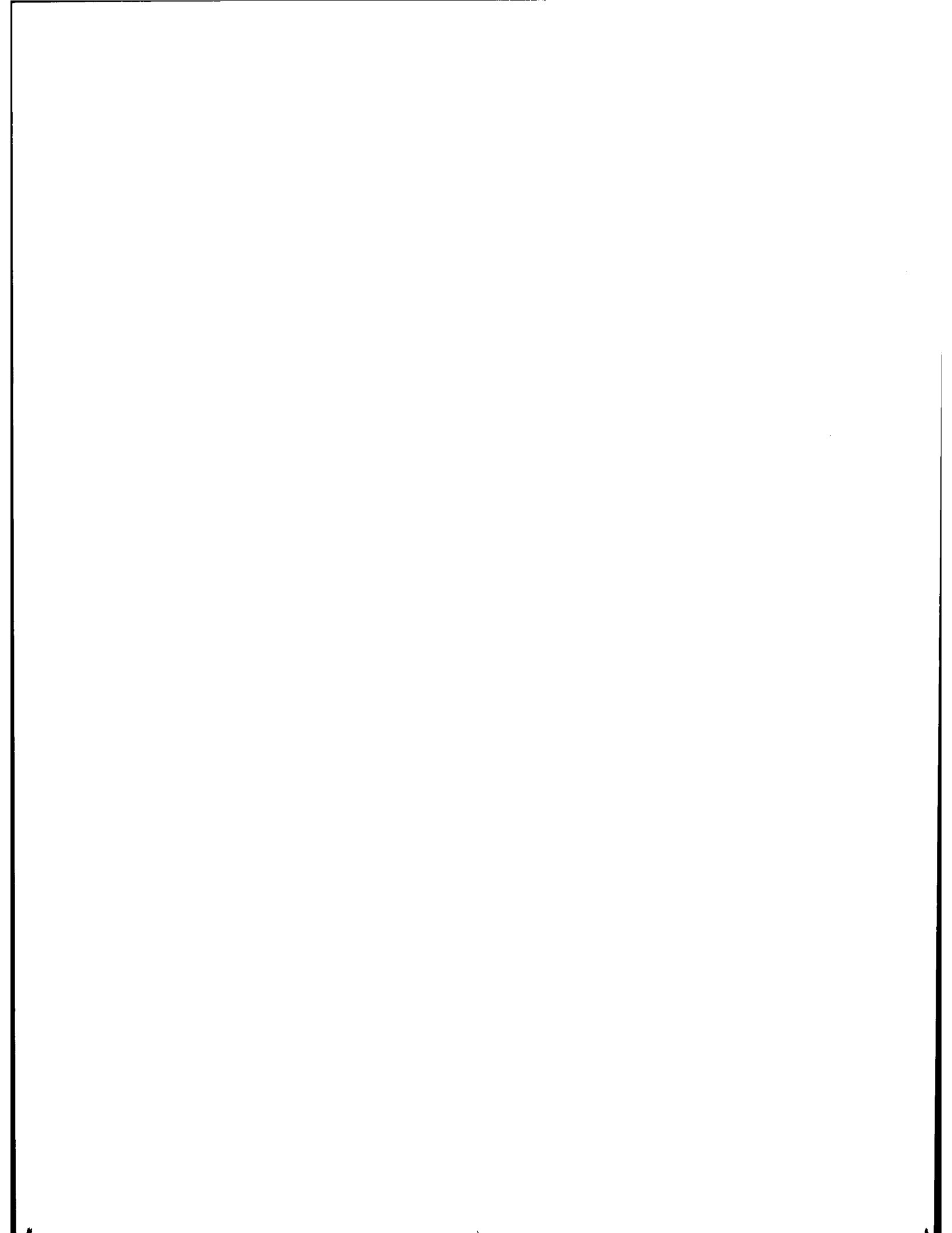
UTILIZATION RATIO - Ratio of revenue hours to service hours is denoted as the vehicle utilization ratio. The utilization ratio relates the actual hours billed for service to the total number of hours of vehicle service availability (measured by driver payroll hours).

