

APPENDIX B: ANNOTATED BIBLIOGRAPHY

CATEGORIES FOR ANNOTATED BIBLIOGRAPHY

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Addresses for ordering documents are presented at the end of the Bibliography on page B-65.

Advocacy and Leadership

American Public Transit Association, "Public Transportation: Working for America Every Day." APTA, Washington, D.C.

Video featuring actress Marilu Henner is designed to build support for transit. Use this video with employees, business groups, city councils, county boards, in editorial board meetings, before school groups, senior groups or coalitions, also on commercial and cable TV.

American Public Transit Association, *1995-1996 Local Organizing Kit*. APTA, Washington, D.C. (1996).

This guide is intended to help local transit agencies build effective transit coalitions. It contains a series of worksheets to guide the coalition's development and to focus on important federal, state, and local issues.

American Public Transit Association, *Handbook for Transit Board Assistants*. APTA, Washington, D.C.

This handbook serves as a guide for people who are just beginning their roles as board support assistance, as well as those who have served in this role for longer periods of time. The handbook includes a history of public transportation in America; the role of the board assistant; guidelines for the board assistant; and technical assistance information.

American Public Transit Association, *Handbook for Transit Board Members*. APTA, Washington, D.C. (1996).

A popular resource manual for both new and longer-serving board members in transit. The recently revised handbook contains a brief history of transit in America; a new expanded glossary of transit terms; a section on the most asked questions board members raise concerning their role and responsibilities; and an updated guide to federal processes and agencies as they apply to transit funding and operation. The new handbook also describes where and how the transit board member can find more information about their position and about APTA. An up-to-date listing of the officers and representatives of the Governing Boards Committee is included.

America's Coalition for Transit NOW, American Public Transit Association, Community Transportation Association of American, "Public Transportation -- Small Town and Rural America's Lifeline." Transit Now/APTA/CTAA, Washington, D.C. (1995).

The residents of America's small urban and rural areas face the problems of increasing isolation and limited mobility. Most often, the proportion of senior citizens, students, low income people, and disabled people with special transportation needs is greatest in these areas. This paper highlights the economic benefits of transit as well as the nature and scope of public transportation services and the needs in our small urban and rural communities.

Balog, J., et al., *Americans with Disabilities Act Public Participation Handbook*, Prepared for Project ACTION, Washington, D.C. (1995).

This handbook includes information regarding each of the public participation requirements of the ADA of 1990 They are: outreach; consultation with individuals with disabilities; opportunity for public comment; plans in accessible formats; public hearing; summary of significant issues raised during the public comment period; and an ongoing mechanism for the participation of individuals with disabilities. Each is discussed in a separate section. In addition, other important features of a public participation process are included: use of the media; surveys of riders and service providers; performance monitoring; and planning the public participation process schedule. Each of these is also discussed in a separate section.

Bensimon, B., *Guaranteed Ride Home: Taking the Worry Out of Ridesharing*, USDOT/FHWA, Washington, D.C. (November 1990).

This handbook introduces the guaranteed ride home program as an incentive to encourage ridesharing. It provides program design and implementation procedures for employers and employee transportation coordinators.

Beimborn, E., Horowitz, A., et al., *Measurement of Transit Benefits*. University of Wisconsin. Prepared for USDOT/UMTA, Washington, D.C. (June 1993).

It is the objective of this report to look at benefits of public transit in a broad way to gain a better understanding of how their measurement can be used to assist in making decisions. The report provides a comprehensive view of the range of consequences of transit services and indicates various methods that can be used to assess their benefits. Benefit assessment is done to make decisions, and a general discussion is given of how to view benefits for that purpose. Consequences of transit are illustrated through the use of a benefit tree. Transit service provides an alternative means of travel, results in changes of trip making by automobile and transit, affects land use activity and leads to direct and indirect employment. These effects lead to still further consequences.

Building Strategies for Success. South Carolina Department of Highways & Public Transportation, CTAA, USDOT/FTA, Washington, D.C. (1990).

Building Strategies for Success contains policies and procedures for governing board members and transportation managers. Topics addressed include funding, marketing, influencing, decision making, and conducting successful meetings and antidrug programs.

Cambridge Systematics, Inc., Apogee Research, Inc., *Measuring and Valuing Transit Benefits and Disbenefits Summary*. TCRP Report No. 20, Transportation Research Board, Washington, D.C. (1996).

This report will be of interest to transportation professionals and policy makers responsible for transit investment decisions. The report categorizes and describes transit benefits and disbenefits, presents the dimensions of transit's economic impact, addresses the linkages between increased transit investment and use, and changes in long-term regionwide economic conditions that can be measured with current analytic methods, and provides examples of transit benefits and disbenefits based on recent analysis.

Frank Wilson & Associates, Inc., *Public Outreach Handbook for Departments of Transportation*. NCHRP Report No. 364, Transportation Research Board, Washington, D.C. (1994).

This report documents and presents the results of a study of the use of public outreach as a tool in transportation management. Research was conducted to determine state transportation departments' areas of greatest concern in regard to public outreach, as well as their perceived audiences of greatest importance. Five scenarios were developed incorporating those concerns. Public outreach campaigns in a number of states were investigated to determine the most successful tools and techniques for dealing with the situations illustrated in the scenarios. These tools and techniques were examined in detail and then applied to the scenarios to develop a prototypical campaign approach for each of the scenarios. A major product of this research program is the Public Outreach Handbook for Departments of Transportation, Fall 1992. Three state transportation agencies were identified that exemplify the successful use of public outreach in transportation management.

Horowitz, A., Beimburn, E., "Methods and Strategies for Transit Benefit Measurement." *Transportation Research Record No. 1496*, Transportation Research Board, Washington, D.C. (December 1995).

Benefit assessment is done to make decisions and a general discussion is given of how to view benefits for that purpose. Benefit assessment practices from many agencies in the US are described. Agencies are compared as to their reported benefits and benefits and their use of benefit measures in actual practice. The political environment surrounding transit decisions were found to have a major effect upon procedures that are adopted for benefit analysis. The paper also shows how consequences of transit can be illustrated through the use of a benefit tree. The benefit tree allows planners to show how transit service provides an alternative means of travel, results in changes of trip making by automobile and transit, affects land-use activity and leads to direct and indirect employment. Approaches are described for quantifying benefits.

Howard/Stein-Hudson Associates, Parsons, Brinckerhoff, Quade & Douglas, *Public Involvement Techniques for Transportation Decision-Making*. Prepared for USDOT/FHWA/FTA, Washington, D.C. (September 1996).

This reference handbook describes a variety of public involvement techniques that are available to transportation agencies. It includes 14 techniques originally published in *Innovations in Public Involvement for Transportation Planning*.

North Central Regional Center for Rural Development, *Transportation Action: A Local Input Model to Engage Community Transportation Planning*. NCRCRD, Ames, IA (April 1996).

This handbook provides a model consisting of a series of steps through which a community might learn more about transportation and take a more proactive role in planning its transportation future. The model is designed to develop a working relationship between local leaders and transportation planners.

O'Neill, S., Diebert, L., *Advocating for Your Transit System*. Technical Assistance Brief No. 16, Prepared for the USDOT/FTA Rural Transit Assistance Program and the Community Transportation Association of America, Washington, D.C. (April 1995).

Advocacy for your transit system. The brief article describes how to advocate within your community for increased transit system funding.

Public Transit in Michigan: Handbook for Governing Boards. Michigan DOT, Lansing, MI (1990).

This handbook represents Michigan's first effort to guide transit boards. It provides information on the history of public transit in Michigan and the role it plays in local communities. The book also discusses basic types of public transit services, public transit funding in Michigan and the responsibilities of board members.

Stein-Hudson, K.E., *Customer-Based Quality in Transportation*. NCHRP Report No. 376, Transportation Research Board, Washington, D.C. (1995).

This report presents the findings of research investigating the existing and potential uses of customer-based quality in transportation among state departments of transportation (DOTs). The research methods included interviews with ten state DOTs and focus groups with DOT customers held in nine states. The interview findings identified DOT definitions of internal and external customers and the approaches DOTs use to identify customer needs and expectations - including focus groups, formal and informal customer surveys, customer panels, and formal and informal feedback from customers. Many states have initially concentrated on the internal customer as a way of improving quality, while others have expressed an interest in reaching directly to their external customers. The results of the focus groups identified many areas of interest and concern to DOT customers, ranging from construction and maintenance of highways to transit and other modes, and more specific issues and concerns.

Computer Management and Technology

Casey, R., Labell, L., *Advanced Public Transportation Systems Deployment in the United States*. Prepared for USDOT/FTA, Washington, D.C. (August 1996).

This report documents work performed under FTA's APTS program, a program structured to undertake research and development of innovative applications of advanced navigation, information, and communication technologies that most benefit public transportation. This report is a compilation of existing and planned deployments of APTS technologies and services. The information was collected during the Fall of 1995 and was obtained through contacts with one or more persons at each agency. The objective was to include info from all agencies who submitted info for the 1993 National Transit Database (NTD) Report Year, the last year for which NTD data was available at the time. A total of 464 agencies provided info for this study. Those with no existing or planned APTS systems are not included herein.

Casey, R., Labell, L., et al., *Advanced Public Transportation Systems: The State of the Art -- Update 96*. Prepared for USDOT, Washington, D.C. (January 1996).

This report documents work performed under FTA's Advanced Public Transportation System program, a program structured to undertake research and development of innovative applications of advanced navigation, information, and communication technologies that most benefit public transportation. This report is the latest in a series of start-of-the-art reports, the last of which was published in January 1994. It contains the results of an investigation of the extent of adoption of advanced technology in the provision of public transportation service in North America. It focused on some of the most innovative or comprehensive implementations, categorized under four types of services/technologies: fleet management, traveler information, electronic fare payment, and transportation demand management. The objective of this effort was to increase the industry's knowledge of successful applications of advanced technologies.

Lave, R., Teal, R., Piras, P., *A Handbook for Acquiring Demand-Responsive Transit Software*, TCRP Report No. 18, Transportation Research Board, Washington, D.C. (1996).

This report is one of three written products resulting from this research, intended to advise providers of demand-responsive transit (DRT) services about computer software and other technology appropriate for DRT applications and assist software vendors in understanding the market for DRT software and technologies. Specifically, this Handbook is intended to assist providers in the selection, acquisition, and implementation of software for DRT operations and administration. It contains a good deal of introductory material on DRT service intended to provide a background for describing the acquisition process.

Maul, J., Greichen, J., *Impact of Radio Frequency Refarming on Transit Communications*. TCRP Report 11, Transportation Research Board, Washington, D.C. (1996).

This report provides information concerning the FCC rules governing the refarming of the mobile radio spectrum and their impacts on current and future transit communication system requirements. The report contains a nontechnical executive overview and offers potential courses of action for transit and paratransit system.

Nalevanko, A., Community Transportation Association of America, *Rural Transit Service Design and Scheduling*. Technical Assistance Brief No. 12, Prepared for USDOT/FTA and the Rural Transit Assistance Program, Washington, D.C. (April 1994).

This brief discusses some of the basic considerations in rural transit service design and scheduling and in the use of computers to assist in providing transportation. The single most important factor in a rural transit system's success is the community's support, both financial and political. This brief outlines considerations in designing or refining rural service.

Pham, L., Sree, V., *Software in Transit Resource Guide*, American Public Transit Association, Washington, D.C. (1996).

This report presents the results of a survey APTA conducted in July 1995 requesting information on the most up-to-date computer software technology relevant to the operation of rail, bus, paratransit and multi-modal transit systems being used or developed by transit organizations. Packages were grouped based on 19 categories ranging from accounting and financial software to ADA management software to geographic information systems to safety reporting/training system to vehicle maintenance systems.

Stone, J.R., Nalavenko, A., Gorman, G., "Computer Dispatch and Scheduling for Paratransit: An Application of Advance Public Transportation Systems." *Transportation Quarterly*, Vol. 48, No. 2. Eno Transportation Foundation, (Spring 1994).

This report presents a brief summary of 1) technical issues, 2) current capabilities, 3) costs, economic benefits and other impacts, and 4) future technological directions of computer dispatch and scheduling systems for taxi and paratransit operations.

Stone, J.R., "Paratransit Scheduling and Dispatching Systems: Overview and Selection Guidelines." Proceedings of the IVHS America 1993 Annual Meeting, IVHS America, Washington, D.C. (1993).

Dispatching software selection. Explains technical concepts and changes that are occurring in the paratransit software industry. Compares costs and features of various paratransit software packages and gives guidelines for selecting among them.

What are Advanced Public Transportation Systems? APTS Brief No. 1, USDOT/FTA, Washington, D.C. (Spring 1993).

This brief by the FTA provides a detailed overview of the Advance Public Transportation Systems Program, Spring 1993.

Financial Management

Burkhardt, J., et. al., *Comprehensive Financial Management - Guidelines for Rural and Small Urban Public Transportation Providers*. Prepared for the North Carolina DOT, American Association of State Highway and Transportation Officials, and USDOT/FTA. Washington, D.C. (September 1992).

This report developed comprehensive financial management guidelines for rural and small urban transit providers and prepared guidelines for these systems that were likely to be implemented. Topics discussed include: financial planning, cash management issues, monitoring and analysis, accounting fundamentals, cost allocation procedures, and typical costs for rural and small urban transportation providers.

Cohen, H.S., et al., *Estimating Incremental Costs of Bus Route Service Change*. NCTRP Report No. 16, Transportation Research Board, Washington, D.C. (February 1988).

The objective of this research was to develop simple, reliable procedures that permit transit agencies to estimate the incremental cost of various bus route service changes in a variety of operating environments (e.g., those of differing system size, peak-base ratios, service types, and labor agreements). The procedures are applicable to expanding, curtailing, or eliminating routes, and are sensitive to differences in costs associated with different times of the day and days of the week. This research effort builds on and extends previous cost analysis studies. In contrast to previous studies, this research effort has placed substantially more emphasis on simplicity and ease of use, although accuracy is still regarded as a principal criterion. Another distinguishing feature of this study is that tests have been conducted at three transit agencies to quantify the strengths and weaknesses of each cost estimating procedures.

Commonwealth Development Associates, *Entrepreneurial Services Program Financing Handbook*. Prepared for USDOT/FTA, Washington, D.C. (June 1993).

This 116 page report describes basic financial analysis and planning, and the types of private and government-supported financing available for small transportation services serving specific markets. It includes model financial statements and strategies that illustrate the operations and financial support approaches used during typical system start-up and expansion phases of development. Individual sections deal with analyzing a company's financial condition, developing a corporate financial plan, finding equity and debt capital, and financing models for reverse commuting companies. The manual should be particularly useful to people attempting to set up small transit services to serve previously-defined markets.

Fleishman, D., et al., *Fare Policies, Structures, and Technologies*. TCRP Report No. 10, Transportation Research Board, Washington, D.C. (1996).

This report will be of interest to policy makers and managers at transit agencies developing and implementing fare policies to meet their social, financial, and service needs. The report includes the results of a comprehensive study of the major parameters of the transit fare decision-making process, and it provides guidance for making decisions related to fare policy, structure, and technology.

Fravel, F., Menser, E., et al., *Innovative Funding for Intercity Modes: A Casebook of State, Local, and Private Approaches*. Prepared for USDOT, Washington, D.C. (July 1987).

The document reviews non-Federal funding sources for intercity transportation services. The report examines the structure of intercity passenger and freight transportation services, focusing on bus, rail, and short-haul air. It explores public-private partnership approaches to maintain low density services: the roles of state planning documents; state programs to promote utilization of specific services; technical assistance from states to private providers or local government; community activities to promote utilization of existing services; joint provision of intercity transportation services; formal financial assistance programs, including input subsidies; and development of intermodal terminals. The document should be relevant to officials planning bus, rail, air or water programs, as well as local officials trying to maintain services to their communities.

Goble, R., *Planning Intermodal and Operations Facilities for Rural and Small Urban Transit Systems: Workshop Manual*. 12th National Conference on Rural Public and Intercity Bus Transportation. Prepared for Technology Sharing Program of USDOT/FTA, Washington, D.C. (October 1995).

This manual reviews steps to develop an intermodal passenger facility in rural or developing areas. Topics covered include determining needs for facilities, investigation of feasibility, justification for the facilities, development of an architectural program and concept plan, contractor solicitation and proposal review, and monitoring of the construction process. Appendixes include excerpts from key regulations, and examples of operational design and site selection criteria for such intermodal facilities.

Hoel, Dr. L., *Innovative Financing for Transportation: Practical Solutions and Experiences*. University of Virginia. Prepared for USDOT, Washington, D.C. (April 1986).

This report describes the proceedings of a National Symposium on Innovative Financing for Transportation, held in Fredericksburg, Virginia on December 11-13, 1985. The Conference Proceedings report includes papers or presentations delivered at four plenary sessions and three invited overview papers. Session papers cover a variety of subjects dealing with transportation financing including: New Approaches to User Charges; Recent Experiences with Benefit Assessment Financing; and other innovative approaches and integrating financing techniques; and raising private capital. Overview papers focus on the variety of innovative financing options currently available and discussed financing issues from the perspective of urban and statewide transportation.

Innovative Financing Handbook. USDOT/FTA, Washington, D.C. (1995).