VARIABLE COSTS - Those costs that are sensitive to changes in the actual level of service. They are usually affected by the vehicle miles, passenger trips, or some other measure of level of service. Variable costs typically include such items as fuel, oil, tires and tubes, drivers' wages, and other items of expense that are sensitive to the level of operation. Vehicles and equipment items purchased have life expectancies which require that a depreciation factor be included when figuring costs. Most typically, depreciation is figured on a five-year straight-line basis with a 10% residual salvage value at the end of that time.

VEHICLE HOUR - Either the time the engine is running, or the time a driver is assigned to it; the operating time for a vehicle. Useful in measuring operating costs.

VEHICLE MILES - The total number of miles driven on all vehicles used to provide passenger service.

VEHICLE UTILIZATION - Represents the number of persons being carried in contrast to the number of persons that could be carried, and is typically expressed as a percentage. Is one of the most useful measures of efficiency of a system.



OHD TRANSPORTATION DEMONSTRATION PROJECT
MONTHLY SUMMARY OF VEHICLE STATISTICS

1. PROJECT NAME: _____ PROJECT CODE

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2. MONTH OF: _____

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(3) Vehicle Type	(4) Days of Service	(5) No. of Vehicles Operated	(6) Vehicle Miles	(7) Seat Miles	(8) Deadhead Miles	(9) Passenger Trips	(10) Passenger Miles	(11) Vehicle Hours
Auto (01)								
Station Wagon (02)								
Van/MiniBus (03)								
Small Bus (04)								
School Bus (05)								
Transit Bus (06)								
Others (Total)(07)								
Monthly Totals All Vehicles								

OHD TRANSPORTATION DEMONSTRATION PROJECT
MONTHLY OUTLAYS AND EXPENDITURES

PROJECT CODE:

1. Project Name: _____

DATE: ___/___/___

SPECIFIC CATEGORIES	UNITS	QUANTITIES	DOLLAR COSTS
A.1 <u>Drivers</u>			
<u>Paid Labor</u>	hours		
Volunteers/In-Kind	hours		
A.2 <u>Dispatching</u>			
<u>Paid Labor</u>	hours		
Volunteers/In-Kind	hours		
A.3 <u>Fuel</u>			
<u>Gasoline</u>	gallons		
Diesel	gallons		
A.4 <u>Oil</u>	quarts		
A.5 <u>Repairs</u>			
<u>Paid Labor</u>	hours		
Volunteers/In-Kind	hours		
Parts and Tires			
A.6 <u>Insurance</u>	vehicles		
A.7 <u>Licenses</u>	vehicles		
A.8 <u>Leasing Expenses (pro-rates)</u>			
TOTAL OPERATING EXPENSES THIS MONTH:			
B.1 <u>Personnel</u>			
<u>Paid Labor</u>	hours		
Volunteers/In-Kind	hours		
B.2 <u>Advertising and Promotion</u>			
B.3 <u>Total Office Expenses</u>			
B.4 <u>Monitoring and Evaluation</u>			
TOTAL ADMINISTRATION COST THIS MONTH:			
C.1 <u>Purchase of Vehicles</u>			
Auto	vehicles		
Station Wagon	vehicles		
Van/Minibus	vehicles		
Small Bus (17-33 seats)	vehicles		
School Bus			
Less than 31 seats	vehicles		
31 seats and above	vehicles		
Transit bus (34 seats or more)	vehicles		
C.2 <u>Leasing of Vehicles (pro-rated)</u>			
C.3 <u>Plant and Facilities</u>			
Maintenance and Repair Shops			
Other Fixed Facilities			
C.4 <u>Special Equipment</u>			
Air Conditioning	units		
Radios	radios		
Wheel Chair Lifts	lifts		
TOTAL CAPITAL EXPENSES THIS MONTH:			

*U.S. GOVERNMENT PRINTING OFFICE : 1984 O-461-816/10052