This handbook contains guidance on and examples of many of the innovative financing techniques that may be used by transit authorities to enhance the effectiveness of their infrastructure investment programs. Specific financing techniques are described in detail and the FTA Innovative Financing Federal Register Notice published on May 9, 1995.

Koffman, D., "Appropriate Cost Sharing for Paratransit Service." *Transportation Research Record 1463*. Transportation Research Board, Washington, D.C. (1994).

Sharing costs with social service agencies. Two case studies are used to illustrate three issues concerned with recovering the cost of transporting clients to social service agencies: How to determine which trips are agency trips; how to reach agreement with the agency on the share of costs it will bear; and how to determine the actual cost of the agency trips. A cost allocation model for paratransit service is used to show how it is useful in policy decisions.

KPMG Peat Marwick, *Cash Management Best Practices Guide*. Prepared for USDOT/FTA and the American Public Transit Association, Washington, D.C. (June 1996).

This guide is intended to assist transit agencies in formulating policies and developing procedures across the various functions which constitute cash management. The major functions addressed include: cash collections; investments; bank relations; forecasting; and benefit accruals. Specific examples from transit agencies are included as exhibits.

KPMG Peat Marwick, *Estimation of Operating and Maintenance Costs for Transit Systems*. Prepared for USDOT/FTA, Washington, D.C. (December 1992).

This report provides guidance regarding the development and application of operating and maintenance (O&M) cost models and supplements the FTA's Procedures and Technical Methods for Transit Project Planning. An operating and maintenance cost database containing representative information for motor bus, rail rapid, light rail, and commuter rail modes is presented. The database provides 1) labor productivity and unit cost information and can be directly applied in structuring O&M cost models and 2) aggregate costs per unit of service for major functional areas at peer transit properties that can be used to test the reasonableness of model results. This report draws on the operating experience of many transit systems contained in Section 15 data reported to FTA, in detailed budgets of several representative transit systems that operate light rail and previously developed cost models.

KPMG Peat Marwick, Public Financial Management, Inc., *Introduction to Public Finance and Public Transit*. Prepared for USDOT/FTA. Washington, D.C. (January 1993).

This report provides a comprehensive description of the elements of public finance, particularly as they relate to public transit issues. The report is intended to serve as a primer for the staff of the FTA and staff of transit agencies across the country. The report provides an overview of the public finance market, the economics of the municipal market, how the market is regulated, who buys and sells tax-exempt debt and general historical market perspectives, the mechanics of debt financing, lease financing and the FTA role, as well as describing cost reduction techniques for transit financing such as international vendor financing, cross border leasing, turnkey procurement opportunities and joint development.

Mayworm, P., Lago, A., McEnroe, J.M., *Patronage Impacts of Changes in Transit Fares and Services*. Prepared for USDOT/UMTA, Washington, D.C. (September 1980).

This report presents information on public transit fare and service elasticities of demand. Data were obtained from a comprehensive review of studies performed in the U.S. and other countries, especially the United Kingdom. Estimates of individual fare and service changes, and from direct demand and mode choice models based on time-series and cross-sectional data.

Mayworm, P., Lago, A., Knapp, S., *A Manual for Planning and Implementing a Fare Change*. Prepared for USDOT/UMTA, Washington, D.C. (August 1984).

This manual is designed to assist senior transit managers and transit board members in planning and implementing fare changes. The manual outlines the process that should be undertaken to ensure that the most efficient and equitable fare plans are submitted to policy-makers for approval.

Price Waterhouse, *Fully Allocated Cost Analysis Guidelines for Public Transit Providers*. Prepared for USDOT, Washington, D.C. (April 1987).

The purpose of this report is to describe generally accepted approaches to fully allocated costing analysis which is consistent with Federal private enterprise policy.

Wallin, T., Kidder, A., *A Manual for Financing and Sustaining Mobility Programs in Rural Areas*. Prepared for USDOT/UMTA. Washington, D.C. (August 1986).

Designed to go step-by-step to assist managers in planning, implementing and operating low cost rural public systems using volunteers in a primary or secondary role. The guide suggests that the savings can be big. The report examines training, insurance, marketing, planning and other organizational management issues.

Simplifying Human Service Transportation and Small Transit System Accounting. Prepared for the Transportation Accounting Consortium, USDOT, and USDHHS, Washington, D.C. (1986 revised).

The Transportation Accounting Consortium, an alliance of six states, was formed to share ideas, methods, and procedures for simplifying the services of coordinated small transit systems. The book outlines the standard bookkeeping procedures of the member states and also addresses billing, cash flow, single audits, and program/service accountability.

Facilities Management

Abrams, E., Speilberg, F., *Regulatory Impacts on Design and Retrofit of Bus Maintenance Facilities*. TCRP Synthesis No. 7, Transportation Research Board, Washington, D.C. (1994).

This synthesis will be of interest to transit agency general managers; planning, operations, and other maintenance personnel; design, engineering, architectural, and consultant staffs, as well as environmental agency officials and others concerned with bus facility planning and design. As built or design drawings from recently completed facilities were used to compare overall sizes of functional areas with earlier guidelines. The legal and technological environments have changed since the last systematic examination of bus maintenance facilities. The ADA regulations may require existing facilities to make extensive modifications. Heating, ventilation, and air conditioning systems may not meet Clear Air Act requirements. Extensive facility modifications may be required to safely accommodate buses with non-diesel fuels. This report describes how recently enacted legislation and implemented regulations have affected the design of bus maintenance facilities.

Arcadis Geraghty and Miller, *A Guidebook for Evaluating Fuel Options for Transit Buses*. TCRP Report 38, Transportation Research Board, (1998).

This report presents the results of TCRP Project C-8. The objective of this study was to provide transit managers with tools to simplify the process of choosing an alternative fuel strategy by clearly identifying the issues and costs associated with converting to one or more of the various available alternative-fuel technologies. The guidebook includes a computerized spreadsheet model for estimating the associated cost impacts, entitled FuelCost1.0.

Balog, J., Chia, D., Schwarz, A., Gribbon, R.B., *Accessibility Handbook for Transit Facilities*. Prepared for USDOT/FTA, Washington, D.C. (January 1995).

This document is a handbook that will help architects, engineers, and transit system managers to understand and follow the Federal government regulations contained in the Final Rule, 49 CFR Part 37, which describes the requirements for transportation facilities to be accessible to persons with disabilities. This Handbook explains what is required by the regulations in language that is easy to understand and includes a large number of illustrations which further clarify the requirements for accessibility. This Handbook will make it easier for planners to ensure the accessibility of facilities by offering clear directions, helpful suggestions, and relevant examples of accessible features. The major areas of accessibility addressed are transit facilities and the ADA, facility site and entrances, interior elements, and waiting and boarding areas.

CGA Consulting Services, Inc., EG&G Dynatrend, Katherine McGuinness and Associates, *Bus Stop Accessibility: A Guide for VA Transit Systems for Complying with the ADA of 1990*. Prepared for Virginia Department of Rail and Public Transportation (July 1992).

This guide addresses compliance activities required on the part of public entities with respect to bus stops and walkways/pathways leading to bus stops.

EG&G Dynatrend Inc., *Project and Construction Management Guidelines*. Prepared for USDOT/FTA. Worcester, MA (June 1996).

A complete guide to the design, funding and construction of a new transit facility.

Goble, R., *Planning Intermodal and Operations Facilities for Rural and Small Urban Transit Systems: Workshop Manual*. 12th National Conference on Rural Public and Intercity Bus Transportation. Prepared for Technology Sharing Program of USDOT/FTA, Washington, D.C. (October 1995).

This manual reviews steps to develop an intermodal passenger facility in rural or developing areas. Topics covered include determining needs for facilities, investigation of feasibility, justification for the facilities, development of an architectural program and concept plan, contractor solicitation and proposal review, and monitoring of the construction process. Appendices include excerpts from key regulations, and examples of operational design and site selection criteria for such intermodal facilities.

Hemsley, G., *Safe Operating Procedures for Alternative Fuel Buses*. TCRP Synthesis No. 1, Transportation Research Board, Washington, D.C. (1993).

This report describes the characteristics of various alternative fuels in use by transit agencies and discusses several aspects of these fuels and handling practices including training procedures, fuel storage and handling, maintenance operations considerations, facility requirements, issues related to the buses, facility and operating costs, and environmental considerations.

Horowitz, A., Thompson, N., *Evaluation of Intermodal Passenger Transfer Facilities*. University of Wisconsin. Prepared for USDOT/FTA, Washington, D.C. (September 1994).

This 226 page report presents a selection of methods for preliminary design, location, and evaluation of intermodal passenger transfer facilities. Methods were selected or adapted from previous station, terminal or airport studies, or from multimodal transportation plans. Issues to be considered include safety/security, effective transfers, terminal access and efficiency, passenger concerns, the physical and nonphysical environments, finances, site concerns, modal enhancement, and architecture/building considerations. Specific topics discussed include establishing project objectives, principles of facility location, evaluation of institutional arrangements, evaluation of community development, evaluation of site design and access, evaluation of internal design, and user benefits. The document also includes a review of previous research on the topic, and a glossary of terms and abbreviations.

KRW, Inc., *Guidelines for Transit Facility Signing and Graphics*. TCRP Report No. 12, Transportation Research Board, Washington, D.C. (1996).

This report documents and presents the results of a research project to develop a graphics design manual describing the use of signs and symbols which provide for the safe, secure, and efficient movement of passengers to and through transit facilities. The project was performed in two phases, with Phase I structured to review and document the "state-of-the-practice" of signage in the transit industry. More than 30 properties nationwide, representing a broad cross section of the industry were surveyed and their signage practices documented. Signage information from both international and domestic transit providers were reviewed, and the information needs of transit users that could be satisfied by signs and symbols were identified. Phase II efforts involved design of candidate symbols and signs and their evaluation by a broad cross-section of transit riders and non-riders, graphics designers and transit personnel.

Parsons, Brinckerhoff, Quade and Douglas, *Guidelines for Development of Public Transportation Facilities and Equipment Management Systems*. TCRP Report No. 5, Transportation Research Board, Washington, D.C. (1995).

This report will be of interest to those involved in developing a Public Transportation Facilities and Equipment Management System (PTMS) for a state department of transportation. These guidelines have been written to clarify the intent of the federal PTMS regulations and to assist in formulating systems that meet the needs of their states. A range of options is described for each of the components in a PTMS, and minimum requirements are clearly defined.

Raj, P., Hathaway, W., Kangas, R., *Design Guidelines for Bus Transit Systems Using Liquefied Natural Gas as an Alternative Fuel*. Prepared for USDOT/FTA, Washington, D.C. (March 1997).

This guidelines document presents various facility and bus design issues that need to be considered to ensure safe operations when using LNG as the alternative fuel. Fueling facility, garaging facility, maintenance facility requirements and safety practices are indicated. Fuel properties, potential hazards, fuel requirements for specified level of service, applicable codes and standards, ventilation and electrical classification, among other items are also discussed. Critical fuel related safety issues in the design of the related systems on the bus are also indicated. A system safety assessment and hazard resolution process is also presented. This approach may be used to select design strategies which are economical, yet ensure a specified level of safety.

Raj, P., Hathaway, W., Kangas, R., *Design Guidelines for Bus Transit Systems Using Compressed Natural Gas*. Prepared for USDOT/FTA, Washington, D.C. (June 1996).

This guidelines document presents various facility and bus design issues that need to be considered to ensure safe operations when using CNG as the alternative fuel. Fueling facility, garaging facility, maintenance facility requirements and safety practices are indicated. Among the issues discussed are fuel properties, potential hazards, fuel requirements for specified level of service, applicable codes and standards, ventilation, and electrical classification. Critical fuel related safety issues in the design of the related systems on the bus are also discussed. A system safety assessment and hazard resolution process is also presented. This approach may be used to select design strategies which are economical, yet ensure a specified level of safety.

Texas Transportation Institute, et al., *Guidelines for the Location and Design of Bus Stops*. TCRP Report No. 19, Transportation Research Board, Washington, D.C. (1996).

The primary objective of this research was to develop guidelines for locating and designing bus stops in various operating environments. These guidelines will assist transit agencies, local governments, and other public bodies in locating and designing bus stops that consider bus patrons' convenience, safety, and access to sites as well as safety transit operations and traffic flow. The guidelines include information about locating and designing bus stops and checklists of factors that should be considered.

Grant and Contract Management and Procurement

American Public Transit Association, *New Bus Manufacturing Inspection Guidelines*. APTA, Washington, D.C. (1995).

Developed by transit systems and associate members to be used as a guide during the new bus inspection process. The use of these guidelines is strongly encouraged.

American Public Transit Association, *Public Transit Services: Considerations in Contracting*. Public-Private Working Group, APTA, Washington, D.C. (July 1987).

This report explores the issues and approaches that should be considered in the user contracting for the provision of public transit services. The objectives are to promote a more open environment to assist public transit officials in taking best advantage of private sector capabilities and resources in providing for the mobility needs of local citizens and to assist prospective private providers of transit services to better understand the considerations and characteristics of public service provision.

American Public Transit Association, *Standard Bus Procurement Guidelines: Commercial Terms and Conditions and Technical Specifications*. APTA, Washington, D.C. (1997).

The Standard Bus Procurement Guidelines are a model for solicitation of offers and contracts for the supply of transit buses. They are intended to be a starting point for a transit agency assembling a solicitation of offers to assist in a cost effective procurement.

American Public Transit Association, *Public Transit Services: Considerations in Contracting*. APTA, Washington, D.C. (July 1987).

This report explores the issues and approaches that should be considered in the user contracting for the provision of public transit services. The objectives are to promote a more open environment to assist public transit officials in taking best advantage of private sector capabilities and resources in providing for the mobility needs of local citizens and to assist prospective private providers of transit services to better understand the considerations and characteristics of public service provision.

Carter-Goble Associates Inc., *Private Sector Contracting Workshop Manual for Rural and Small Urban Public Transportation Providers*. USDOT/UMTA, Washington, D.C. (November 1988).

This manual describes a workshop on contracting services for rural and small transportation providers. The first section of the manual summarizes presentations and discussions for the workshop. The second part contains sample procurement documents, notices and procedures. Topics covered include Federal and State policies, identifying contract opportunities, the contracting process, and problems that may arise.

Comsis Corp., *A Compilation of Performance Standards, Incentives and Penalties for Use in Contracted Transit Services*. USDOT, Washington, D.C. (1988).

In this compilation, the Public Private Transportation Network lists the ways in which several agencies set performance standards for contract operators of fixed route, paratransit, and other mass transportation services. The booklet also presents the agencies' incentives and penalties for exceeding contractual expectations.

Comsis Corp., *A General Request-for-Proposal Document for Rural Paratransit*. USDOT, Washington, D.C. (1988).

This document, prepared by FTA's Public Private Transportation Network, contains the basic outline and text that rural paratransit services can use when writing requests for proposals. Topics covered include project description, contractor responsibilities, personnel descriptions, conditions for responding, and sample response forms.

Comsis Corp., *A Generic Contractual Document for Procurement of Transit Services*. USDOT, Washington, D.C. (1989).

This report, prepared by FTA's Public Private Transportation Network, contains sample contracts for procuring transit services. Topics covered include master agreements, administration, personnel, computer equipment, performance criteria, vehicles, facility and materials, insurance and bonds, and additional contract terms and conditions. Although it emphasizes paratransit services, the material can be adapted for other uses.

Comsis Corp., *A Generic Request for Proposal for Maintenance Contracting*. USDOT, Washington, D.C. (1989).

This booklet, prepared by FTA's Public Private Transportation Network, provides fleet managers who wish to contract maintenance services with a format they can use to solicit proposals.

Comsis Corp., *A Guide to Successful Transportation Services Contract Monitoring*. USDOT, Washington, D.C. (1989).

With the encouragement of State and Federal governments, an increasing number of agencies are contracting on-street transportation services to the private sector. The best way to ensure proper contract performance is to monitor contractors continually. This publication, prepared by FTA's Public Private Transportation Network, covers the essential elements of a comprehensive monitoring program for contract services.

Comsis Corp., Louis E. Keefer Associates, *Public-Private Partnerships in Transportation: A Casebook for Local Elected Officials*. Prepared for USDOT, Washington, D.C. (February 1986).

This casebook presents selected examples of public-private partnerships that can be adopted and applied by a variety of communities. The material is presented in a non-technical format, and is referenced for those who want more information.

Gattis, J.L., et al., *Guide to Contracting for Rural and Small Urban Transit Systems: Final Report*. USDOT/UMTA, Washington, D.C. (October 1989).

How to contract for services -- principles and procedures. The handbook presents guidelines and a step-by-step approach to contracting for rural and small urban systems. It examines both contracting the entire service and contracting an aspect of the operation, such as fuel or maintenance. It has both contracting principles and examples of contracting methods, including case studies and a literature review. The intent of the report is to encourage systems having no prior contracting experience to give it a try.

MANOP Services Ltd., DS-Lea Associates, *Guidelines for Selection of Taxi/Sedan Service Operators*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1988).

Report discusses issues involved with contracting out specialized services to taxi companies for improved cost effectiveness. Report provides examples of contracted taxi services (mostly Canadian examples), several examples of planning studies where contracted services have been recommended and then introduced, and the "benefits/constraints" of contracting out specialized services. Report also discusses selection of a contractor and the types of issues that should be addressed in the selection process and the contract. Appendix provides a sample RFP (called "Notice to Tenderers") and sample contract (called "Articles of Agreement").

Maze, T.H., Waggoner, K., *Manual on Contracting for Vehicle Maintenance Services*. Iowa State University. Prepared for USDOT/FTA, Washington, D.C. (October 1992).

Guidelines for the relationship between the agency and the firm with which it contracts for services. This manual is designed to guide rural, specialized and small urban transit systems in developing contracting documents and contracting relationships. It includes classroom exercises and is centered around four contracting concepts: guidelines for contracting, competitive bidding, competitive negotiation and contract controlling.

Morlok, E., et al, *Privatization of Public Transit*. University of Pennsylvania. Prepared for USDOT/UMTA, Washington, D.C. (May 1988).

This research investigated two important issues in the drive to control transit costs and provide transit service that is more responsive to urban travel needs. One study investigated the problem of how to construct Federal incentives to induce greater use of competitive contracting in transit operations. Prior research has revealed that cost savings in the range of 20 percent to 40 percent are possible from contracting in larger metropolitan areas, but very few transit systems have chosen to begin contracting service. This service examined various Federal policy options and used a combination of theoretical analysis and interviews with transit executives and others to identify changes in subsidy and capital grant programs that will induce greater use of contracting. The second study examined the effect of allowing private operators to freely enter the transit market, a policy which is essentially untried in the U.S.

O'Hara, R., *Insurance Specifications and Procurement*. Virginia Department of Rail and Public Transportation (April 1993).

A "cookbook" for small systems who purchase insurance. Manual covers insurance and specifications for all insurance needs. The actual bid specifications are on WordPerfect software which allows transit systems to simply walk through the program with prompts to enter information.

Peyser Associates, Inc., *Competitive Transit Service: A Problem Solving Handbook for Mayors*. Prepared for the United States Conference of Mayors (September 1988).

This handbook addresses problems that mayors may face in researching privatization alternatives for transit services in their towns and cities. These problems include perceptual problems, public agency resistance, communication problems, operational problems and legal/political problems.

Teal, R., et al., *Estimating the Cost Impacts of Transit Service Contracting*. University of California, Irvine, University of Pennsylvania. Prepared for USDOT/UMTA, Washington, D.C. (December 1987).

This study reports the results of an analysis of the potential cost impacts of private sector service contracting by transit agencies as well as the results of a nationwide survey of the magnitude and characteristics of existing transit service contracting. Using cost models developed during the study, an evaluation was made of the cost impacts of contracting out 5 to 20 percent of the existing services of 19 medium and large transit agencies, and all service of 3 small agencies. This evaluation determined that large agencies would save two to 49 percent of the costs of the contracted service, with a mean savings of 28 percent, and that medium size agencies would save up to 31 percent of the cost of service they contracted, with a mean savings of 14 percent. No cost savings were indicated for some small and medium agencies.

U.S. Department of Transportation, *Best Practices Procurement Manual*. USDOT/FTA, Washington, D.C. (October 1996).

Basic grant procurement guidelines. A comprehensive guide to best practices in grant procurement. While practices recommended are not mandatory, their use will ensure that transit systems meet FTA requirements.

Pre-Award/Post-Delivery Procedures Manual. Institute for Urban Transit, Bloomington, IN (1992).

A manual, designed for small urban and rural transportation providers, to assist with compliance with the FTA's procurement regulations on pre-award/post-delivery. Instructions are designed to be used as a step-by-step guide through the procurement process.

Human Resources and Training

Amalgamated Transit Union, *ATU-Commercial Driver's License Study Program*. ATU (1990).

This training package contains the information drivers and mechanics need for the written part of a CDL exams and the special endorsements required by the U.S. Commercial Motor Vehicle Safety Act of 1986. The information is taken from the federally approved manual that all states use as the basis for their exams. The program prepares employees for the following exams: -- General knowledge; passenger endorsement; air brake endorsement; combination vehicle endorsement. The training package includes: three study workbooks with practice tests on driving safety, transporting passengers and cargo, and air brakes/combination vehicles; a videotape reviewing legislative and testing requirements and summarizing the material in the study booklets; and one 45-minute audio cassette tape summarizing the substantive information in the manuals.

American Public Transit Association, *Board Support Handbook*. APTA, Washington, D.C. (1997).

This handbook is designed for transit board assistants, those individuals who are responsible for providing administrative support and assistance to the transit agency's policy makers. It provides information on the role of the board assistant as well as guidelines on responsibilities and functions. A glossary of transit terms and a brief history of public transportation in America is also included.

Behavioral Team Consultants, *Guidelines for Operator Selection: Transit for Disabled Persons*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1988).

This is a folder holding a brief write-up of guidelines for the "efficient" selection of drivers for specialized services. The folder also contains samples of the materials to be used in the selection process, including a sample recruiting advertisement application form, and applicant testing materials.

Gold, D., *Employee Assistance Program for Transit Systems*. Prepared for Connecticut Transit. USDOT/UMTA, Washington, D.C. (September 1991).

Looks at principles of Employee Assistance Programs (EAPs). Uses the experience of Connecticut Transit and other systems to develop procedures for small and medium sized systems to design, implement and evaluate EAPs. Includes alternative EAP models, justifications for implementing EAPs, options in the design of EAPs, methods of implementing and evaluating EAPs, case studies, and future trends. Includes a glossary, an annotated bibliography, contact information and a listing of current EAP programs, throughout the US and Canada.

Hartman, R.J., Kurtz, E., Moser, E., *Incentive Programs to Improve Transit Employee Performance*. TCRP Synthesis No. 3, Transportation Research Board, Washington, D.C. (1994).

A report on a survey wherein transit operators were asked about their incentive programs. Aimed at transit managers considering implementing an employee incentive scheme, this report details the problems that others have encountered as they have, established such schemes and describes various strategies that transit systems can implement.

Hathaway, W., Markos, S., *Recommended Emergency Preparedness Guidelines for Urban, Rural and Specialized Transit Systems*. Prepared for USDOT, Washington, D.C. (January 1991).

Urban, rural and specialized transit services provide an important source of transportation for many persons in the U.S. A number of concerns must be addressed to ensure the safety of passengers during transit emergencies. The needs of passengers can be addressed through carefully planned emergency response procedures, proper training of transit and emergency response personnel, and effective use of equipment. The recommendations contained herein are therefore intended to assist transit and emergency response organization personnel to evaluate their emergency response plans and, if necessary, modify or supplement those plans accordingly. This document contains recommendations for the use by urban, rural, and specialized transit systems which utilize motor vehicles to provide transportation service to the general public, elderly or disabled persons, clients of human service agencies, etc.

Henderson, W., *Evacuating Elderly and Disabled Passengers from Public Transportation Vehicle Emergencies: Participants' Handbook*. Prepared for USDOT/FTA, Washington, D.C. (March 1991).

This training package is designed to prepare drivers for emergencies that require the evacuation of the transit vehicle. It discusses situations in which evacuation should be considered; presents the fundamentals of body mechanics to help the drivers from injuring themselves or their passengers; and takes drivers through the evacuation process, while warning them about the limitations imposed by various handicaps and equipment. The Participant's Handbook is the key component of this training package. It outlines about 20 techniques that can be used to extricate a passenger from a vehicle and discusses special topics, such as the operation of various wheelchairs and the special equipment on buses. The video summarizes the principles in the Participant's Handbook and demonstrates the evacuation techniques in detail.

Hunter-Zaworski, K.M., Hron, M., *Improving Bus Accessibility Systems for Persons with Sensory and Cognitive Impairments*. Oregon State University, Transportation Research Institute (Corvallis, OR). Prepared for USDOT/FTA, Washington, D.C. (August 1993).

Guidelines for ADA compliance. This report gives guidelines for both technological improvements and personal assistance that must be carried out to bring systems into compliance with ADA, with a particular emphasis on training transit employees to deal with the needs of those covered by the ADA. The report examines practices systems were using at the time of publication and recommends changes.

King, R., *Bus Occupant Safety*. TCRP Synthesis No. 18, Transportation Research Board, Washington, D.C. (1996).

This synthesis will be of interest to transit agency general managers, but operations, safety, and risk management staffs, as well as agency human resources, personnel, and training staffs. It offers information on the current practices of transit agencies to reduce injuries to bus occupants during collisions and injuries to passengers while boarding, riding, and leaving the bus. This synthesis covers characteristics of bus occupant safety and transit agency programs for reductions of accidents/incidents such as those addressing driver and customer safety, vehicle improvement needs and safety inspections, bus stops and stations, safety management, and state transit agencies and transit operating companies.

Lazaro, R., Warlick, C., *A Model for Training and Development Excellence in Community Transportation*. Technical Assistance Brief No. 7, CTAA, Washington, D.C.

A complete checklist of steps toward establishing a training and development plan.

MacDorman, L., Schwager, D., *Transit Employee Attendance Management: Volume 1: Review of Attendance Programs; Volume 2: Transit Attendance Management Information System*. Prepared for USDOT/UMTA. Washington, D.C. (June 1986).

A two volume set, the objectives of the first volume are to: 1) provide background information on the importance of improving employee attendance stressing the costs and impacts of absenteeism; 2) summarize and review existing research and theories on, the causes of absence; 3) identify and describe alternative attendance programs; 4) provide a review of the use and effectiveness of specific attendance programs both within and outside the transit industry; and 5) introduce a recommended framework for an effective attendance program including the identification of important management activities needed to support attendance programs. Volume 2 presents a prototype transit attendance management information system (TAMIS), which can serve as a model in, developing monitoring and reporting procedures to improve the management of employee attendance and to mitigate the effects of absence. TAMIS provides a basis for more consistent, comprehensive, and straightforward collection, reporting, and utilization, of absence data on individual employees, groups of employees, and the entire workforce of a transit property.

MacDorman, L., *Use of Part-Time Operators*. NCTRP Synthesis of Transit Practice No. 9. Transportation Research Board, Washington, D.C. (November 1986).

This synthesis will be useful to administrators, managers, schedulers, and others in the transit industry concerned with using part-time operators. Information is presented on the factors that influence the use of part-time operators and general guidance is given to assist in the consideration of part-time operators, within the context of a system's operating environment, labor agreements, and work rules.

Mathias, R., *Assisting Passengers Traveling with Service Animals*. Project ACTION, Washington, D.C. (1997).

This project produced two volumes on assisting passengers traveling with service animals. The first volume (Final Report) discusses applicable laws and regulations; service animal capabilities; transit policies and procedures including sample service animal practices. The second volume (Training Module) provides training instructions and paper versions of slides.

McDaniel, J., Woodman, G.K., Storke, J., Schwartz, L., *Transit/Labor Protection - A Guide to Section 13 (c) Federal Transit Act*. Legal Research Digest No. 4, Transportation Research Board, Washington, D.C. (June 1995).

This report provides background info on Section 13(c) which is the labor protection provision of the Federal Transit Act that requires FTA grantees to be certified by the Department of Labor that "fair and equitable" protective arrangements are in place, to protect employees affected by Federal assistance. The process for obtaining certification and the substantive requirements and interpretations of the law are described in this report. The target audience for the report is transit managers and lawyers.

National Cooperative Research Project, *Quality of Work Life in the Transit Industry*. Prepared for USDOT/UMTA and USDOL. Washington, D.C. (October 1986).

A series of seminars to provide practical advice and guidelines on implementing Quality of Work Life to transit managers and union leaders. Objectives: to learn about quality of work life, the components of a successful program, steps in problem solving, and case histories. The workbook has a variety of examples and case studies from transit systems.

Ontario Urban Transit Association, *Attendance Management*. Toronto, Ontario, Canada (1989).

This is a handbook which gives the manager information and resources to design and implement an attendance management program. It documents programs, statistical analysis and strategies that can be used to reduce absenteeism. There is emphasis on preventive strategies to deal with situations before problems including employee assistance programs, incentive programs, stress management, and hiring and training policies. format is looseleaf notebook to facilitate updates.

Absenteeism is defined, broadly, as absence from work for a preventable reason such as illness, injury and personal reasons. Because of this broad definition, the handbook could be useful for smaller transit systems. Although absenteeism is generally not a major concern for, management at smaller systems. Some of the material is specific to Canada (e.g., pay arrangements for workers with a work-related injury) and would not apply to U.S. transit systems.

Ryan, P., Boyd, M.A., *Strategies for Implementing a Standee-on-Lift Program for Fixed-Route Bus Service*. Prepared for USDOT, Washington, D.C. (June 1993).

The ADA refers to individuals who use canes or walkers, or who have trouble climbing steps, as standees. The DOT regulations implementing the ADA require that transit properties allow standees-on-lifts. The strategies contained in this document are designed to help transit properties establish and improve their fixed-route bus service to standees. Four major areas of transit administration are addressed in this report: the role of management in establishing policy for standees; the role of operations in implementing a program for standees-on-lifts; the various training programs and personnel policies that can enhance service to standees; and various outreach program that can increase standee ridership and enhance standee-system relations.

Sarles, R., Dubin-Rosenberg, D., Evans, R., *Drug and Alcohol Testing Consortia Manual*. Prepared for Ohio Department of Transportation. USDOT/FTA, Washington, D.C. (December 1996).

This manual is intended to provide transit managers and other operational personnel with background information regarding drug and alcohol testing consortia, and a step-by-step process for determining whether participating in such a consortium would best, meet their needs. The manual also describes how to successfully design, implement, and participate in a drug and alcohol testing consortium.

Shawn, K., *How to Write an FTA Drug and Alcohol Policy for Your Transit System*. Technical Assistance Brief No. 15, Prepared for the USDOT/FTA Rural Transit Assistance Program and Community Transportation Association of America, Washington, D.C. (December 1994).

Provides information on what should go into a drug and alcohol policy, and gives a thorough review of testing methods acceptable to the FTA.

Tolliver, H., "Drug and Alcohol Testing: Coping with the Law." *PTN Publishing Company*, Melville, N.Y., August 1995.

Examines cost-effective drug/alcohol testing policies developed by small, medium-sized, and large transit systems across the nation.

Williams, D., et al., *Random Drug Testing Manual*. Prepared for USDOT/UMTA. Washington, D.C. (September 1991).

This manual presents information gathered and analyzed in support of the UMTA effort to develop practical guidelines for U.S. transit operators in implementing anti-drug policies and programs. The principal goal of these guidelines is to assist the U.S. mass transit industry to achieve a drug-free transit workforce to protect the health and safety of workers and the public. Designed for transit agencies that are implementing, or are considering implementing, random drug testing programs, this manual, will also be useful for transit agencies that already have a random drug testing program in place and want to make that program more effective and efficient. The organization of this manual is based on the key steps that should be taken to establish and operate a random drug testing program. Each step is discussed in a separate chapter. Appendices amplify basic information in the text.

Assessment of Factors Affecting Employment Performance in Austin, Texas. The Public Transit Industry: A Case Study of Capital Metro, Texas Southern University, Center for Transportation Research and Training, Houston, TX (June 1994).

A case study of the use of incentives to improve employee performance in Austin, Texas. The study (1) details how management has structured the organization, (2) looks at data for other service industries comparable to transit, (3) examines alternative approaches for structuring the workplace and (4) develops a method for increasing productivity by improving employee motivation.

The Commercial Driver License Test Preparation Program. National Traffic Safety Institute (1989).

The CDL Test Preparation Program is designed to help professional drivers prepare for the general knowledge test and endorsement tests of the CDL exam. Program materials include: the Transportation Audio Learning Kit, which includes three audiotapes and eight question reference cards; program review guide; sample tests and answer keys; CDL DOT manual; CDL performance test tips.

Comprehensive Rural Policies. Isabella County Transportation Commission (1990).

This information, which is used by many providers to strengthen their operations, covers the Isabella County Transportation Commission's board policies and bylaws, general operating procedures, job descriptions, performance standards, general ridership policies, and driver operations. Information on reporting, including example logs and reporting forms are also provided.

Delaware Administration for Specialized Transportation (DAST) Driver Training Manual. DAST, Delaware (1993).

The DAST Driver Training Manual and The Field Trainer Program are the summary of a 15-day training program. Phase 1 is a five day classroom environment that teaches drivers how to enhance their paratransit skills. Topics covered include passenger assistance; wheelchair boarding; wheelchair securing; dispatching; safety emergency procedures. Phase 2 is a two week program. This program provides the link between the classroom and on-the-job performance. These manuals can be used as a reference books.

Driver Training for Rural and Paratransit Providers: The Wisconsin Resource Manual. Wisconsin DOT, Madison, WI (1989).

This manual is designed to help agencies develop plans for training new or established drivers. Each section of the manual includes a list of training resources. Topics discussed include hiring new drivers, employee orientation and training, and continuing education.

Emergency Evacuation Techniques for Special Needs Passengers, Arizona DOT, Phoenix, AZ (1986).

This driver training film is designed to help drivers of paratransit vehicles understand the special considerations and quick actions necessary for emergency evacuation of passengers with special needs.

Emergency Procedures for Rural Transit Drivers. USDOT, FTA RTAP, Washington, D.C. (1989).

The FTA RTAP National training package discusses safety and accident prevention, and covers many of the emergencies that can occur in rural transit. It will help both new and experienced drivers anticipate, prepare for, and respond to the many unexpected events that can occur on the road. Topics covered include vehicle preparation, securing the vehicle, breakdown and accident procedures, and passenger illness and injury. The video provides information to help drivers make informed, professional decisions in the event to an emergency.

Essential Skills for Dispatching. USDOT, Washington, D.C. (1990).

This FTA RTAP National Program training package is designed to improve the skills of dispatchers and other transit staff members who may work as dispatchers. It focuses particularly on the dispatcher's role as a coordinator for the transit system, a communicator with the public and drivers, and a record keeper.

Essential Skills for Trainers. USDOT, Washington, D.C. (1991).

The module provides a broad overview of the skills a trainer needs to lead effective training sessions. Specific topics include: what effective training is all about; what works with training adults; trainer roles; and training activities and materials.

Indiana RTAP Driver Training Program. Indiana Institute for Urban Transportation, Bloomington, IN (1990).

This driver training program covers pre-trip vehicle safety inspections, driver attitudes; typical passenger attitudes; common disabilities; defensive and safe driving procedures; and the effects of alcohol, prescription drugs; and over-the-counter drugs. Materials provided include: a program narrative; slide presentation on pre-trip inspections; overhead; slide presentation on defensive driving; video on defensive driving and passenger sensitivity; handouts; evaluation forms for each session. The program can be completed in one, six to eight hour day.

Keep Drugs Off the Road - Montana's Approach to Drug Testing. Montana DOT, Helena, MT (1990).

This kit contains step-by-step instructions, training aids, forms and information to help small transit operators implement drug testing programs. Topics covered include anti-drug policies, employee training, testing programs, and recordkeeping procedures. This kit was designed for small rural operators, but can be adapted by larger transit systems. Transportation providers using this kit should obtain legal counsel to ensure that these materials do not conflict with existing policies, or, state and local statutes.

Risk Management for Rural Transit Systems. USDOT, Washington, D.C. (1993).

The FTA RTAP National Program training package is designed to help rural transit managers understand the fundamentals of risk management and help them establish a risk management program for their system. It is also useful for rural transit board members and staff who are facing new risk management responsibilities in their system. It provides a step-by-step process for identifying risks, developing a "risk profile," analyzing risk management strategies and allocating appropriate risk control and risk financing alternatives. This training package consists of a videotape, a Training Guide, and a Resource Handbook.

Safe Transport of the Public Under the Americans with Disabilities Act. USDOT, Washington, D.C. (1993).

This FTA RTAP National Program training package is designed primarily for rural transit drivers, who are at the forefront of implementation of Americans with Disabilities Act requirements. The package provides drivers and other transit staff with an overview of the basic concepts of ADA. It stresses good passenger relations and focuses on the driver's responsibility for learning safe and courteous responses to various circumstances such as passengers with mobility, communication and visual impairments.

Serving Passengers with Cognitive Disabilities: A Training Program for Fixed Route Bus Operators. The ARC (Arlington, Texas), FTA (1993).

A training program the Association for Retarded Citizens (ARC) developed with the Fort Worth, Texas, transit system. The training was designed to bring transit systems into compliance with the Americans with Disabilities Act of 1990. The guide, includes five 2-3 hour modules, the last of which is a review session.

Training Curricula for Transit Users with Disabilities. Various Project ACTION Grantees, Project ACTION, Washington, D.C. (1995).

This is a large volume of training curricula from nine different Project ACTION demonstration projects. Training curricula include programs to: train transit drivers and other transit personnel and train persons with disabilities to use fixed-route transit. Predominantly, the volume addresses the training of riders with disabilities to use fixed-route.

Transit System Personnel Manual (Form). Virginia Department of Rail and Public Transportation, (1993).

This manual is to be used as a form to help managers and directors in forming their own personnel manuals. It is designed to inform employees of general policies, procedures, and work rules as they effect each employee.

Understanding the Capabilities and Needs of Special Passengers. USDOT, Washington, D.C. (1988).

This FTA RTAP National Program training package will help transit operators communicate and work more effectively with disabled and elderly customers. It discusses the following common disabilities and dispels misconceptions about them: spinal cord injuries, strokes, and other mobility impairment; mental retardation and autism; visual impairments; hearing impairments; neuromuscular conditions; epilepsy and seizure disorders; Alzheimer's Disease; and aging.

Your Ticket to Safety - Bloodborne Pathogen Awareness. Iowa DOT (1993).

This module educates public transit system personnel, including managers, drivers, mechanics, other employees and service providers on a step-by-step basis regarding bloodborne pathogens in the work place. The videotape includes blood and body fluid cleanup, emergency procedures, OSHA regulations, transmission and infection of HIV, HBV, and other bloodborne pathogens.

Marketing and Customer Service

American Public Transit Association, *Serving the Customer: A Solutions Sourcebook*. APTA, Washington, D.C. (May 1995).

A collection of "best practices" in transit service and operations which focus on serving the customer. Each "solution" looks at the challenge, strategy, solution, cost, and success of something that was done to better serve the customer. Contact name, address, and phone number included with each entry. Sections include The Message, The Ride, The Customer's Voice, The Team, ADA/Accessibility, and The Bottom Line. Annual addition is a compilation of four quarterly updates.

Carter-Goble-Roberts, *South Carolina Transportation Marketing Manual*. Prepared for the Office of Governor, Division of Economic Development and Transportation, USDOT, Washington, D.C. (September 1980).

This manual provides marketing knowledge, examples, and procedures currently in use throughout the country. The manual covers the planning, development, execution and refinement of a marketing program.

Dobies, J., *Customer Information at Bus Stops*. TCRP Synthesis No. 17, Transportation Research Board, Washington, D.C. (1996).

The major focus of this synthesis is to gather pertinent information on current transit industry, practices and research activities related to the provision of customer information at bus stops. The report provides a clearinghouse of ideas for transit agency managers and provides information on practical matters such as costs, staffing requirements, design considerations and ADA requirements.

Frank Wilson & Associates, Inc., *Public Outreach Handbook for Departments of Transportation*. NCHRP Report No. 364, Transportation Research Board, Washington, D.C. (1994).

This report documents and presents the results of a study of the use of public outreach as a tool in transportation management. Research was conducted to determine state transportation departments' areas of greatest concern in regard to public outreach, as well as their perceived audiences of greatest importance. Five scenarios were developed incorporating those concerns. Public outreach campaigns in a number of states were investigated to determine the most successful tools and techniques for dealing with the situations illustrated in the scenarios. These tools and techniques were examined in detail and then applied to the scenarios to develop a prototypical campaign approach for each of the scenarios. A major product of this research program is the Public Outreach Handbook for Departments of Transportation, Fall 1992. Three state transportation agencies were identified that exemplify the successful use of public outreach in transportation management.

Howard/Stein-Hudson Associates, Parsons, Brinckerhoff, Quade & Douglas, *Public Involvement Techniques for Transportation Decision-Making*. Prepared for USDOT/FHWA/FTA, Washington, D.C. (September 1996).

This reference handbook describes a variety of public involvement techniques that are available to transportation agencies. It includes 14 techniques originally published in *Innovations in Public Involvement for Transportation Planning*.

Kihl, M., "Marketing Rural Transit Among Senior Populations." *Transportation Research Record 1338*. Transportation Research Board, Washington, D.C. (1992).

Analyzes marketing strategies designed to increase ridership by senior citizens. Senior citizens will be more likely to use transit if it is marketed to them, the study argues.

Knapp, S., *Marketing Manual for Shared Ride Taxi Systems in Wisconsin*. Prepared for the Wisconsin Department of Transportation, Bureau of Transit, USDOT, Washington, D.C. (February 1987).

This manual presents information to be used by local shared ride taxi programs in preparing marketing plans for their systems. Presented are instructions on how to prepare a marketing program and detailed descriptions of marketing activities and advertising materials which can be used by agencies.

Muller, P., *Transit Marketing in Pennsylvania - A Handbook of Effective Marketing Aids*. Prepared for the Pennsylvania Bureau of Public Transit and Goods Movement Systems, USDOT, Washington, D.C. (December 1984).

This handbook provides a clearinghouse of information on the availability and usage of transit marketing items in Pennsylvania. The focus is on actual examples of marketing aids.

Ohio Department of Transportation, *Rural Transit Program Manual*. Prepared by the Office of Public Transportation, Columbus, Ohio (1996)

This is a two volume guide to assist rural transit operators in Ohio in the management of their systems.

Ontario Urban Transit Association, *Promotions, Publicity and All That Pizazz*. Ontario Urban Transit Association, Toronto, Ontario, Canada, 1994.

This is the 2nd edition of the well-received Canadian marketing handbook. The 1st edition was published in 1988 and this 2nd edition adds new material. (Material from original handbook is not included in Edition 2; only new material is included.) Also new to this edition are guidelines for planning and implementing a marketing event. The handbook presents lots of examples of marketing techniques in 12 categories, such as "Rider Inducements," "Seasonal Promotions," etc. The consultant for TCRP B-13, Cost Effective Marketing for Small Urban and Rural Transit Systems, has been steered towards this handbook as a good example of the type of product which might be appropriate for B-13.

Ontario Urban Transit Association, *Survey Your Way to Success*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1993).

This looseleaf notebook provides a concise, very readable and attractive "how to" handbook on conducting surveys, for a variety of purposes: rider/passenger input; public opinion/attitude; accessible transit planning; employee feedback. Actual survey questions and formats are presented and options for type of survey (handout, mail, telephone) and guidelines for analyzing and presenting results.

Ryan, P., Boyd, M.A., *Strategies for Implementing a Standee-on-Lift Program for Fixed-Route Bus Service*. Prepared for USDOT, Washington, D.C. (June 1993).

The ADA refers to individuals who use canes or walkers, or who have trouble climbing steps, as standees. The DOT regulations implementing the ADA require that transit properties allow standees-on-lifts. The strategies contained in this document are designed to help transit properties establish and improve their fixed-route bus service to standees. Four major areas of transit administration are addressed in this report: the role of management in establishing policy for standees; the role of operations in implementing a program for standees-on-lifts; the various training programs and personnel policies that can enhance service to standees; and various outreach program that can increase standee ridership and enhance standee-system relations.

Stein-Hudson, K.E., et al, *Customer-Based Quality in Transportation*. NCHRP Report No. 376, Transportation Research Board, Washington, D.C. (1995).

This report presents the findings of research investigating the existing and potential uses of customer-based quality in transportation among state departments of transportation (DOTs). The research methods included interviews with ten state DOTs and focus groups with DOT customers held in nine states. The interview findings identified DOT definitions of internal and external customers and the approaches DOTs use to identify customer needs and expectations - including focus groups, formal and informal customer surveys, customer panels, and formal and informal feedback from customers. Many states have initially concentrated on the internal customer as a way of improving quality, while others have expressed an interest in reaching directly to their external customers. The results of the focus groups identified many areas of interest and concern to DOT customers, ranging from construction and maintenance of highways to transit and other modes, and more specific issues and concerns.

West Virginia Public Transportation Division, *West Virginia Transit Marketing Manual "Get on the Bus and Ride"*. USDOT, Washington, D.C. (May 1984).

This marketing handbook is the official collection of ad materials from the West Virginia Public Transportation Division. Ready to use newspaper and radio advertisements are included, as are suggestions on how to prepare original ads. Sections on budget planning and public relations are also included.

Wright, P., *Market Segmentation: A Teaching Manual*. West Virginia University. Prepared for USDOT/UMTA, Washington, D.C. (1986).

This module is intended to provide a broad, concept-based introduction to the topic of market segmentation for use in both undergraduate and graduate transportation-related courses. The material is designed to be useful in many disciplines including engineering, business, marketing, and technology. The concept of market segmentation is primarily a transportation planning technique by which the needs of a specific locale or population are systematically determined and compared to existing services within that same locale to identify unmet transportation needs. The unmet needs are used, then, as the basis for targeting new or modified services. This module outlines a series of steps for segmenting a region or population and discusses pertinent problems and issues which arise throughout the process. Key ideas are illustrated by the use of case histories and examples where possible.

A Handbook for Effective Advertising and Marketing of Community Transit. CTAA, FTA RTAP, Washington, D.C. (1989).

This handbook is designed to be used in training courses in effective advertising and marketing. It includes sample advertising and marketing materials.

Building Strategies for Success. South Carolina Department of Highways & Public Transportation, CTAA, FTA, Washington, D.C. (1990).

Building Strategies for Success contains policies and procedures for governing board members and transportation managers. Topics addressed include funding, marketing, influencing, decision making, and conducting successful meetings and anti-drug programs.

Operations Management (also see sections on Safety and Computers)

ARC Transit, *Operational Strategies for Rural Transportation*. USDOT/FTA, Washington, D.C. (March 1996).

The Florida DOT developed a project for automatic vehicle location in conjunction with loading Medicaid passengers. The system consists of an onboard credit card reader, digital odometer, Global Positioning Satellite receiver, and radio interface. At the time a Medicaid recipient boards or exists the vehicle, data transmits the passenger identification number, vehicle number, latitude, longitude, and odometer reading. The data elements are automatically collated in the billing computer with trip records and transmitted on-line to Medicaid's fiscal agent. The technology of this system can be a major factor in the elimination of both passenger and provider fraud. Improved data and availability are also added benefits of the system.

Benn, H.P., *Bus Route Evaluation Standards*. TCRP Synthesis No. 10, Transportation Research Board, Washington, D.C. (1995).

Efficient and effective bus route design standards. Identifies new standards for bus route design, schedule design, economics and productivity, service delivery and passenger comfort and safety. Reports various agencies' bus route evaluation procedures.

Boldt, R., *Management Information Systems*. TCRP Synthesis No. 5, Transportation Research Board, Washington, D.C. (1994).

The synthesis identifies the current direction and key factors of selected transit agencies that have successfully implemented MIS. The synthesis documents the range, variety, and benefits derived from the current information and examines how effectively information from special-purpose systems is integrated into the overall information systems environment and used across departmental boundaries. The application and level of sophistication of MIS used by transit agencies in North America vary widely. This report of the TRB focuses on the general direction of change in transit MIS and on specific integration efforts that are applicable and transferable to the transit industry as a whole. Based on a comprehensive review of MIS functions and environments of the surveyed agencies and on discussions carried out during site visits with key staff at seven major transit agencies are discussed, as well as a pronounced need to create an effective, broadly-based user group to assist in making the appropriate investment.

Canadian Urban Transit Association, *The Canadian Transit Handbook*. CUTA, Toronto, Ontario, Canada (1993, Third Edition).

This third edition of the Canadian Transit Handbook is intended to serve as a manual of current practice by Canada's urban transit systems. The flow of information is presented in four logical groupings: 1) infrastructure, which includes transit and land use, transit technology, and system financing, 2) planning, including marketing, service design, demand estimation, and customer access, 3) management, including human resources, training, service monitoring, and financial control, and 4) operations, covering transit operations, traffic management and maintenance management. There are also introductory sections describing Canada's transit industry, and a concluding section covering the calculation of the benefits of transit.

Carter-Goble Associates Inc., *Private Sector Contracting Workshop Manual for Rural and Small Urban Public Transportation Providers*. USDOT/UMTA, Washington, D.C. (November 1988).

This manual describes a workshop on contracting services for rural and small transportation providers. The first section of the manual summarizes presentations and discussions for the workshop. The second part contains sample procurement documents, notices and procedures. Topics covered include Federal and State policies, identifying contract opportunities, the contracting process, and problems that may arise.

Community Transportation Association of America (CTAA), *Management and Productivity Skills/Productivity and Supervisory Skills (MAPS/PASS)*. CTAA, USDOT, Washington, D.C. (1986).

These programs train supervisors and managers of transit systems to be more productive. MAPS is aimed at middle- and upper-level managers. PASS is geared toward first-line supervisors. Both programs can be used by instructors for interactive teaching. Each program includes written exercises, a videotape, and an audiotape. Topics covered include communication, delegation, time and meeting management, discipline, and leadership style.

EG&G Dynatrend, Inc., *Rural and Small Urban Transit Manager's Workshop: Student Handbook*. Prepared for USDOT/UMTA, Washington, D.C. (July 1989).

A detailed overview of operational problems and their solutions, focusing on organization development, strategic planning, management reviews, risk management, substance abuse, safety and emergency procedures, contracting, and productivity. Also covers other management topics.

Fleishman, D., et al., *Fare Policies, Structures, and Technologies*. TCRP Report No. 10, Transportation Research Board, Washington, D.C. (1996).

This report will be of interest to policy makers and managers at transit agencies developing and implementing fare policies to meet their social, financial, and service needs. The report includes the results of a comprehensive study of the major parameters of the transit fare decision-making process, and it provides guidance for making decisions related to fare policy, structure, and technology.

Levinson, H., *Supervision Strategies for Improved Reliability of Bus Routes*. NCTRP Synthesis of Transit Practice No. 15, Transportation Research Board, Washington, D.C. (September 1991).

This report described the various procedures that are used by transit agencies to monitor and maintain bus service reliability. Most transit systems conduct checks of the number of riders at maximum load points and monitor schedule adherence at these locations. Other supervisory actions include service restoration techniques, and strategies such as schedule control, headway control, load control, extra-board management, and personnel selection and training. More sophisticated technologies, such as automatic passenger counting systems and automatic vehicle location and control have been employed by some transit agencies and are described in this synthesis.

MacDorman & Associates, et al., *Total Quality Management in Public Transportation*. Research Results Digest No. 3, Transportation Research Board, Washington, D.C. (October 1994).

This digest presents background information and preliminary findings of TCRP Project F-3 "Total Quality Management in Public Transportation."

Michigan Department of Transportation, *Small Transit System Management Handbook*. M-DOT, Lansing, MI (February 1994).

Designed to provide a basis for instituting, organizing, and maintaining small transit systems. A guide for management issues including: operations, personnel, maintenance, equipment, marketing and evaluation.

Moffat, G., Blackburn, D., *Changing Roles and Practices of Bus Field Supervisors*. TCRP Synthesis No. 16, Transportation Research Board, Washington, D.C. (1996).

The roles and responsibilities of bus field supervisors are addressed, including emerging concerns about how to improve the relationship between supervisors and bus operators, while placing supervisors in a more positive role; how to obtain a greater return from employee productivity with tightening budgets and declining ridership; and how to improve customer service. This report provides information about current and innovative practices at selected transit agencies. It covers information about the expectations that organizations have for their supervisors; recruitment and selection; training; new or revised regulations; and the perceived impacts of new technologies at some transit agencies.

Multisystems, Inc., et al., "Multipurpose Fare Media: Developments and Issues." *TCRP Research Results Digest*, Transportation Research Board, Washington, D.C. (June 1997).

This digest presents the interim findings of the TCRP project "Potential of Multipurpose Fare Media." This digest contains examples of multipurpose transit fare payment programs and discusses institutional, technological and financial issues that must be addressed to implement these programs.

North Carolina Department of Transportation, Public Transportation Division, *Policies and Procedures Handbook for North Carolina Rural Transportation Operators*. NCDOT, Raleigh, NC (August 1995).

Volume I of this handbook provides guidance in dealing with the complexity of operating a rural transportation system. The document is intended to be useful for transportation managers/coordinators, rural transportation system personnel, and transportation advisory board members. Volume II of this handbook contains supporting information for Volume I, including training schedules, resource directories, and sample contracts, agreements, and requests for proposals. Volume II of this handbook comprises pertinent federal and state regulations. It contains sample policies which can be used as models. A blank policy form (both in hard copy and on diskette) is included for use as a template for writing locally developed and approved policies.

Ryan, P., Boyd, M.A., *Strategies for Implementing a Standee-on-Lift Program for Fixed-Route Bus Service*. Prepared for USDOT, Washington, D.C. (June 1993).

The ADA refers to individuals who use canes or walkers, or who have trouble climbing steps, as standees. The DOT regulations implementing the ADA require that transit properties allow standees-on-lifts. The strategies contained in this document are designed to help transit properties establish and improve their fixed-route bus service to standees. Four major areas of transit administration are addressed in this report: the role of management in establishing policy for standees; the role of operations in implementing a program for standees-on-lifts; the various training programs and personnel policies that can enhance service to standees; and various outreach program that can increase standee ridership and enhance standee-system relations.

Sarles, R., Dubin-Rosenberg, D., Evans, R., *Drug and Alcohol Testing Consortia Manual*. Prepared for Ohio Department of Transportation. USDOT/FTA, Washington, D.C. (December 1996).

This manual is intended to provide transit managers and other operational personnel with background information regarding drug and alcohol testing consortia, and a step-by-step process for determining whether participating in such a consortium would best meet their needs. The manual also describes how to successfully design, implement, and participate in a drug and alcohol testing consortium.

Smerk, G.M., Henriksson, L., McDaniel, K., et. al., *Mass Transit Management: A Handbook for Small Cities, Third Edition; Part I: Goals, Support, and Finance; Part II: Management and Control; Part III: Operations; Part IV: Marketing*. Institute for Urban Transportation at Indiana University. Prepared for USDOT/UMTA, Washington, D.C. (February 1988).

In most fields of transportation, management -- rather than equipment, location, or operating rights -- is the key to success. The aim of this four volume handbook is to provide information for the management of mass transit, particularly for small-scale operations in smaller cities, where a small city is defined as one that operates 101 buses or fewer. The handbook is divided into four parts. Part I includes sections on establishing goals and objectives, understanding the consumer, gaining public support and public action for transit, institutionalizing transit as an integral part of the community, and financing transit. Part II focuses on management itself and the control and information devices needed for effective management. Part III covers important areas of day-to-day operation, coordinated as the product element in the marketing mix. Part IV deals with the marketing program and promotional activities.

Smart Fare Payment Systems for Public Transit. APTS Brief No. 10, USDOT/FTA, Washington, D.C. (January 1996).

This brief focuses on early cards, automated fare card sales, smart fare cards, contact cards, radio frequency coupled proximity cards, and a future perspective of the technology.

Stern, R., *Passenger Transfer System Review*. TCRP Synthesis No. 19, Transportation Research Board, Washington, D.C. (1996).

This report documents a wide diversity in implicit transfer policies and many different approaches used at selected transit agencies. It covers practices dealing with restricting or allowing back riding or stopovers, fare levels, and alternatives to transferring.

Thatcher, R., *Americans with Disabilities Act Paratransit Eligibility Manual*. Prepared for USDOT/FTA, Washington, D.C. (September 1993).

This manual provides guidance to transit providers in the development and implementation of ADA paratransit eligibility determination processes. Common questions raised about eligibility are addressed. Experience gained in the first one and a half years of implementation of the ADA complementary paratransit provisions is also summarized. As part of the preparation of this manual, public entities that had particular expertise and experience with eligibility determination were contacted and copies of the forms and procedures which they had developed were collected. Key issues raised by these transit providers are included in the text and copies of sample forms and policies are provided in the appendices.

Transit Operations for Individuals with Disabilities. TCRP Report No. 9, Transportation Research Board, Washington, D.C. (1995).

This report provides alternative operating models and possible enhancements to traditional public transit services that can be employed to encourage individuals with disabilities to use fixed route services when appropriate.

What Fare is Fair - Cost/Revenue Allocation and Fare Structure Development. Florida Transportation Disadvantaged Commission (1993).

The purpose of the handbooks is to provide information to community transportation coordinators to assist in the development of acceptable methods of setting fares.

Performance Management

Benn, H.P., *Bus Route Evaluation Standards*. TCRP Synthesis No. 10, Transportation Research Board, Washington, D.C. (1995).

Efficient and effective bus route design standards. Identifies new standards for bus route design, schedule design, economics and productivity, service delivery and passenger comfort and safety. Reports various agencies' bus route evaluation procedures.

Bitzan, J., Hough, J., *An Evaluation Guidebook for Rural and Small Urban Transportation Systems in the Mountain-Plains Region*. Mountain-Plains Consortium, North Dakota State University, Fargo, ND (September 1994).

Developing performance evaluation measures. The guidebook is organized thus: 1) An explanation of performance evaluation is presented; 2) A discussion of each type of performance management is presented; 3) The recommended performance evaluation method for rural and small urban systems is presented, along with the recommended performance measures; 4) A description of categories of peer groups is presented along with information on how to place your system into one of the peer groups; 5) formulas for converting raw data into performance measures are given; 6) Target ranges for the various performance measures are given by peer group; 7) Possible causes for exemplary or poor performance are given; and 8) performance measure averages, outliers and values are presented for each peer group.

Carter, D., Lomax, T., "Development and Applications of Performance Measures for Rural Public Transportation Operators." *Transportation Research Record 1338*, Transportation Research Board, Washington, D.C. (1992).

This paper discusses the development of a methodology to evaluate the relative performance of operators of rural transit service in Texas. Measures of cost efficiency, cost effectiveness, service utilization, vehicle utilization, quality of service, labor productivity, and accessibility are presented as tools for analyzing performance trends, evaluating overall system performance, transit planning, and conducting technical assistance. The procedure developed uses a standard score methodology to compare the performance of individual agencies to the mean of all rural transit operators in Texas.

Delcan Corporation, *Performance Review Workbook*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1990).

This oversized, short report allows the user/reader to assess the overall performance of his/her transit system. The user is prompted to enter data specific to the transit system, then calculate performance measures and access trends. The instructions refer to a computer package which is essentially an automated version of the workbook. Some of the terms used and data definitions are specific to Canadian Transit Systems. The text which provides interpretation of the performance indicators is brief and well written. Workbook also provides "performance questions" which prompt the user to assess various functions and activities of the transit system.

Hunter-Zaworski, K.M., Hron, M., *Improving Bus Accessibility Systems for Persons with Sensory and Cognitive Impairments*. Oregon State University, Transportation Research Institute (Corvallis, OR). Prepared for USDOT/FTA, Washington, D.C. (August 1993).

Guidelines for ADA compliance. This report gives guidelines for both technological improvements and personal assistance that must be carried out to bring systems into compliance with ADA, with a particular emphasis on training transit employees to deal with the needs of those covered by the ADA. The report examines practices systems were using at the time of publication and recommends changes.

IBI Group, *Working Together to Set Service Standards*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1990).

This report is designed for small to mid-size transit systems to assist in establishing service standards as part of performance monitoring and helping decision-makers make decisions about transit service and resources. The report has two parts -- the first part discusses how to set goals, objectives and performance targets, and the service standards which support them while the second part is an example of a sample service standard document which can be tailored to an individual transit system. The report may be a bit sophisticated for a very small system, but has some good information and guidance.

Institute for Urban Transportation at Indiana University, *Handbook for Management Performance Audits*. USDOT/UMTA, Washington, D.C. (July 1988).

The Institute for Urban Transportation/Transportation Research Center developed this handbook to inform transit managers, state departments of transportation, local decision-makers and organizations concerned with educating and training transit management about the uses and benefits of management performance audits. The handbook describes what a management performance audit is and how to conduct one. The handbook is presented in two parts: Part I presents the history and technique of doing a management performance audit and Part II is a field guide consisting of questionnaires used to conduct an audit.

Radow, L., Winters, C., *Rural Transit Performance Measurement*. CTAA, Technical Assistance Brief No. 18, Washington, D.C.

Performance measurement techniques. An update to "Performance Evaluation for Rural Transit Systems", this report details the steps a transit system should undertake to adopt a system of performance measurement, including some nontraditional performance measures such as the number of jobs created by a transit agency and the economic impact of the agency's service.

Schiavone, J., *Monitoring Bus Maintenance Performance*. Transportation Research Board, TCRP Synthesis No. 22, Washington, D.C. (1997).

The purpose of this synthesis is to summarize the various approaches transit agencies use to monitor maintenance performance and to describe how performance measures are used to help share maintenance programs. Included are traditional approaches to monitoring and some more sophisticated techniques. This synthesis takes a close look at how five public transit agencies and one private trucking company monitor maintenance performance. A questionnaire was used and site visits were made to collect and analyze data.

Quality Management

Harder, B.T., *Management Training and Development Programs*. NCHRP Synthesis No. 188, Transportation Research Board, Washington, D.C. (1994).

Gives management principles needed for effective leadership. Records practices in DOT management that were generally accepted at the time of its printing. Addresses leadership, customer service as a primary -function, increased workforce productivity, employee involvement, teamwork, and the need for management to have a systems perspective. Developed as an overview of current training and development activities of U.S. and Canada transportation agencies.

MacDorman & Associates, et al., *Total Quality Management in Public Transportation*. Research Results Digest No. 3, Transportation Research Board, Washington, D.C. (October 1994).

This digest presents background information and preliminary findings of TCRP Project F-3 "Total Quality Management in Public Transportation."

MacDorman, L., et al., *The Quality Journey: A TQM Roadmap for Public Transportation*. TCRP Report No. 8, Transportation Research Board, Washington, D.C. (1995).

This report presents the results of a study of TQM. Research findings provide an historical perspective of TQM, highlight important events in the private and public sectors, and delineate principles of TQM for the transit industry. The 1994 efforts of four transit agencies in launching TQM initiatives are described including a chronology and assessment of their progress through early 1995. Observation and assessment of the transit agencies indicate that real progress was achieved. Employee surveys, which were conducted before launching the initiatives and after one-year, yielded significant statistical evidence that the employees surveyed think their organizations are changing for the better. Transit agency leadership, both labor and management, deserves much of the credit for willingly assuming risks that accompany a commitment to organizational change.

Stein-Hudson, K.E., et al., *Customer-Based Quality in Transportation*. NCHRP Report No. 376, Transportation Research Board, Washington, D.C. (1995).

This report presents the findings of research investigating the existing and potential uses of customer-based quality in transportation among state departments of transportation (DOTs). The research methods included interviews with ten state DOTs and focus groups with DOT customers held in nine states. The interview findings identified DOT definitions of internal and external customers and the approaches DOTs use to identify customer needs and expectations - including focus groups, formal and informal customer surveys, customer panels, and formal and informal feedback from customers. Many states have initially concentrated on the internal customer as a way of improving quality, while others have expressed an interest in reaching directly to their external customers. The results of the focus groups identified many areas of interest and concern to DOT customers, ranging from construction and maintenance of highways to transit and other modes, and more specific issues and concerns.

Taky, I.K., "Total Quality Management: A Service Strategy for the '90s and Beyond." *Institute of Transportation Engineers Journal*, Institute of Transportation Engineers, Washington, D.C. (March 1995).

Individual TQM techniques. This article discusses specific TQM procedures, including some that are in use by transit agencies. The article also discusses what a transit systems needs to do to implement TQM.

Taky, I.K., Obeng, K., Ugboro, I., "Total Quality Management for Public Transit Systems." *Transportation Quarterly*, Vol. 47, No. 2, Eno Foundation, Lansdowne, VA (April 1993).

This article discusses the concept and principles of TQM and the motivating factors for transit management to adopt TQM principles in improving public transportation. It outlines steps for implementing TQM and discusses TQM applications in three transit systems. It then identifies some of the benefits and challenges of implementing TQM and draws lessons for future research and application.

Risk Management

Abacus Technology Corporation, *Cost and Risk Analysis Studies*. Prepared for USDOT/FTA, Washington, D.C. (January 1996).

This study examines contemporary risk management and risk financing practice for six transit systems in the United States which operate bus fleets. The study findings cover three main topics: casualty and liability expense, claims procedure and loss experience, and risk financing. In particular, larger transit systems typically have lower casualty and expense liability than do small systems. In the last several years total expenses in this area have been decreasing in larger systems, and increasing in mid-size systems. Experience-based recommendations are provided in the study by transit risk management and related personnel in the systems studied. These highlight the importance of analyzing risk data and using information systems more effectively.

Hathaway, W., Markos, S., *Recommended Emergency Preparedness Guidelines for Urban, Rural and Specialized Transit Systems*. Prepared for USDOT, Washington, D.C. (January 1991).

Urban, rural and specialized transit services provide an important source of transportation for many persons in the U.S. A number of concerns must be addressed to ensure the safety of passengers during transit emergencies. The needs of passengers can be addressed through carefully planned emergency response procedures, proper training of transit and emergency response personnel, and effective use of equipment. The recommendations contained herein are therefore intended to assist transit and emergency response organization personnel to evaluate their emergency response plans and, if necessary, modify or supplement those plans accordingly. This document contains recommendations for the use by urban, rural, and specialized transit systems which utilize motor vehicles to provide transportation service to the general public, elderly or disabled persons, clients of human service agencies, etc.

Kaddatz, M., *Risk Management for Small and Medium Transit Agencies*. TCRP Synthesis No. 13, Transportation Research Board, Washington, D.C. (1995).

This synthesis provides information on how small and medium-sized transit agencies can evaluate various approaches to risk management and can access risk management services at reasonable cost. This report addresses risk management practices, their systematic application, and the measurement of program results. It emphasizes liability and workers' compensation risks and insurance, both the discussion applies to property risks and insurance, as well. It contains information on differing transit agencies risk management experiences. Three bus transit agency approaches to financing risk and the size of areas they serve are discussed in more detail, based on the results of a survey. Case study examples describe programs currently at the Regional Transportation Commission of Reno, NV; the City of Jackson, MI Transportation Authority; and the Baldwin Rural Area Transit System of Robertsdale, AL.

Knapton, D., *Exploring How to Make System Safety Work in Transit*. Prepared for USDOT, Washington, D.C. (December 1994).

The NY Metropolitan Transportation Authority (MTA) and its operating elements, the NY City Transit Authority (NYCTA), the Long Island Rail Road (LIRR), Metro-North Commuter Railroad, Long Island Bus (LI Bus) and the Staten Island Rapid Transit Operating Authority were subjected to the largest and most comprehensive safety inspection ever conducted of a public transit system. Authority for the inspection, conducted by FTA was drawn from Section 22 of the UMTA Act of 1964 and Section 339 of the DOT and related agencies appropriations act of 1990. The investigation, which consisted of top-down interviews and on-site inspections, involved a detailed review of identify safety and security hazards. The workshop was attended by 38 individuals representing the MTA, PTSB, industry, and USDOT.

Leibson, R., Penner, W., *Successful Risk Management for Rideshare and Carpool-Matching Programs*. TCRP Legal Research Digest No. 2, Transportation Research Board, Washington, D.C. (September 1994).

This report compares several public and private rideshare programs and identifies the common elements in each. Liability risks faced by publicly administered rideshare programs, which are usually self-insured, are contrasted with those of private operators. Insurance risk factors are also identified, along with the different types and levels of insurance available. Finally, potential areas of legal liability are examined, and methods of minimizing exposure to such liability are recommended.

MacDorman & Associates, et al., *Risk Management Manual for the Public Transit Industry: Volumes I, II, and III*. Prepared for USDOT/UMTA, Washington, D.C. (August 1988).

This three volume manual is designed to acquaint transit systems with risk management and to explain how to develop, implement and administer a risk management program. Volume I of this manual provides an introduction to risk management, discusses risk identification and evaluation, and presents loss control methods. Volume II of this manual looks at factors influencing the risk financing decision and transit industry risk management practices as well as describes three methods of risk retention: self-insurance, pooling, and capite insurance companies. Volume III of this manual examines risk transfer (types of insurance policies, methods of obtaining insurance, and content and structure of an insurance policy), claims and crisis management (claims management and loss records), use of outside assistance (risk management consultants and consulting hiring), and risk management resources (organizations and professional associations and handbooks, manuals, publications, and periodicals).

Mincoff, S., *Risk Management Manual*. Canadian Urban Transit Association, OC Transpo, Toronto, Ontario, Canada (May 1992).

Transit properties are constantly exposed to accidental losses. Such accidents may have a dramatic impact on the entire organization cause serious financial and/or personnel problems. The purpose of this manual is to provide the transit manager with basic risk management information to identify and respond to perils and hazards which are common to our industry. By breaking down the risk management process into a series of detailed chapters, it is our goal that this manual will serve as a useful and handy reference.

O'Hara, R., *Insurance Specifications and Procurement*. Prepared for Virginia Department of Rail and Public Transportation (April 1993).

A "cookbook" for small systems who purchase insurance. Manual covers insurance and specifications for all insurance needs. The actual bid specifications are on WordPerfect software which allows transit systems to simply walk through the program with prompts to enter information.

O'Hare, R., *Transit Risk Manager: Risk Management Software for Bus Transit Systems*. TCRP Research Results Digest No. 12, Transportation Research Board, Washington, D.C. (September 1996).

This brief provides a synopsis of the research conducted under TCRP Project G-3. Under Project G-3, a PC-based, user-friendly, menu-driven software tool was developed that bus transit and paratransit systems of all sizes could use to: 1) identify exposures to loss, 2) assess risk within their systems, 3) evaluate their loss control plans against best practices, and 4) make informed decisions about financing risk.

University of Dayton Research Institute, *Responding to Vandalism of Transit Bus and Rail Vehicle Passenger Windows*. TCRP Research Results Digest No. 9, Transportation Research Board, Washington, D.C. (July 1996).

This brief provides a summary of the research conducted under TCRP Project C-4. Research was undertaken by the University of Dayton Research Institute to: 1) compile information on transit bus and rail vehicle window vandalism and current and emerging window glazing technologies with potential applicability to the transit industry and 2) develop guidelines to assist transit agencies in the preparation of procurement specifications related to transit bus and rail vehicle passenger windows.

Walther, E.S., *Ruralization of Risk Management: A Handbook for Small Transit Operators*. NC A&T State University. Prepared for USDOT/FTA, Washington, D.C. (December 1992).

This report translates the philosophy and practice of risk management from legal terms into language used by professional rural transit operators. It gives a method for incorporating a structured risk management program into the small transit operating environment, an orientation to the risk management process, an examination of common insurance policies, and advice on bidding for insurance. The report is based on field experience.

Planning It Safe: How to Control Liability and Risk in Volunteer Programs. Minnesota Office on Volunteer Services, St. Paul, MN (1992).

A guidebook to help answer questions and concerns relating to how state laws impact volunteer programs and what planning can be done to manage risks and liabilities. The guidebook presents a logical process of identifying concerns and develops a step-by-step plan to reduce risk in volunteer programs and organizations. Among the topics covered are: knowing when your organization or volunteer can be held liable, duties of your directors and officers, issues that arise from terminating a volunteer, defenses to use if you are sued, and developing risk management policies. In addition, there are chapter previews and summaries, checklists, and annotated bibliography on related materials and a list of organizations that offer help.

Risk Management for Rural Transit Systems. USDOT, Washington, D.C. (1993).

The FTA RTAP National Program training package is designed to help rural transit managers understand the fundamentals of risk management and help them establish a risk management program for their system. It is also useful for rural transit board members and staff who are facing new risk management responsibilities in their system. It provides a step-by-step process for identifying risks, developing a "risk profile," analyzing risk management strategies and allocating appropriate risk control and risk financing alternatives. This training package consists of a videotape, a Training Guide, and a Resource Handbook.

Safety/Security

Balog, J., et al., "Maximization of Transit Security Through Effective Use of Procedures." *Transportation Research Record 1433*, Transportation Research Board, Washington, D.C. (1994).

This summary of the "Transit Security Procedures Guide," produced by Ketron for the Volpe National Transportation Systems Center, gives information on applying the system's approach to transit security planning and implementation, along with advice for preventing security incidents, methods for dealing with incidents once they happen, and methods for evaluating potential crimes against passengers and the transit system.

Balog, J., et al., *Safety Planning Information Directed to Emergency Response: Resource Manual*. Prepared for West Virginia Department of Transportation, Division of Public Transit, Charleston, WV (October 1994).

The purpose of this resource manual is to present information regarding important transportation safety issues. It provides the building blocks for the formation of a passenger, vehicle and system safety plan which should be an integral part of each transportation system's safety program.

Balog, J., et al., *Transit System Security Program Planning Guide*. Prepared for USDOT, Washington, D.C. (April 1996).

The FTA Safety and Security Program goal is to achieve the highest practical level of safety and security in all modes of transit. In order to protect passengers, employees, revenues, and property, all transit systems are encouraged to develop, implement and maintain a System Security Plan and Program. Increased security should be accomplished through the use of a systems approach with both proactive and law enforcement activities clearly outlined in the Security Program Plan. This plan should be a complete, well thought out guide to establishing and maintaining a comprehensive security program for the transit system and the entire system for which it is responsible: this includes people, property, procedures, and environment. The guide is designed to help transit systems outline and author the sections of a plan in order to implement an effective security program.

Balog, J., Gribbon, R.B., *Standardization of Availability, Location, and Use of Safety Equipment on Urban Transit Buses*. Prepared for USDOT, Washington, D.C. (May 1996).

This document represents the conclusion of a project undertaken to identify guidelines which will correct the problems encountered by rescue forces while attempting to gain entry to, shut down, and evacuate urban transit buses involved in an emergency or accident. This final report presents 1) the availability, location, and use of 11 key safety components on six urban transit bus models; 2) the process used in the development of standardization guidelines; and 3) proposed guidelines for the potential standardization of eight key safety components on urban transit buses. The guidelines developed herein are the result of original research and development efforts by Ketron in concert with input from the Guidelines Committee and Members of the APTA Bus Safety Committee. The last section presents guidelines which detail potential specifications for standardization of the availability, location, identification, use, and function of 8 safety components.

Balog, J., Schwarz, A., Doyle, B., *Transit Security Procedures Guide*. Prepared for USDOT, Washington, D.C. (April 1996).

The FTA Safety and Security Program goal is to achieve the highest practical level of safety in all modes of transit. In order to protect passengers, employees, revenue, and property, all transit systems are encouraged to identify, evaluate, and adopt security procedures which are most efficient and effective in local practice. Both proactive and response procedures should be included along with methodologies for reviewing their efficacy in actual use. This guide is designed to help transit systems become aware of the procedures used across the country by transit and other programs in their security tasks. The Guide includes information on how to apply the systems approach to transit security planning and implementation; proactive materials on the prevention of security incidents; procedures for immediate and follow-up response to security incidents; and specific evaluations of a variety of special security problems including crimes against passengers, transit systems, public and general security.

Boyd, M.A., Maier, M.P., et al., *Perspectives on Transit Security in the 1990's: Strategies for Success*. Prepared for USDOT, Washington, D.C. (June 1996).

This report presents the findings of a study sponsored by the FTA and the Volpe National Transportation System Center 1) to identify the types and level of crime occurring in the transit environment, 2) to identify the security strategies that are utilized effectively in the transit environment to reduce crime and improve patron perceptions of security, and 3) to document the security practices of nine transit agencies located throughout the nation. To meet the first objective, a comprehensive literature search and extensive telephone interviews were performed to identify types of crimes occurring on rail and bus systems and the relative impact of different crimes on system operation and ridership. The second project objective required the classification of numerous security strategies into categories that would support analysis and discussion.

Byman, J., *Managing System Safety for Rural Transit*. Technical Assistance Brief No. 3, Prepared for USDOT/FTA and the Rural Transit Assistance Program, Washington, D.C. (June 1994).

This brief outlines how to develop and implement a comprehensive system safety program for a rural transit agency.

Byman, J., Hathaway, W., *Bus and Passenger Accident Prevention*. Prepared for USDOT/FTA, Washington, D.C. (August 1995).

While the safety record of transit bus operations, in general, has been very good, accidents do occur. The resulting injuries, fatalities and property damage often result in the expenditure of scarce resources. Costs associated with accidents consume funds that could be used to provide safe and efficient service to the system's patrons and employees. This document provides guidance on how to develop and implement an accident prevention program for urban, rural and specialized transit systems. It identifies issues that must be addressed in order to ensure the highest degree of safety and service to passengers, employees and the general public. Some of these issues include the development and implementation of an accident prevention program, evaluation of design options for new vehicles, promotion of patron safety/awareness, consideration of personnel and training issues, and discussion of policy and procedure development.

Hathaway, W., Markos, S., *Recommended Emergency Preparedness Guidelines for Urban, Rural and Specialized Transit Systems*. Prepared for USDOT, Washington, D.C. (January 1991).

Urban, rural and specialized transit services provide an important source of transportation for many persons in the U.S. A number of concerns must be addressed to ensure the safety of passengers during transit emergencies. The needs of passengers can be addressed through carefully planned emergency response procedures, proper training of transit and emergency response personnel, and effective use of equipment. The recommendations contained herein are therefore intended to assist transit and emergency response organization personnel to evaluate their emergency response plans and, if necessary, modify or supplement those plans accordingly. This document contains recommendations for the use by urban, rural, and specialized transit systems which utilize motor vehicles to provide transportation service to the general public, elderly or disabled persons, clients of human service agencies, etc.

Hemsley, G., *Safe Operating Procedures for Alternative Fuel Buses*. TCRP Synthesis No. 1, Transportation Research Board, Washington, D.C. (1993).

This report describes the characteristics of various alternative fuels in use by transit agencies and discusses several aspects of these fuels and handling practices including training procedures, fuel storage and handling, maintenance operations considerations, facility requirements, issues related to the buses, facility and operating costs, and environmental considerations.

Henderson, W., *Evacuating Elderly and Disabled Passengers from Public Transportation Vehicle Emergencies: Participants' Handbook*. Prepared for USDOT/FTA, Washington, D.C. (March 1991).

This training package is designed to prepare drivers for emergencies that require the evacuation of the transit vehicle. It discusses situations in which evacuation should be considered; presents the fundamentals of body mechanics to help the drivers from injuring themselves or their passengers; and takes drivers through the evacuation process, while warning them about the limitations imposed by various handicaps and equipment. The Participant's Handbook is the key component of this training package. It outlines about 20 techniques that can be used to extricate a passenger from a vehicle and discusses special topics, such as the operation of various wheelchairs and the special equipment on buses. The video summarizes the principles in the Participant's Handbook and demonstrates the evacuation techniques in detail.

Ketron, *Passenger, Vehicle, Facility, and System Security Planning*. Malvern, PA (May 1993).

Interactive participatory training course designed to teach systems how to author a Passenger, Vehicle, Facility and System Security Plan and how to implement an effective program. The Guide discusses each aspect of a security plan to ensure that when complete, the plan document will: demonstrate management's commitment and policy regarding security; introduce the concept of a system Security Program; describe the transit system; establish the management of the plan; detail the Security Program by assigning responsibilities; explain how threats and vulnerabilities will be identified, assessed, and resolved; describe how the plan itself will be implemented to establish or revise the program; and describe how the Security Plan will be evaluated and modified. Additional information in the appendices will make the complete Security Plan a valuable security reference.

King, R., *Bus Occupant Safety*. TCRP Synthesis No. 18, Transportation Research Board, Washington, D.C. (1996).

This synthesis will be of interest to transit agency general managers, but operations, safety, and risk management staffs, as well as agency human resources, personnel, and training staffs. It offers information on the current practices of transit agencies to reduce injuries to bus occupants during collisions and injuries to passengers while boarding, riding, and leaving the bus. This synthesis covers characteristics of bus occupant safety and transit agency programs for reductions of accidents/incidents such as those addressing driver and customer safety, vehicle improvement needs and safety inspections, bus stops and stations, safety management, and state transit agencies and transit operating companies.

Knapton, D., *Exploring How to Make System Safety Work in Transit*. Prepared for USDOT, Washington, D.C. (December 1994).

The NY Metropolitan Transportation Authority (MTA) and its operating elements, the NY City Transit Authority (NYCTA), the Long Island Rail Road (LIRR), Metro-North Commuter Railroad, Long Island Bus (LI Bus) and the Staten Island Rapid Transit Operating Authority were subjected to the largest and most comprehensive safety inspection ever conducted of a public transit system. Authority for the inspection, conducted by FTA was drawn from Section 22 of the UMTA Act of 1964 and Section 339 of the DOT and related agencies appropriations act of 1990. The investigation, which consisted of top-down interviews and on-site inspections, involved a detailed review of identify safety and security hazards. The workshop was attended by 38 individuals representing the MTA, PTSB, industry, and USDOT.

Needle, J., Cobb, R., *Improving Transit Security*. TCRP Synthesis No. 21, Transportation Research Board, Washington, D.C. (1997).

This synthesis will be of interest to transit agency general managers, police and security, operations, training, and human resources staffs, and to local police officials. It offers information on a variety of approaches to improving transit security. The nature, cost and extent of transit crime, effective strategies to combat problem situations, and case studies of specific control practices deemed successful by transit agency professionals (with no distinctions drawn between bus and rail modes) are discussed. This synthesis focuses on transit agency concerns when developing programs to combat violence, namely, those dealing with daily service operations and those involving coordination of efforts with local law enforcement authorities, schools, and community groups. Information was assembled from literature and research review, survey, field interview and site visits. Ways to control crime and fear-generated problems are illustrated in four case studies: Houston, LA County, Ann Arbor and SEPTA.

Walther, E., *Ruralization of Risk Management: A Handbook for Small Transit Operators*. North Carolina A&T State University. Prepared for USDOT/FTA, Washington, D.C. (December 1992).

This report translates the philosophy and practice of risk management from legal terms into language used by professional rural transit operators. It gives a method for incorporating a structured risk management program into the small transit operating environment, an orientation to the risk management process, an examination of common insurance policies, and advice on bidding for insurance. The report is based on field experience.

Service Coordination

Applied Resource Integration, Ltd., *Implementation Guidelines for Coordinated Agency Transportation Services*. Prepared for USDOT/UMTA, Washington, D.C. (April 1980).

This guideline is the second volume of a two-part set on transportation coordination. This volume describes the process of which a conceptual coordination plan is turned into an operating system.

Applied Resource Integration, Ltd., *Planning Guidelines for Coordination Agency Transportation Services*. Prepared for USDOT/UMTA, Washington, D.C. (April 1980).

This is the first report on a two-part series which provides guidance for the identification and assessment of coordination concepts that are feasible for a local community. This resource describes the concept of coordination, its potential benefits to the human service agency network and the community, and its application in a variety of community settings.

Center for Systems & Program Development, *Best Practices in Specialized and Human Services Transportation Coordination*. Prepared for USDOT/USDHHS, Washington, D.C. (July 1989).

The best practices case studies contained in this guidebook are designed to: 1) recognize excellence by rewarding it through inclusion in the guidebook; 2) provide a set of practical tools for managers of specialized human services transportation systems and others concerned about improving transportation coordination; and 3) revive enthusiasm across the Nation for improving the coordination of specialized and human services transportation.

EG&G Dynatrend, Community Transportation Association of America, *Coordinating Transportation: Models of Cooperative Arrangements*. Prepared for DHHS and the Community Transportation Assistance Project, Washington, D.C. (1994).

This report examines several options for transportation coordination, and presents advantages, disadvantages, lessons learned and case studies for each.

Kamber Group, *Transportation Coordination: A Guide to Making it Work for You*. Prepared for USDOT/FTA and the Rural Transit Assistance Program, Washington, D.C., (1995).

This handbook is designed to accompany a 20-minute video on transportation coordination. The manual is a planning and implementation guide that draws upon a variety of resources and includes exercises and examples that will help agency staff motivate startup coordination activities and provide ideas for expanding existing coordination efforts.

KFH Group, *Maryland Transportation Coordination Manual*. Prepared for Maryland Department of Transportation/Mass Transit Administration, Baltimore, MD (January 1998).

This document is a "how to" manual for Maryland transportation providers and communities interested in coordinating transportation resources and services.

Ohio Department of Transportation, *A Handbook for Coordinating Transportation Services and a Guide for Implementing Coordinated Transportation Systems*, Ohio Department of Transportation, Office of Public Transportation, Columbus, OH. (October 1997).

These two notebooks (one for the Handbook and another for the Guide) provide step-by-step instructions to assist communities interested in coordinating transportation services.

Service Design, Planning, and Demand Management

American Public Transit Association, *Access to Opportunity: A Study of Reverse Commute Programs*. APTA, Washington, D.C. (September 1993).

This report first provides an overview of the information available on reverse commuting, particularly as it involves public transit agencies. Abstracts of about two dozen reports, articles and other documents provide a basic list of resources for anyone interested in details about the reverse commute phenomenon, its causes and possible solutions. This report also summarizes the results of a survey of APTA transit system members across the North American continent, as well as others who provide reverse commute services. More than 50 programs are described, in various stages of implementation, and serving a variety of riders as a natural outgrowth of current service, in response to reverse commute needs, or as part of a larger program, such as employment programs or clean air compliance. Service areas, fares, number of riders and vehicles, and incentives are reported for most programs.

American Public Transit Association, *Building Better Communities: Coordinating Land Use and Transit Planning*. APTA, Washington, D.C. (September 1989).

Companion to the Sourcebook. Transit's role and importance will increase when transit services are considered in development plans from the start. Provides recommendations on how transit properties can best work with local governments, developers, bankers, and the citizenry in the design of tomorrow's livable cities and suburbs.

American Public Transit Association, *Building Better Communities... Coordinating Land Use and Transit Planning: Sourcebook*. APTA, Washington, D.C. (1990).

The technical companion to the Building Better Communities brochure. Topics include benefits of transit, matching transit service to mobility needs, strategies, and agreements and policies. The appendices include a discussion on the definition of transit, park and ride guidelines, and an inventory of land development opportunities.

Beimborn, E., Horowitz, A., et al., *Measurement of Transit Benefits*. University of Wisconsin. Prepared for USDOT/UMTA, Washington, D.C. (June 1993).

It is the objective of this report to look at benefits of public transit in a broad way to gain a better understanding of how their measurement can be used to assist in making decisions. The report provides a comprehensive view of the range of consequences of transit services and indicates various methods that can be used to assess their benefits. Benefit assessment is done to make decisions, and a general discussion is given of how to view benefits for that purpose. Consequences of transit are illustrated through the use of a benefit tree. Transit service provides an alternative means of travel, results in changes of trip making by automobile and transit, affects land use activity and leads to direct and indirect employment. These effects lead to still further consequences.

Bensimon, B., *Guaranteed Ride Home: Taking the Worry Out of Ridesharing*. USDOT/FHWA, Washington, D.C. (November 1990).

This handbook introduces the guaranteed ride home program as an incentive to encourage ridesharing. It provides program design and implementation procedures for employers and employee transportation coordinators.

Boyle, D., Ouder Kirk, P., "Strategic Planning for Transit Agencies in Small Urbanized Areas." *Transportation Research Record No. 1402*, Transportation Research Board, Washington, D.C. (1993).

This article presents the transit development plan process as modified to incorporate the strategic planning process, going beyond routine service and financial plans to include consideration of strengths, weaknesses, opportunities and threats. It was applied in three TDPs in Florida (not identified).

Burkhardt, J., et al., *Users' Manual for Assessing Service Delivery Services for Rural Passenger Transportation*. TCRP Report No. 6, Transportation Research Board, Washington, D.C. (1995).

Which rural transportation services are appropriate for particular types of rural communities? After many years of rural transit operations, this question remains unanswered. The need to make publicly-sponsored rural passenger transportation services efficient and effective is even greater than before. Designing services that are closely tailored to the need and resources of their specific communities can significantly increase efficiency and effectiveness. Service models and planning methods developed for urban transportation systems do not apply to rural areas. Differences between successful rural and small urban transportation systems and their counterparts in large urban areas are enormous, due in part to rural population which still contain proportionally more persons who are aged, disabled, and low income than do urban populations. This project rectifies that deficiency with a manual of recommended methods and a computer-based software package.

Cambridge Systematics, Inc., Apogee Research, Inc., *Measuring and Valuing Transit Benefits and Disbenefits Summary*. TCRP Report No. 20, Transportation Research Board, Washington, D.C. (1996).

This report will be of interest to transportation professionals and policy makers responsible for transit investment decisions. The report categorizes and describes transit benefits and disbenefits, presents the dimensions of transit's economic impact, addresses the linkages between increased transit investment and use, and changes in long-term regionwide economic conditions that can be measured with current analytic methods, and provides examples of transit benefits and disbenefits based on recent analysis.

Comsis Corp., The Institute of Transportation Engineers, et al., *Implementing Effective Travel Demand Management Measures: Inventory of Measures and Synthesis of Experience*. Prepared for USDOT/FHWA/FTA, Washington, D.C. (September 1993).

This 442 page report is a detailed reference volume on the range of transportation demand management techniques and their effectiveness. The first section offers a comprehensive overview of Travel Demand Management, covering what it is, why it exists, and where it fits in as a transportation strategy. The second section of the report catalogs and presents a detailed informational profile on each of 11 different TDM measures. The third section of the report pulls its findings on TDM together, identifying those factors of low, medium, and high importance to a successful TDM program. It also explores effectiveness of individual and packaged TDM activities, cost effectiveness, and implementation issues. The report should be of special interest to transportation planners whose responsibilities include trip reduction strategy formulation.

Comsis Corp., *Guidebook for Planning Small Urban and Rural Transportation Programs*. Prepared for the New Mexico State Highway and Transportation Department. USDOT/Rural Transit Assistance Program, Washington, D.C. (June 1990).

This two volume set describes the process involved in planning and implementing rural and small urban transit services. This guide can be used by operators of existing programs who want to modify their operations, or by communities who are starting transit programs. Topics covered include determining markets for transit services, developing ridership estimations, taking stock of existing services, assessing alternative service approaches and assistance needs, financing and community involvement, and implementation and program monitoring. The manual also includes information on performance standards.

Comsis Corp., The Institute of Transportation Engineers, et al., *A Guidance Manual for Implementing Effective Employer-Based Travel Demand Management Programs*. Prepared for USDOT/FHWA/FTA, Washington D.C. (November 1993).

This 123 page report suggests a process for development of TDM programs by employers, and offers guidance on the selection of effective TDM strategies. The document first provides an overview of TDM, and explains its role in congestion and air quality management. It discusses the typical reasons TDM programs are implemented, and the benefits they can offer employers. It then discusses common TDM strategies, and highlights their application at a worksite. It sets forth a process to develop an employer-based TDM program, outlining a six-step process to do this. To support the selection of specific measures, the document includes a series of worksheets and look-up tables to estimate trip reduction impacts of individual TDM strategies as well as packages of techniques.

Comsis Corp., The Institute of Transportation Engineers, *Overview of Travel Demand Management Measures*. Prepared for USDOT/FHWA/FTA, Washington D.C. (January 1994).

This 22 page report provides an overview of the TDM concept, and its utility in addressing congestion and air quality problems. This introductory document describes the components of TDM strategies, how they relate to longer term congestion avoidance strategies, and the potential level of impact of successful TDM programs. One section specifically explores the myths and realities of successful TDM programs. The document stresses the importance of commitment, constituency, coordination, and continuity in putting together a successful TDM program. The document should be of particular use as an overview for non-transportation executives unfamiliar with the TDM concept.

Demetsky, M., Hoel, L., Davis, C., et al., *Decision Procedures for Paratransit Market Selection and Service Evaluation*. University of Virginia. Prepared for USDOT/UMTA, Washington, D.C. (May 1982).

This research addresses the transit manager's basic problem of deciding how to increase transit service availability while at the same time improving its efficiency by implementing new paratransit services to attractive market areas and discontinuing existing services to unproductive markets in a timely manner. These decisions depend upon good marketing information on one hand and good service evaluation data on the other. This study focuses on both sides of this transit management decision problem, and presents unified procedures that simultaneously deal with both the marketing and service evaluation problems. In the marketing problem, paratransit service opportunities in growing suburban markets are identified. For the service evaluation problem, the focus is on analysis of existing fixed-route and paratransit services and justification of the elimination of unproductive services.

Doolittle, J.T. Jr., *Integration of Bicycles and Transit*. TCRP Synthesis No. 4, Transportation Research Board, Washington, D.C. (1994).

This synthesis will be of interest to transit agency managers, bicyclists, and other personnel interested in the subject of integrating bicycles and transit operations, including the issues of safety, equipment procurement, scheduling, and inter-jurisdictional cooperation. Information on bicycle-on-bus, bicycle-on-rail, and bicycle-on-ferry programs is included. This report describes the characteristics of various bicycle-transit programs, including operation, equipment, and other issues for bus, rail, and ferry applications. It includes experiences from various transit agencies in the US that are successfully integrating bicycles into their operations, as well as information derived from the literature on the subject.

Drachman Institute, *Solving ADA Paratransit Problems: How to Cope with Reality Proceedings*. Transportation Research Board, Washington, D.C. (1993).

This report provides the proceedings of a conference that was held in May 1993. The focus of the conference was to identify the best practices and state of the art solutions to some of the most pressing problems facing communities struggling to provide complementary paratransit services, including financing service provision, certifying and recertifying eligible users developing alternative methods of service delivery and dealing with other transportation providers and social service agencies.

EG&G Dynatrend, Katherine McGuinness & Associates, *ADA Paratransit Handbook*. (September 1991).

This handbook provides guidance and practical info for implementing the complementary paratransit service requirements of ADA. A primary purpose of this handbook is to assist transit operators and planners with the preparation of required ADA paratransit plans. The first five chapters summarize the law and complementary paratransit service requirements. Eligibility determination, service criteria, and operating standards and requirements are analyzed in detail. The last four chapters discuss paratransit service models; ways to enhance fixed route service in order to reduce the need for paratransit; the preparation of paratransit plans, including a step-by-step planning methodology; and, key implementation issues such as scheduling, training, equipment specifications, and record keeping. Applicable regulatory text is included in an appendix.

Frank Wilson & Associates, Inc., *Public Outreach Handbook for Departments of Transportation*. NCHRP Report No. 364, Transportation Research Board, Washington, D.C. (1994).

This report documents and presents the results of a study of the use of public outreach as a tool in transportation management. Research was conducted to determine state transportation departments' areas of greatest concern in regard to public outreach, as well as their perceived audiences of greatest importance. Five scenarios were developed incorporating those concerns. Public outreach campaigns in a number of states were investigated to determine the most successful tools and techniques for dealing with the situations illustrated in the scenarios. These tools and techniques were examined in detail and then applied to the scenarios to develop a prototypical campaign approach for each of the scenarios. A major product of this research program is the Public Outreach Handbook for Departments of Transportation, Fall 1992. Three state transportation agencies were identified that exemplify the successful use of public outreach in transportation management.

Hickling Corporation, *"Cancellations - No Shows" Study Guidelines*. Ontario Urban Transit Association, Toronto, Ontario, Canada (1990).

This report discusses problems associated with cancellations/no-shows at DARs serving individuals with disabilities, and sets forth guidelines to minimize their impacts on the transit programs. Report is not as easy to read/use as several other handbooks published by the Ontario Urban Transit Association, but provides some useful materials on:

- Problems of no-shows/cancellations and rates experienced.
- Standards for "acceptable" no shows/cancellations based on research in Canada.
- Strategies to reduce no-show/cancellations.
- Sample brochures explaining policies.

Hooper, K.S., *Innovative Suburb-to-Suburb Transit Practices*. TCRP Synthesis No. 14, Transportation Research Board, Washington, D.C. (1995).

This synthesis will be of interest to transit agency general managers and their marketing and planning staffs. It will also be of interest to state DOTs, metropolitan planning organizations, and other professionals in the private sector concerned with the provision of suburban transportation services. This synthesis provides information about the suburban shift from the more traditional central business district-oriented service patterns of selected transit agencies. Transit agencies with limited marketing successes in this area are being challenged to address these non-traditional markets anew. This report of the TRB describes some common elements of success among transit agencies with services that have suburban origins and destinations and that serve largely suburban travel needs. This synthesis documents current transit agency practice regarding targeted marketing, partnerships with the private sector, site design and land use issues, and transit's role both as mobility manager.

Howard/Stein-Hudson Associates, Parsons, Brinckerhoff, Quade & Douglas, *Public Involvement Techniques for Transportation Decision-Making*. Prepared for USDOT/FHWA/FTA, Washington, D.C. (September 1996).

This reference handbook describes a variety of public involvement techniques that are available to transportation agencies. It includes 14 techniques originally published in *Innovations in Public Involvement for Transportation Planning*.

Institute for Transportation Research & Education *Community Transportation Services Alternatives Analysis*. ITRE, North Carolina State, Raleigh, NC (1997).

The goal of this study was to identify methods by which local public transportation systems may become community transportation providers. The focus of the study is on employment transportation. The report details the study findings, estimates employment transportation needs and contains ITRE's recommendations for changes to the service plans of local public transportation systems and to the statewide policies of NCDOT/PTD and NCDHR/DSS.

Introductory Guide to Rural and Specialized Transit. Arizona DOT, Phoenix, AZ (March 1994).

This guide provides an overview of rural and specialized transit. It is oriented primarily to persons with little or no background in the field. Its purpose is to provide general information for state and local policy makers, funding agencies and potential operators of rural and specialized transit systems.

Jeffrey A. Parker & Associates and International Taxicab and Livery Association, *Mobility Management and Market Oriented Local Transportation*. Prepared for USDOT/UMTA, Washington, D.C. (March 1991).

The Mobility Manager is a mechanism for achieving the integration and coordination of transportation services offered by multiple providers -- public, private for-profit and private non-profit -- involving a variety of modes -- bus, taxi, vanpools, rail, etc. -- and multiple sources of funding. This report describes a study that Jeffrey Parker & Associates conducted of consumer choice approaches to public transportation service delivery, and the evolution of the project towards a "mobility management" approach to service delivery which is consistent with, but more broadly construed, than market-oriented local transportation.

K. Hooper & Associates, *Access to Opportunity: Linking Inner-City Workers to Suburban Jobs*. American Public Transit Association, Washington, D.C. (May 1994).

Reverse commutes have, in the last three decades, increased by 152 percent. Nearly four million employees commute daily from central cities to suburbs or beyond to work. This report, based on a one-day workshop held in the fall of 1993 identifies and quantifies the demographic and employment trends causing reverse commutes, and examines strategies transit systems, economic development officials, employers and others have taken to plan and provide services to satisfy changes in these commuting patterns.

Lave, R., Rose, K., Sugrue, J., "Methodology for Conducting a Transportation Survey of Persons with Disabilities." Transportation Research Record No. 1338, Transportation Research Board, Washington, D.C. (1992).

This article describes a methodology used to conduct a survey of persons with disabilities living in the area served by the Chicago Transit Authority. The survey was designed to learn about the travel behavior, attitudes toward modes, effect of disabilities on travel and demographics of this population.

Levinson, H., *Supervision Strategies for Improved Reliability of Bus Routes*. NCTRP Synthesis of Transit Practice No. 15, Transportation Research Board, Washington, D.C. (September 1991).

This report described the various procedures that are used by transit agencies to monitor and maintain bus service reliability. Most transit systems conduct checks of the number of riders at maximum load points and monitor schedule adherence at these locations. Other supervisory actions include service restoration techniques, and strategies such as schedule control, headway control, load control, extra-board management, and personnel selection and training. More sophisticated technologies, such as automatic passenger counting systems and automatic vehicle location and control have been employed by some transit agencies and are described in this synthesis.

McKeever, C., Quon, J., Valdez, R., "Market-Based Strategies for Increasing the Use of Alternative Commuting Modes." Orange County Transit District, Presented at the Transportation Research Board 70th Annual Meeting, Washington, D.C. (December 1990).

Orange County in Southern California faces severe traffic congestion and air quality problems. Both of these problems can be reduced by diverting commuters into carpools, vanpools, public transportation, bicycling, and walking. To find ways to increase the effectiveness of efforts to promote these alternatives, analyses were carried out on several surveys of Orange Co. commuters and on the rideshare matching database used by the county's ridesharing agency. Several demographic factors were found to be correlated with use of each of the alternative commute modes, and with willingness to consider using them. The analysis also identified the most common objections that commuters raised to considering alternative commute modes, the factors commuters considered when choosing a commute mode, and their perceptions of the available commute modes. Methods of identifying the commuters who form the key markets for each of the alternative commute modes, of overcoming commuters' objections to alternative modes, and of changing commuters' perceptions of alternative modes to make them more attractive, are recommended.

Nalevanko, A., Community Transportation Association of America, *Rural Transit Service Design and Scheduling*. Technical Assistance Brief No. 12, Prepared for USDOT/FTA and the Rural Transit Assistance Program, Washington, D.C. (April 1994).

This brief discusses some of the basic considerations in rural transit service design and scheduling and in the use of computers to assist in providing transportation. The single most important factor in a rural transit system's success is the community's support, both financial and political. This brief outlines considerations in designing or refining rural service.

Parsons, Brinckerhoff, Quade and Douglas, Inc., *Transit and Urban Form: Volumes 1 and 2*. TCRP Report No. 16, Transportation Research Board, Washington, D.C. (1996).

The research addresses the relationship between land use and public transportation. These relationships are re-examined, explained, evaluate, and documented to facilitate cost-effective multimodal public transportation investment decisions. Volume 1 consists of two parts: Part I, Transit, Urban Form, and the Built Environment: A Summary of Knowledge, synthesized findings and conclusions of Project H-1 and the existing body of literature on transit and urban form. Part II, Commuter and Light Rail. This TCRP Report 16 will be of interest to a broad cross section of individuals involved in transportation and land use planning and development. Volume 2 consists of Parts III and IV. Part III, A Guidebook for Practitioners, offers guidance to communities on patterns of development that encourage alternatives to the car for work and non-work travel. Volume 2 uses case studies to determine public policies and institutions necessary for transit-supportive development to occur.

Project for Public Spaces, Inc., *The Role of Transit in Creating Livable Metropolitan Communities*. TCRP Report No. 22, Transportation Research Board, Washington, D.C. (1997).

This report describes transit's increasingly important role in improving the livability of communities. Concerns about livability affect every community: inner cities, suburbs, small towns, and rural areas. The report explores a "place-making", approach where a local community, working in partnership with a transit agency, plans and implements neighborhood-scale projects and programs that are mutually supportive of community livability and transit ridership goals. This report is divided into three parts. Part I, the Overview, describes the place-making approach to livability and explores the relationships between transportation and livability that are keys to understanding the case studies presented in the report. Part II presents the specific which transit can support the livability of communities, using extensive case studies. Part III is a practical guide to implementation, including a planning process and helpful suggestions on implementing the process.

Rosenbloom, S., *Developing a Comprehensive Service Strategy to Meet a Range of Suburban Travel Needs*. University of Texas. Prepared for USDOT/UMTA, Washington, D.C. (May 1990).

This report discusses the results of a study which was designed to 1) identify promising nontraditional transit options which had been developed for highly suburban areas, 2) develop a methodology allowing transit operators to identify which non-traditional services might be appropriate for which areas given local demographic, land-use, and geographic factors, and to evaluate the cost effectiveness of promising methods of non-traditional options, and 3) illustrate the use of the methodology on a case site -- a 60 square mile low density area in the service area of the Capital Area Metropolitan Transit Authority of Austin, Texas.

Rosenbloom, S., *Service Routes, Route Deviation and General Public Paratransit in Urban, Suburban, and Rural Transit Systems*. (January 1996).

Non-Traditional Transit study - evaluated 1) how needs of 3 service options were integrated into operations of system; 2) conformed to ADA; 3) incorporated ridership patterns in ADA newsletter. Forty systems reviewed in depth.

Texas Transportation Institute, et al., *Guidelines for the Location and Design of Bus Stops*. TCRP Report No. 19, Transportation Research Board, Washington, D.C. (1996).

The primary objective of this research was to develop guidelines for locating and designing bus stops in various operating environments. These guidelines will assist transit agencies, local governments, and other public bodies in locating and designing bus stops that consider bus patrons' convenience, safety, and access to sites as well as safety transit operations and traffic flow. The guidelines include information about locating and designing bus stops and checklists of factors that should be considered.

Thatcher, R., *Americans with Disabilities Act Paratransit Eligibility Manual*. Prepared for USDOT/FTA, Washington, D.C. (September 1993).

This manual provides guidance to transit providers in the development and implementation of ADA paratransit eligibility determination processes. Common questions raised about eligibility are addressed. Experience gained in the first one and a half years of implementation of the ADA complementary paratransit provisions is also summarized. As part of the preparation of this manual, public entities that had particular expertise and experience with eligibility determination were contacted and copies of the forms and procedures which they had developed were collected. Key issues raised by these transit providers are included in the text and copies of sample forms and policies are provided in the appendices.

Transportation Research Board, "Public Transportation Management and Planning in a Rapidly Changing Environment: Strategies for Survival", *Transportation Research Circular No. 460*, Transportation Research Board, Washington, D.C. (April 1996).

The 1995 Workshop on Public Transportation Management and Planning in a Rapidly Changing Environment: Strategies for Survival was designed to stimulate discussion among its participants regarding changes that need to be made and the framework necessary to make these changes. During approximately the first half of the workshop, a series of presentations were made relating to four primary themes that provided focus for the participants - 1) the changing transit environment, 2) uses of market research, 3) transit management issues, and 4) innovative and nontraditional strategies to provided transit service. Using the results of the presentations, the remainder of the workshop concentrated on major issues that needed to be addressed by the transit community. Through a series of breakout sessions, three major topics were discussed by the participants: 1) Management -- Converting Challenges to opportunities, 2) Planning -- Methods to Meet Future Markets, and 3) Funding -- Responding to the New Environment: ISTEA and Beyond.

Vuchie, V., Dr., et al., *The Bus Transit System: Its Underutilized Potential*. University of Pennsylvania and University of Delaware. Prepared for USDOT/FTA, Washington, D.C. (May 1994).

The objectives of this study were to: 1) clearly define an upgraded bus transit system; 2) evaluate the present condition of bus services with respect to their upgrading from the simple service in mixed traffic in urban streets; 3) define reasons why and under what conditions bus service improvements should be introduced; 4) define obstacles commonly encountered in implementing and in maintaining measures of upgrading bus services; and 5) recommend policies and actions which would overcome these obstacles and allow development of bus systems which have considerably higher levels of efficiency, passenger attraction and positive impact on urban quality of life.

Effects of Fare Changes on Bus Ridership. APTA, Washington, D.C. (1991).

Abridged version (8 pages) of the report "Fare Elasticity and its Application to Forecasting Transit Demand", prepared for general use by transit executives, managers, and planners. The document briefly summarizes the research methodology and discusses the effects of fare changes on bus ridership by peak vs. off-peak hours and by population category for 52 transit systems.

Fare Elasticity and its Application to Forecasting Transit Demand. APTA, Washington, D.C. (1991).

Technical research applying the ARIMA model in estimating bus fare elasticities of 52 transit systems in the United States. The report describes data collection procedures and a special survey conducted to obtain monthly data for the model. The estimation models and research results are presented and evaluated in detail.

How to Write a Transportation Development Program for Rural and Small Urban Areas. Colorado DOT, Denver, CO (January 1990).

The first booklet addresses guidelines for writing a TDP, a five year planning document which outlines the process and preferred alternatives to meeting the transit needs of the community or region. The document addresses the current transit environment, the need for transit services, development of transit alternatives and the selection of the best alternatives. It also presents a program for capital, administrative and operational transit development. The second volume explains the process for updating an existing TDP or writing a full five year plan in areas where a previous plan existed and elements have not substantially changed.

Transit Operations for Individuals with Disabilities, TCRP Report No. 9, Transportation Research Board, Washington, D.C. (1995).

This report provides alternative operating models and possible enhancements to traditional public transit services that can be employed to encourage individuals with disabilities to used fixed-route services when appropriate.

Vehicle Maintenance and Selection

Arcadis Geraghty and Miller, *A Guidebook for Evaluating Fuel Options for Transit Buses*. TCRP Report 38, Transportation Research Board, (1998).

This report presents the results of TCRP Project C-8. The objective of this study was to provide transit managers with tools to simplify the process of choosing an alternative fuel strategy by clearly identifying the issues and costs associated with converting to one or more of the various available alternative-fuel technologies. The guidebook includes a computerized spreadsheet model for estimating the associated cost impacts, entitled FuelCost1.0

American Public Transit Association, *1997 International Bus Maintenance Roadeo Handbook*. International Bus Maintenance Roadeo Subcommittee, APTA, Washington, D.C. (1997).

This handbook contains the guidelines and rules proposed by the APTA International Bus Maintenance Roadeo Subcommittee. Local transit agencies are encouraged to use this handbook as a guide to establishing local, regional, and state competitions.

American Public Transit Association, *Bus Maintenance Roadeo Handbook*. APTA, Washington, D.C. (1996).

How to organize a bus maintenance roadeo.

ATE Management and Service Co., *Maintenance Manager's Handbook for Small Transit Agencies*. Prepared for Ohio Department of Transportation (March 1988).

This publication contains info to assist operators of transit agencies providing public transportation in rural and smaller urban areas to better manage their vehicle maintenance programs. The report includes discussions of maintenance management, maintenance operation, in-house maintenance, and maintenance practices. Also included are appendixes giving supplementary information about tire loads; lubrication oil; mechanic hand tools; shop tools, mechanic aptitude tests; technical training resources; maintenance management training resources; and lists of manufacturers of air conditioning systems, wheelchair lifts and wheelchair ramps. The purpose of this manual is to help small transit agencies establish a program to provide better maintenance of their vehicles and ancillary equipment thereby reducing the costs of operating and maintaining vehicles and increasing the useful life of the vehicle.

Comsis Corp., *A Generic Request for Proposal for Maintenance Contracting*. USDOT, Washington, D.C. (1989).

This booklet, prepared by FTA's Public Private Transportation Network, provides fleet managers who wish to contract maintenance services with a format they can use to solicit proposals.

Comsis Corp., RLS & Associates, Varker and Associates, *Ohio Department of Transportation Vehicle Catalog and Selection Guide*. Ohio DOT, Columbus, OH (January 1993).

This publication includes guidance for the selection of the proper vehicle; detailed information, with illustrations and example floor plans, for the types and sizes of vehicle available in the Ohio program; and a listing, with discussions of all optional equipment available to be added to the selected vehicle. A discussion on preventive maintenance is also included. Estimated costs of the vehicles and equipment can also be found.

Drake, R., Carter, D., *Impacts of Standardized vs. Nonstandardized Bus Fleets*. NCTRP Report No. 17, Transportation Research Board, Washington, D.C. (1990).

Maintenance managers have long contended that mixed fleets are more costly to maintain and operate and have attempted to achieve some standardization by specifying the common components regardless of supplier. Recognizing that the transit industry has entered a period of sustained fiscal austerity, the National Cooperative Transit Research and Development Program contracted for a study to explore impacts of standardized versus nonstandardized bus fleets. A survey of recent bus procurements of a large cross section of transit agencies was conducted. The survey focused on identifying the costs of training, capital, parts inventory, and operations resulting from the introduction of new buses into the fleet. A follow-up survey of 22 transit agencies that could provide detailed operating and maintenance costs at the subsystem level for each bus subfleet was conducted.

Francis, G., Norstrom, D., *Guideline Specifications for Passive Lifts, Active Lifts, Wheelchair Ramps and Securement Devices*. Prepared for USDOT/FTA, Washington, D.C. (September 1992).

This report presents the 1) technical requirements, 2) testing, certification, inspection and warranties, and 3) maintenance, training, and service associated with the procurement of passive lifts, active lifts, wheelchair ramps, and securement devices. Specifications are presented in an easy-to-read manner and include definitions for much of the language used to present them.

Giuliani, C., et al., *Bus Inspection Guidelines*. NCTRP Synthesis of Transit Practice No. 10, Transportation Research Board, Washington, D.C. (June 1987).

The purpose of this synthesis is to review bus inspection procedures at large and medium-sized transit systems, with specific reference to frequency of inspections, use of pre-run inspections, items included in the inspection process, organization for inspection, effect of work rules, record keeping, facilities and equipment provided, and reinspection. This information should be helpful to management in evaluating the adequacy of current practices and analyzing the costs and benefits of alternative approaches.

Handbook for Purchasing Small Transit Vehicles. Pennsylvania DOT, USDOT, Washington, D.C. (1988).

This handbook was developed to assist PA grantees in all stages of the procurement process, from selecting the best vehicle to receiving delivery of the finished product. The first part of the manual contains information on basic vehicle selection and procurement. The second section includes description and specifications for vehicle options not included in the states' standard specifications.

Hemsley, G., *Safe Operating Procedures for Alternative Fuel Buses*. TCRP Synthesis No. 1, Transportation Research Board, Washington, D.C. (1993).

This report describes the characteristics of various alternative fuels in use by transit agencies and discusses several aspects of these fuels and handling practices including training procedures, fuel storage and handling, maintenance operations considerations, facility requirements, issues related to the buses, facility and operating costs, and environmental considerations.

Ketron Division of Bionetics Corp., *Paratransit Vehicle Specifications and Related Special Maintenance Requirements, TCRP Project C-9*, Transportation Research Board, Washington, D.C. (1999).

The purpose of this research is to develop a paratransit vehicle specification writing tool. This research also developed information about maintenance training, schedules, equipment, and facilities needed for each significant paratransit component. The project developed a Windows-based software tool (called ParaSpec) to assist paratransit providers in determining the appropriate vehicle, developing performance based specifications and determining special maintenance requirements for that vehicle.

King, R., *Low-Floor Transit Buses*. TCRP Synthesis No. 2, Transportation Research Board, Washington, D.C. (1994).

Information on low-floor transit buses operating in the US and Canada, including technical specifications as well as status reports on buses manufactured in North America; buses under development; and buses in Europe, obtained from contacts with international organizations is included. It contains descriptions of standard low-floor buses, as well as another smaller bus used primarily in paratransit service. This report describes, primarily findings from four transit agencies with standard size, low-floor transit buses in service with respect to passengers, maintenance, operations, drivers, and planning and administration. Additionally, it presents some general insights from transit agencies operating smaller low-floor transit vehicles, and, in particular, describes concerns relative to road clearance, winter operations, operations in high water, and impacts on operating practices.

KPMG Peat Marwick, *Estimation of Operating and Maintenance Costs for Transit Systems*. Prepared for USDOT/FTA, Washington, D.C. (December 1992).

This report provides guidance regarding the development and application of operating and maintenance (O&M) cost models and supplements the FTA's Procedures and Technical Methods for Transit Project Planning. An operating and maintenance cost database containing representative information for motor bus, rail rapid, light rail, and commuter rail modes is presented. The database provides 1) labor productivity and unit cost info and can be directly applied in structuring O&M cost models and 2) aggregate costs per unit of service for major functional areas at peer transit properties that can be used to test the reasonableness of model results. This report draws on the operating experience of many transit systems contained in Section 15 data reported to FTA, in detailed budgets of several representative transit systems that operate light rail and previously developed cost models.

Maze, T.H., *Bus Fleet Management Principles and Techniques*. University of Oklahoma. Prepared for USDOT/UMTA, Washington, D.C. (November 1987).

The text covers several fundamental techniques and principles of bus fleet management. Examples are derived from a detailed case study at the Wichita, Kansas Metropolitan Transit Authority. The examples taken from the Wichita Transit System, and from other transit systems are intended to help guide bus fleet managers when applying the management techniques described. Key elements of the Wichita case study are the development of standard maintenance task times (work measurement) and the calculation of a variety of bus fleet performance measures. The standard maintenance task times and plots of the performance measures for the Wichita Transit System are included in appendices.

Pierce, J., Moser, E., *System-Specific Spare Bus Ratios*. TCRP Synthesis No. 11, Transportation Research Board, Washington, D.C. (1995).

The purpose of this study was to document and examine the critical site-specific variables that affect the number of spare vehicles that bus systems need to maintain maximum service requirements. The project involved transit managers at a cross section of bus transit agencies of varying size and geographic location in the US and Canada who responded to a detailed survey questionnaire. The survey responses (36 out of 50) document the state of the practice in the industry concerning spare vehicles and highlight specific innovative practices that have helped transit officials reach and maintain relatively low spare bus ratios. The report examines the maintenance impact of the required fleet changes resulting from implementation of ADA and the use of alternative fuel buses to meet the requirements of the CAAA.

Raj, P., Hathaway, W., Kangas, R., *Design Guidelines for Bus Transit Systems Using Liquefied Natural Gas as an Alternative Fuel*. Prepared for USDOT/FTA, Washington, D.C. (March 1997).

This guidelines document presents various facility and bus design issues that need to be considered to ensure safe operations when using LNG as the alternative fuel. Fueling facility, garaging facility, maintenance facility requirements and safety practices are indicated. Fuel properties, potential hazards, fuel requirements for specified level of service, applicable codes and standards, ventilation and electrical classification, among other items are also discussed. Critical fuel related safety issues in the design of the related systems on the bus are also indicated. A system safety assessment and hazard resolution process is also presented. This approach may be used to select design strategies which are economical, yet ensure a specified level of safety.

Raj, P., Hathaway, W., Kangas, R., *Design Guidelines for Bus Transit Systems Using Compressed Natural Gas*. Prepared for USDOT/FTA, Washington, D.C. (June 1996).

This guidelines document presents various facility and bus design issues that need to be considered to ensure safe operations when using CNG as the alternative fuel. Fueling facility, garaging facility, maintenance facility requirements and safety practices are indicated. Among the issues discussed are fuel properties, potential hazards, fuel requirements for specified level of service, applicable codes and standards, ventilation, and electrical classification. Critical fuel related safety issues in the design of the related systems on the bus are also discussed. A system safety assessment and hazard resolution process is also presented. This approach may be used to select design strategies which are economical, yet ensure a specified level of safety.

Schiavone, J., *Transit Bus Service Line and Cleaning Functions*. TCRP Synthesis No. 12, Transportation Research Board, Washington, D.C. (1995).

Discusses a variety of approaches to bus servicing and cleaning. Includes information on how to define a clean bus, how to define a properly serviced bus, and how to prevent and remove graffiti.

Schiavone, J., *Monitoring Bus Maintenance Performance*. TCRP Synthesis No. 22, Transportation Research Board, Washington, D.C. (1997).

The purpose of this synthesis is to summarize the various approaches transit agencies use to monitor maintenance performance and to describe how performance measures are used to help share maintenance programs. Included are traditional approaches to monitoring and some more sophisticated techniques. This synthesis takes a close look at how five public transit agencies and one private trucking company monitor maintenance performance. A questionnaire was used and site visits were made to collect and analyze data.

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Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation