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# TCRP Report 54

## **Management Toolkit for Rural and Small Urban Transportation Systems**

Transportation Research Board  
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## **Report 54**

# **Management Toolkit for Rural and Small Urban Transportation Systems**

**KFH GROUP, INCORPORATED**  
Bethesda, MD

in association with

**INSTITUTE for TRANSPORTATION RESEARCH and EDUCATION (ITRE),**  
Raleigh, NC

and

**LIDLAW TRANSIT SERVICES, INC.**  
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## TRANSIT COOPERATIVE RESEARCH PROGRAM

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

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

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

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

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

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

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

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### NOTICE

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

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

To save time and money in disseminating the research findings, the report is essentially the original text as submitted by the research agency. This report has not been edited by TRB.

### Special Notice

The Transportation Research Board, the National Research Council, the Transit Development Corporation, and the Federal Transit Administration (sponsor of the Transit Cooperative Research Program) do not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the clarity and completeness of the project reporting.

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## **FOREWORD**

*By Staff  
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This toolkit identifies an array of management principles and techniques, for use by small urban and rural public transportation providers, to assist in managing their transportation services and resources effectively. The toolkit has two parts: a guidebook and a self-assessment tool. The guidebook introduces the idea of customer-driven transit service attributes and includes general management philosophies. Also included in the guidebook are exemplary practices and "how to" instructions for some topics. Additional sections describing "rules of thumb" or "things to avoid" are included for some management processes. Each chapter of the guidebook discusses a customer-service attribute and how it can be measured and tracked. Some of the customer-service attributes are reliability, safety/security, convenience/accessibility, comfort/cleanliness, and affordability. The guidebook also includes four chapters on the "cross-cutting" topics, including operations management, risk management, vehicle maintenance, and procurement. The self-assessment tool on disk, that accompanies this report, is designed to give the user a baseline or current picture of the status of the transit system.

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Small urban and rural transportation providers need easy access to management principles and techniques that can be used to enhance performance, within their budget and staffing constraints. Although large- and medium-sized transportation agencies frequently use such principles and techniques, they can be expensive and require considerable staff, making them impractical for small urban and rural transportation providers.

Often managers in small transportation operations are not able to attend industry conferences or training seminars. A recent survey, conducted by an association of rural transportation providers, indicated that guidance on basic management principles and techniques is sought at all levels. The survey also indicated a need for management reference materials and management principles and techniques to assist staff in guiding and managing their systems and in selecting and training employees.

KFH Group, Inc., in association with the Institute for Transportation Research and Education (ITRE) and Laidlaw Transit Services, Inc., prepared the final report for TCRP Project G-5. To achieve the objective of identifying management principles and techniques for use by small urban and rural public transportation providers, the researchers conducted a comprehensive review of relevant literature. Small urban and rural transportation providers that are using the management principles and techniques identified in the literature search were singled out for further observation. Information was collected from the transportation providers on topics where assistance would be beneficial and on formats useful for presenting the material. On the basis of the information collected from the transportation providers, selected management principles and techniques were compiled, along with a glossary and complete bibliography. Simultaneously, a format for a simple, easy-to-update guidebook was developed.

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the Toolkit and assisted in the revisions. At ITRE, Thomas Cook, Anna Nalevanko, and Stephanie Broughton helped shape the Toolkit and wrote sections. Kathryn McDermott and Corrie Lisk-Hurst at ITRE edited the final product and Linda Ryden at KFH Group managed its production. The project team would like to thank many people for their contributions to this Toolkit. We are grateful to the TCRP staff and the Project Panel for their guidance and assistance, and we sincerely appreciate their time and effort in reviewing materials.

## Chapter 1: Introduction to the Toolkit

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### Welcome to the Toolkit.....



Welcome to the *Transit Manager Toolkit* for providing high quality, customer-oriented transit services! We hope the toolkit provides you, the manager of a small urban or rural transit system, with a new way of managing your system — focusing on the needs of your customers, who are the riders and potential riders in your community. We hope that the toolkit gives you strategies and techniques — management "tools" — that you need to provide effective customer-oriented transit services.

As a transit manager, you may not have thought much about your transit services from the perspective of the consumer — after all, many of your customers may have limited transportation choices. But, no matter how big or small your transit system, how simple or complex, customer service is important. Indeed, if your service is not good enough to attract and retain riders who have limited transportation choices, then how can it satisfy riders who could choose some other alternative?

This toolkit is about managing your transit system to give all your customers the kind of transit service that they want and need in order to travel throughout your community. Providing transit services that are great from the customer's perspective requires transit managers to understand what good service is, why it is important to customers, and how to achieve it. In order for this to happen, transit managers have to manage their entire system with the customer in mind.

Your leadership is needed to make customer-driven strategies work. Transit systems do not provide superior customer services without top managers who are truly committed to service. Your leadership as the transit manager is especially important because employees exercise broad discretion when serving customers. Drivers and other staff will be relying on a strong service culture, which takes its tone and values from you as its leader — remember that customer relations often mirror employee relations.

While creating a customer-oriented culture is essential to producing superior service, you are still going to be ineffective without the appropriate strategies and techniques needed to pull it off. You can create a customer-oriented mindset at your transit system, yet not be able to deliver good service if your employees lack training or if you don't have enough spare vehicles to cover services. This toolkit is intended to provide you with a different way to look at management — from a customer-oriented viewpoint — as well as the management techniques and principles needed to create customer-oriented services.

### How to Use the Toolkit

The toolkit has two parts — a guidebook and a self-assessment tool. The guidebook contains eight chapters plus four crosscutting sections. Following this introductory chapter, each subsequent chapter highlights a customer service attribute (e.g., reliability, safety and security, convenience and accessibility, comfort and



cleanliness, understandability, affordability, and empathy). Four crosscutting sections addressing general operating procedures, maintenance, risk management, and contract management follow the service attribute chapters. The self-assessment tool is located at the end of this chapter.

We recommend you do the following to get the greatest benefit from the toolkit: first, go to the self-assessment tool, beginning on page 1.14, and complete the self-assessment forms. This will give you a baseline or current picture of the status of your transit system. Record your scores for each section of the self-assessment tool. Then refer to the sections of the toolkit that address the area(s) in which you have the lowest score. You should find management practices that will help you improve your system's customer focus in each area. Then refer to other sections of the toolkit, as appropriate.

We also recommend that you go back and redo the self-assessment tool periodically (once each year). In that way, you can see the areas in which your system (and management) has improved, and those areas in which you should place additional emphasis. Tracking your scores in the various sections over time can give you a snapshot of how your system management is performing.

## What is Customer-Driven Management .....



Competing with other modes of transportation, especially the personal automobile, requires that you understand what good transit service is and why it is important. The first question is, "**What is *customer service*?**" As a transit manager, you need a practical definition of customer service as it relates to the transit industry. Clearly, customer service means more than putting vehicles on the street.

In the broadest sense, customer service is doing whatever it takes to satisfy your riders. Customer satisfaction, or the lack thereof, is the difference between the services customers expect from your transit system and the services they perceive they are getting, all the time comparing your services to alternative modes of travel. While most riders do not expect transit services to be as convenient as a personal automobile, they often expect them to be more affordable. They have every right to expect that buses will arrive on time, be clean, comfortable, safe, and that the whole process of using transit will be understandable and responsive to them as users. To your customers, your transit services are complex, and their transit trips have a variety of characteristics that make them "satisfied."

The second question is the one this toolkit is designed to answer, "**How can I *manage my transit system to ensure customer satisfaction*?**" The toolkit is organized around what can be considered seven closely linked categories of transit customer services — dimensions that define **customer service quality** and that are based on a customer-driven approach to transit management. The customer service categories or attributes include: reliability, safety/security, comfort/cleanliness, convenience, understandability, affordability, and empathy. We have devoted a chapter of the toolkit to management techniques and principles for each.

The toolkit is not a manual on "how to" manage transit systems, but rather it includes principles of good management and some exemplary practices. The manual

concentrates on "what to do" rather than "how to do it." However, for some subjects, specific instructions (e.g., how to prepare a vehicle replacement plan) and "how to" guidance are included in the sidebars.

The toolkit recognizes that while meeting customer service needs is the most important goal for you as a transit manager, you also have other management objectives, such as improving efficiency and reducing waste. Meeting these other goals will often allow you to better meet customer needs (by allowing for more services within an operator's budget) but these other goals are not directly related to meeting customer needs on a daily basis. This toolkit concentrates on "customer service goals" and focuses on the management processes and functions needed to meet customer needs as paramount. Other resources, such as those in the bibliography, can provide direction on how to manage for other management quality goals.

## Organization of the Toolkit .....



The toolkit is organized in a simple format using bullets and boxes.

This first chapter introduces the general idea of customer-driven transit service attributes and includes general management philosophies.

The toolkit includes some exemplary practices in boxes to illustrate more innovative management approaches.

The toolkit includes "how to" instructions in boxes for some topics. For some management processes, we have included some "rules of thumb" or "things to avoid."

The toolkit also includes a bibliography and glossary in the appendices.

As mentioned above, subsequent chapters are organized around the following customer-service attribute categories to help make your transit system more:

- Reliable
- Safe/secure
- Convenient/accessible
- Comfortable/clean
- Understandable/intelligible
- Affordable
- Empathetic

Each chapter of the toolkit discusses an attribute and how it can be measured and tracked. It then discusses the management processes needed to excel in satisfying customer needs in that area. Because some management principles and practices are important in addressing more than one service attribute and cut across different

categories, we have included four separate sections at the end of the toolkit dealing with management principles for general operating procedures, vehicle maintenance, risk management, and contract management. These supplementary sections are cross-referenced to the service attribute chapters and, as with the rest of the toolkit, are geared toward improving customer services.

## What is a Customer Service Approach to Management? .....



A customer-driven approach dictates that management activities are aimed at providing high-quality services to the transit agency's customers. The approach attempts to answer the question:

*"How can my transit system satisfy customer needs?"*

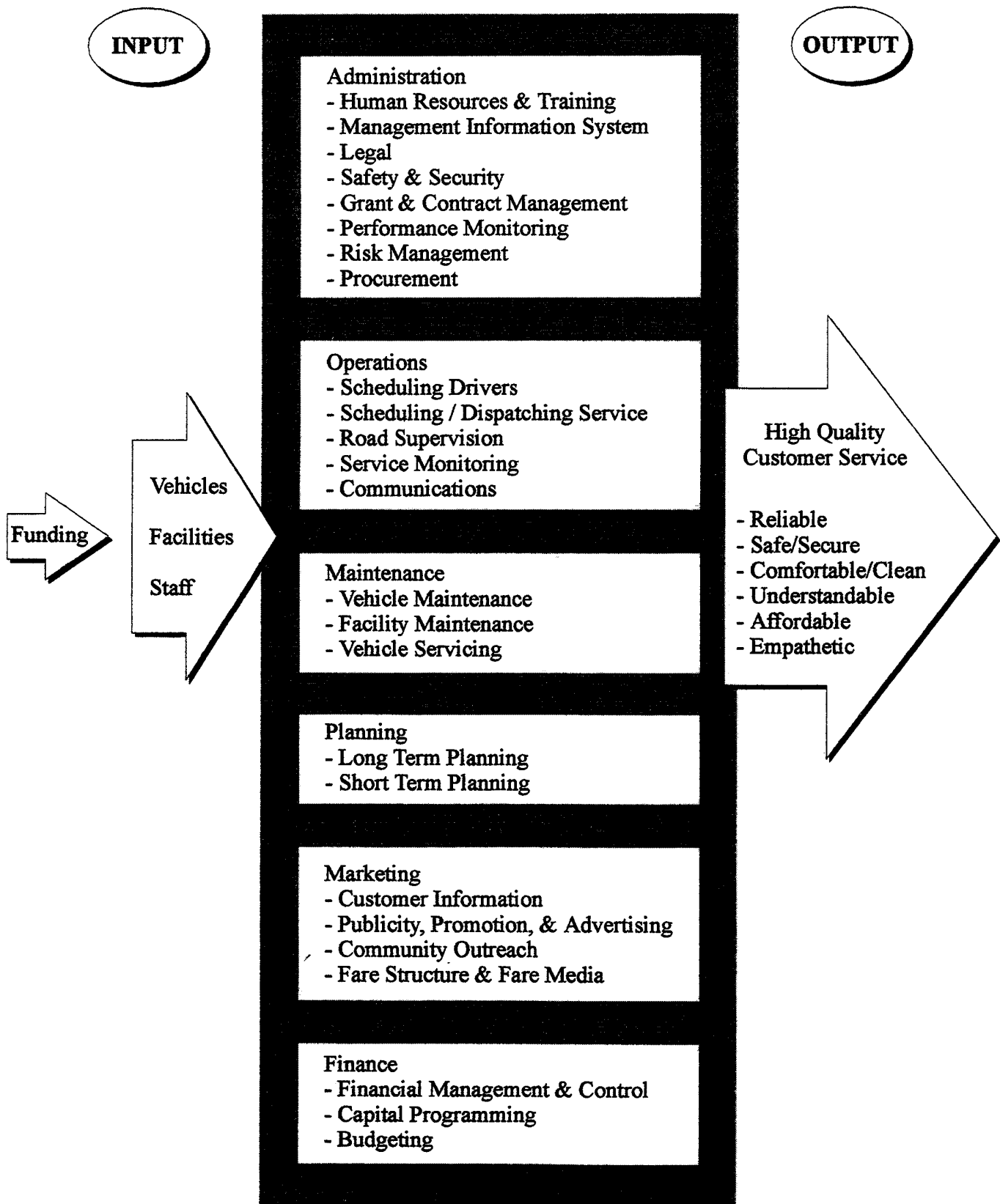
The answer to this question is that your system needs to:

1. Provide **Reliable** Service - Customers should have confidence that vehicles will come and transport them on time, or when promised.
2. Ensure that Services are **Safe and Secure** - Customers should feel safe and secure while using the system.
3. Provide **Convenient** Services - Customers should be able to use transit to travel from residential areas to major destinations or activity centers at times/days they need to travel.
4. Provide **Clean and Comfortable** Services - Customers should find the vehicles and facilities clean and comfortable when riding or waiting.
5. Make Services **Understandable** - Customers should understand easily how to use the services through effective user information and materials.
6. Make Services **Affordable** - Customers should be able to afford to use the transit system.
7. Ensure that Staff are **Empathetic** and that Customers Know It - Customers should feel that the transit system staff care about their needs.

Figure 1 presents an overview of transit organizational functions with a focus on delivering high-quality customer service. As shown, the transit managers need basic *input* of funds with which to procure vehicles and facilities and pay drivers and other staff. Such resources (vehicles, facilities, staff) are used to operate transit service. If the resources are managed well, the system and its staff provide transit services or *output* that meet the needs of their customers by being reliable, safe, convenient, comfortable, understandable, affordable, and empathetic.

What happens in between is *management*, or the process of taking resources and using them to operate high-quality services. The focus of this toolkit is to provide transit managers the principles for effective and efficient operation/management and guidance on how work activities are performed to improve the quality of services for customers.

**Figure 1: TRANSIT MANAGEMENT FUNCTIONS, FOCUSED ON CUSTOMER SERVICE**



The following management functions/controls are required and must be well conceived and effective to allow you to manage your system in a way that supports good customer service. You will need:

- Human relations program to recruit, hire, train, and motivate drivers and other staff
- Vehicle planning, procurement, and maintenance program
- Facilities maintenance program
- Risk management program
- Program to manage service contracts (operations or maintenance)
- Pre-operations management programs — management processes to get services on the street — translating services and schedules to driver manifests and runs
- Sound operating procedures for drivers, dispatchers, and customer services staff
- Operations supervision program (on street and in-house) — operating and management processes and procedures needed to supervise and manage operations
- Fare structure, fare media, and fare handling procedures
- Service planning program
- Communications program (customers to staff/drivers to base)
- Financial management — to make services affordable
- Marketing and public input/outreach programs

Figure 2 presents the relationship between the specific functional activities discussed in the toolkit and the achievement of customer-driven service goals. While it can be argued that all transit functions affect customer service, some are more important than others in this regard. This figure, and the toolkit itself, concentrates on transit functions that are critical to providing good customer service. A number of transit management functions, including financial management, performance management, service coordination, and computer and technology management are processes aimed at other, less customer-oriented goals (improving efficiency, reducing waste) that are not addressed in this toolkit.

## General Management Theories and Philosophies .....



Before getting into the transit management techniques and principles that you could employ to ensure customer satisfaction with your services, we thought it might be useful for you to have some background on general management theories and their application to date in the transit industry. *(If you are not interested, you can skip to the self-assessment tool at the end of this chapter.)*

Management as a conscious activity arose with the development of large organizations in the nineteenth century — management evolved as a result of growth in railroad companies. Prior to that time, firms were small and largely based on family or personal relationships. The growth in the railroads meant a need for large amounts of capital and for control of an organization spread over large areas performing many different

Transit Organization Functional Activities Critical to Customer Service	Customer Service Attribute						
	Reliable	Safe/Secure	Comfortable/Clean	Convenient	Understandable	Affordable	Empathetic
<b>ADMINISTRATION</b>							
Risk Management & Safety/Security	●	●					
Contract Management Program	●	●	●	●			●
Human Resources Program to Recruit, Hire, and Train Staff	●	●					●
<b>OPERATIONS</b>							
Operating Procedures for Drivers, Dispatchers, and Customer Service Staff	●	●					●
Operations Supervision and Service Monitoring	●	●					●
Service Operations Management	●	●		●			
Communications Program	●	●		●	●		●
<b>MAINTENANCE</b>							
Vehicle Maintenance and Servicing	●	●	●				
Facilities Maintenance		●	●				
<b>PLANNING</b>							
Planning	●			●	●	●	
<b>MARKETING</b>							
Fare Structure and Fare Media					●	●	
Marketing & Public Information Program					●		●

Figure 2: RELATIONSHIP OF CUSTOMER SERVICE ATTRIBUTES TO TRANSIT ORGANIZATION FUNCTIONS



functions. This led to the development of management as we think of it today.<sup>1</sup> The most prevalent model of a large organization at the time was the military model of hierarchical command and control, which was applied to railroads and other transportation industries that had effective monopolies. Command and control functions worked well, and customer concerns could be minimized because most had no other mobility option but the railroad that served a particular route or the local transit system.

Increasing national and local economic regulation and the unionization of the transportation industries helped to freeze this model despite the rise of competing modes with the development of the national highway system and the spread of the private car. The lack of a customer orientation in the transportation industries made many potential customers all too eager to obtain their own autos and trucks, creating political support for highway and other programs that shifted the market away from transit. Unfortunately, the shift in public transit ownership from regulated private firms to public operations, and the increasing percentage of riders who are captive to the system, has enabled many transit organizations to continue under the old management philosophy, even as many industries facing global competition have undergone dramatic changes.

However, changes in funding levels and structures combined with a changing market now require public transportation managers like you to become conscious of management philosophy, and to consider the need for changes if services are going to be effective. Recent changes in management philosophy in manufacturing industries have resulted in productivity and quality improvements not matched by service industries, and particularly not by public-sector services. Service-sector organizations face a higher level of complexity than manufacturing firms, requiring management to consider a full range of management practices, including: 1) best-practice analysis both within an organization, and comparisons among similar organizations (peer analysis) to avoid repeating mistakes and to identify management techniques and performance targets, 2) process analysis to uncover the ways in which service workers interact with customers, and 3) continual application of quality-management techniques to improve key functions on an on-going basis.<sup>2</sup> Transit managers need to consider these issues as critical to the long-term survival of their organizations, even if day-to-day management issues could easily absorb most available management attention.

## Management Philosophies

Drucker cites five basic operations that are performed by a manager with the overall goal of "the integration of resources into a viable growing organism."<sup>3</sup> The manager:

- Sets objectives
- Organizes
- Motivates and communicates

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<sup>1</sup> Peter F. Drucker, *Management: Tasks, Responsibilities, Practices*, HarperBusiness, 1973, p. 23.

<sup>2</sup> Michael van Biema and Bruce Greenwald, "Managing Our Way to Higher Service Sector Productivity," *Harvard Business Review*, July-August 1997, pp. 87-95.

<sup>3</sup> *Op.Cit.*, pp. 400-401.

- Measures performance
- Develops people

These basic functions are similar to the roles identified for the manager of the small transit system by Smerk et al.,<sup>4</sup> which are:

- **Coordinator and Controller** — planning, development of goals and objectives, budgeting, and evaluation.
- **Information Processor** — center of communication, both internal and external, spokesperson for the organization.
- **Strategy Maker** — allocation of resources, mediator of internal/external conflicts, and entrepreneur.

Given these general management roles, you might ask, "What is a philosophy of management?" and "Do I have one?" Peter Drucker, the management author, used the term to describe management by objectives and self-control. A philosophy of management

"... includes a concept of the job of management. It rests on an analysis of the specific needs of the management group and the obstacles it faces. It rests on a concept of human action, behavior and motivation. Finally, it applies to every manager, whatever his level and function, and to any organization whether large or small. It insures performance by converting objective needs into personal goals."<sup>5</sup>

Thus, a philosophy of management is more than a slogan or a technique; it is a set of guiding principles for the management of an organization.

## Review of the Management Literature and Non-Published Materials

MacDorman et al.<sup>6</sup> characterize the outmoded management philosophy found in many transit organizations as one in which the organization is:

- Focused on the boss
- Told to follow the rules
- Closed
- Oriented to the organization chart
- Waiting for orders
- Rigid

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<sup>4</sup> G. M. Smerk et al, Mass Transit Management: A Handbook for Small Cities, Part 2: Management and Control, Third Edition Revised, February 1988, pp. 90-92.

<sup>5</sup> Op. Cit., pp. 441-442.

<sup>6</sup> John C. MacDorman, et al., The Quality Journey: A TOM Roadmap for Public Transportation, TCRP Report 8, p. 2.



The senior management role in this environment is to maintain a tactical focus, managing conflict with the union (or operators), and focusing on tasks. Mid-level managers and supervisors manage their own departments, enforce the rules, and maintain performance. Operators do what they are told. The emphasis is on following orders from above and staying within the rules. There is no orientation to the customer in this management philosophy, and it clearly lacks the ability to adapt to a changing environment.

The need for a better management philosophy has long been evident in the transit industry. Smerk et al.<sup>7</sup> discusses management styles and roles, characterizing management approaches as either reactive or proactive. Smerk recommends that transit managers in small systems attempt to adopt and follow *management by objectives* (MBO) as a management philosophy and basic tool, in line with Drucker.

MBO requires that management develop a strategy that includes:

1. Goals
2. Objectives
3. Plans
4. Managerial direction and action
5. Control
6. Feedback

These steps are followed to assist management in preparing a list of programs, objectives, tasks, priorities, etc., that are to be accomplished; a plan and timetable for completion; and delegation of responsibility for completion of these tasks. MBO calls for the development of goals at the management/policy-making level, with objectives developed by those at the working level, so that the employees are involved in determining the overall course of action. Measurement is also a key aspect of MBO, enabling management to evaluate progress toward the achievement of objectives and goals.

More recently, management thinking has continued to evolve as global competition increases competition for firms everywhere. This continuation of competitive pressures combined with the computer revolution led private sector manufacturing to undertake major reforms over the last decade. These reforms include total quality management (TQM), although other approaches, such as visioning, shared interests, reengineering, or reinventing, can also be viewed as part of this effort to change the way firms work. Many of these concepts are now being applied in service sector industries, including public sector organizations such as public transportation. TQM is a comprehensive and long-term transformation of the culture of the organization, focusing on people first — including passengers, employees, and the community. MacDorman et al. have identified seven basic principles of TQM:

- **Put Customers First.** Every service and product should meet or exceed the expectations of the customer, and every member of the organization and every process should work toward this end.

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<sup>7</sup> G. M. Smerk, et al., Mass Transit Management: A Handbook for Small Cities -- Part 2: Management and Control, Third Edition, Revised, February 1988, pp.85-96.

- **Manage and Improve Processes.** "Process" describes how work activities are performed. Improvement of processes can both create a higher quality product or service, and increase efficiency. Support activities such as training, service planning, and maintenance are among the processes that can be managed and improved.
- **Manage by Fact.** Facts and data are used in a quality organization to help managers set directions for strategic and short-range planning, and to evaluate progress on achieving goals and objectives.
- **Cultivate Organizational Learning.** Learning organizations are able to thrive in rapidly changing environments because they are objective in their decision-making, are open to internal communication, involve teamwork, create the useful tools needed for everyone to do the best job, and reward the desired behaviors.
- **Train, Empower, and Recognize Employees.** Employees are the most important asset of a transit system, and they need to be trained to be able to meet customer expectations, empowered to identify and solve problems, and satisfy customers. Finally, employee contributions to improved performance need to be recognized.
- **Improve Labor-Management Teamwork.** Employees, including union (in organizations with union representation) and non-union members, need to be involved in any quality effort. Union officials need to be involved in quality policy decision-making.
- **Lead the Change in Organizational Culture.** TQM is a long-term commitment to a fundamental change in the way an organization works. Leadership at all levels of the organization is required to make this kind of change.

Obviously, changes of the magnitude and depth called for in the shift to a quality organization call for leadership that has a passion for quality and require time and effort to implement. MacDorman presents the TQM process in three phases: a foundation phase, a momentum phase, and a commitment phase. The initial phase, building a foundation, calls for bringing senior management and labor together to prepare for TQM through the development of a common vision, goals for the process, and the creation of a leadership team. In the second phase, momentum, the organization takes actions that demonstrate the key values of customer focus, employee involvement, continuous improvement, and leadership. These demonstrations increase understanding of TQM and increase confidence that it can improve work life and organizational performance. Finally, the commitment phase involves the actual reengineering of the organization, including work processes, measurement and evaluation, job responsibilities, and appraisal.

The overall quality process is comprehensive by nature and can be thought of as including some of the other management techniques or philosophies that have achieved some recognition. For example, in the foundation phase of the TQM, one of the major early tasks is for the leadership to have a launch meeting to establish common goals and a vision for the effort. For this element of the TQM process, visioning, an inclusive approach that calls on participants to develop an unconstrained vision (or common goal) of what the organization could become, might be a useful technique. A

future search conference might be another.<sup>8</sup> Similarly, the TQM goal of creating a learning organization can be seen as similar to the management philosophy known as organizational learning.

Peter Senge developed the concept of organizational learning.<sup>9</sup> It builds on systems thinking, which calls for managers to view problems in terms of the entire organization rather than in isolation. This management philosophy was developed in response to the increasing pace of change in the business world, in an effort to develop organizations that can lead change and thrive in this environment. Senge calls for managers to analyze issues and problems in terms of interrelationships and processes, not as parts of a whole that can be addressed individually. Organizational problems are then seen as systems or process problems, rather than problems with employees. Managers in a learning organization will need to understand and distinguish two kinds of complexity — that arising from processes involving a lot of different variables (detail complexity), and that involving the chain of processes linking a cause and effect which may be separated in time and organizationally (dynamic complexity).

Managers in learning organizations focus on areas of high leverage, or processes in which the greatest gains can be made with the least effort. For example, in the transit industry a high leverage area is likely to be in operator scheduling, because so much of the cost of providing the service is labor. Small efficiencies in scheduling can therefore result in relatively large cost savings. Finally, managers in learning organizations try to avoid solutions that address symptoms, but instead direct energies at treating the underlying causes.

Senge focuses on five characteristics to be developed in a learning organization:

- **Encourage Objectivity** — make decisions based on an objective review of facts.
- **Seek Openness** — encourage employees to tell the truth, even if it involves telling managers negative news or opinions.
- **Insist on Teamwork** — mobilizing employee teams to respond to change brings all the talents to an issue, resulting in better solutions.
- **Create Useful Tools** — useful management tools are those that allow employees to do their jobs quickly and easily, whether these are software or hardware.
- **Consider the Behavior You Are Rewarding** — rather than rewarding subjectivity and individualism, structure rewards to promote objectivity and teamwork.

Changes in an organization to make it a learning organization are also supportive of TQM values, and managers can adapt management philosophies such as these to fit their environments and to develop their own quality process. The great expansion in business and management publishing offers many different guides and directions, most with the aim of reforming organizations to be more responsive to the customer, more competitive in a cost and productivity sense, and more rewarding to employees.

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<sup>8</sup> Judd Lawrie, "Method Helps Groups Reach Goals", Triangle Business Journal, Small Business Weekly, Research Triangle, North Carolina, September 20, 1996.

<sup>9</sup> Peter Senge, The Fifth Discipline: The Art and Practice of the Learning Organization, Doubleday/Currency, 1990.

Finally, it should be noted that many small system managers might not yet be interested in or passionate about an overall philosophy of management. However, the same effort to reform business has led to a tremendous number of books about tools or techniques that could well be helpful to a manager facing a problem. For example, 101 Creative Problem Solving Techniques<sup>10</sup> provides an overall perspective on the creative problem solving process, and then short, useful descriptions of methods for identifying problems, individual and group techniques for developing alternatives, and techniques for choosing among alternatives and developing implementation plans. Among the tools and techniques provided are a number that are also featured in the TQM literature, including "fishbone" diagrams and "why-why" diagrams to help diagnose problems, causes, and the relationships between them. Similarly the "how-how" diagram can help to develop implementation strategies for agreed-upon solutions. Many such tools exist and can be used as part of the change in management philosophies — but could also be quite useful to address more specific problems. A successful application of a creative or novel technique or tool might well cause management to think about broader, more comprehensive changes in the way the organization works, and lead to a TQM-type of approach.

## Management Functions in Changing Management Philosophies

Clearly, you have the key role in identifying the need for a change in management philosophy at your system, evaluating the options, and deciding to initiate a change process. As the transit manager of a small system, a major problem you could have in implementing your management vision is the inability to dedicate staff to the effort. Efforts to implement the classical version of strategic planning in small systems have floundered for this reason. It may be that the role of TQM Manager will have to be another role for the system manager. It may be possible for small systems to obtain planning grants that could include tasks to collect needed performance data. In general, however, the application of TQM to small systems needs to recognize the limited staff and funding resources, and the fact that there are entire processes that may be conducted by a single person.

## Some Exemplary Transit Management Practices .....



The TCRP project on TQM included several transit properties as test sites, including one providing rural/small urban area services. Pee Dee Regional Transportation Authority in Florence, South Carolina, has implemented a total quality process as part of this project. However, though this system serves rural and small urban areas, it is a relatively large system, with more than 130 vehicles spread over three garages serving a multi-county area, and it has a significant level of management expertise and resources.

Several other systems have implemented elements of the quality process. City Utilities Transit in Springfield, Missouri, has empowered the employees to work in teams developing ideas for marketing, service design, revenue enhancements, and other areas.

<sup>10</sup> James M. Higgins, 101 Creative Problem Solving Techniques, The Handbook of New Ideas for Business, The New Management Publishing Company, Winter Park, Florida, 1994.

Employees meet on their own time, and rewards are provided for suggestions that are implemented. Another area applying aspects of quality processes is UMASS Transit, which uses teams of volunteers to review system processes and design ways to improve procedures. Teams may look at the way in which other systems have addressed similar problems. Island Transit in Washington State has also adopted a general management practice that represents the customer orientation of the quality process. Driver selection, training, vehicle maintenance, and public information are all conducted with the goal of making riders comfortable with using transit.

## Self-Assessment Tool .....

*Is your transit system focused on customer service? See how customer service oriented your transit system and management practices are with this self-assessment tool.*

### Self-Assessment

The questionnaire in this section of the toolkit is a self-assessment tool designed to help you assess your management practices relative to the management approach presented in the toolkit. The toolkit is designed around the concept of managing transit service to ensure customer satisfaction. It is organized according to seven, closely linked attributes of quality, customer-oriented transit service: *reliability, safety/security, convenience/accessibility, comfort/cleanliness, understandability, affordability, and empathy.*

The self-assessment questionnaire presents a set of questions for each of the seven customer service attributes. These questions ask you about current practices at your transit system. Answer simply, YES or NO to each question that applies. For example, if you provide only paratransit service, just skip questions related to fixed-route service. And, don't worry -- there are no "wrong" answers.

We recognize that answers to some questions may not be a simple YES or NO. But the intent of this self-assessment tool is not to look at nuances of your current practices; rather, it is to help you with a "broad-brush" review of where your transit system stands relative to a customer-oriented management approach. We also hope that the self-assessment tool stimulates your thinking about new ways to approach the responsibility of putting transit service on the street and gives you ideas for new strategies and management practices. The rest of the toolkit will provide you with more information on such ideas and strategies for managing your transit system with a strong customer service attitude.

### Scoring

If you use the electronic version of the self-assessment tool, the computer will automatically score your responses for each of the seven sections of the questionnaire, and will then show you a summary of all your answers. If you use the hard copy (paper) version, you can easily determine your own score. After answering the questions in each section, count the total number of "YES" answers that you checked, and record that number in the space provided at the end of that section. You will need these numbers in order to calculate your overall scores, using the scoring sheet located on the last page of this self-assessment exercise.

## Self-Assessment Tool

### Part A: Reliability

- For fixed-route service: on an annual basis, do you evaluate the on-time performance of individual routes and make any needed adjustments to schedules?  Yes  No
- For paratransit service: do you periodically review the on-time performance of your vehicles--overall and by time of day--and, as warranted by the review, assess scheduling procedures and external factors (e.g., traffic flows, weather patterns) to improve on-time performance?  Yes  No
- Has your system developed and implemented policies prescribing the time window for permissible deviation from scheduled arrival time at fixed-route stops and/or paratransit pick-up locations?  Yes  No
- Has your system developed and implemented policies and procedures for paratransit service passenger cancellations and no-shows?  Yes, Cancellations  No  
 Yes, No-shows  No
- Are schedulers/dispatchers properly trained in all aspects of effective trip scheduling and dispatching for paratransit service (e.g., to review schedules to ensure they are realizable prior to assigning trips, to arrange the order in which each trip will be picked-up, to maintain regular contact with the drivers to monitor progress, update trip requests, and respond to operational problems, etc.)?  Yes  No
- Do you routinely track daily operating and performance data (including passengers carried, no-shows, time of pick-up and drop-off, beginning and ending route mileage and time)?  Yes  No
- Do you conduct regular on-street supervision of operations, on at least a weekly basis?  Yes  No
- Do you periodically consult with local planners and traffic engineers to stay informed of changes to circulation patterns resulting from new development and/or changes to roadways?  Yes  No
- Do you have contingency plans in place to provide an alternate route in the event a route becomes impassible?  Yes  No
- Has your system developed internal communications procedures to alert staff to changing conditions in the operating environment -- a vehicle breakdown, delays resulting from traffic, a vehicle accident, etc.?  Yes  No
- Are there procedures for communicating to passengers the reason for a service delay and of the system's efforts to manage and correct the delay?  Yes  No

- Do you track the number of road calls made for your vehicles?  Yes  No
- Do you track road calls by different types of vehicles and by time of year?  Yes  No
- If you have experienced excessive road calls resulting from vehicle breakdowns, has your transit system adjusted maintenance procedures or reduced intervals between preventive maintenance activities?  Yes  No
- Does your system have an annual vehicle replacement plan?  Yes  No
- Do you have a spare vehicle ratio of at least 10% (i.e., if you operate fewer than 10 vehicles, do you have at least one spare vehicle)?  Yes  No
- Does your transit system have a preventive maintenance program?  Yes  No
- Do drivers conduct daily vehicle inspections prior to driving vehicles?  Yes  No
- Is an inspection form completed as part of the daily vehicle inspection?  Yes  No
- Does your maintenance program include inspection of equipment such as lifts according to a regular preventive maintenance schedule?  Yes  No
- Do you record and monitor, over time, customer complaints and commendations?  Yes, Complaints  No  
 Yes, Commendations  No
- Are there procedures in place to investigate complaints, including a review of the cause of complaint and any corrective action taken?  Yes  No
- Do you have screening procedures for evaluating applicants for your various job positions (e.g., review of driving records)?  Yes  No
- Do you train some staff members in several areas of job responsibility to ensure skilled staff are always available to handle all jobs?  Yes  No
- Do you use part-time staff (particularly as drivers) to cover your span of service and help ensure adequate staffing?  Yes  No
- Do you have back-up drivers (extraboard) available to avoid missed trips?  Yes  No
- Are your staff benefits comparable to those offered by other systems with similar size and operating characteristics in your area?  Yes  No
- Have you established a disciplinary program for employees?  Yes  No
- Have you established a clearly defined incentive program for employees?  Yes  No
- Do you track the average length of employment for the various positions at your transit system (e.g., driver, dispatcher, mechanic, etc.)?  Yes, Drivers only  No  
 Yes, All positions

- Have you reviewed employees' rates of pay for adequacy within the past year?  Yes  No
- Do you have an employee appreciation program to recognize employees?  Yes  No
- Have you developed an employee policies and procedures manual and distributed it to all employees?  Yes, Have manual  No  
 Yes, Distribute to all

**TOTAL "YES" SCORES FOR RELIABILITY: \_\_\_\_\_**

**Self-Assessment Tool**  
**Part B: Safety/Security**

- Does your transit system record the number of accidents/incidents?  Yes, Accidents  No  
 Yes, Incidents  No
- Are monthly and annual totals for accidents/incidents, vandalism, and crimes compiled and monitored over time?  Yes  No
- Does the system record vandalism to your vehicles, facilities, stops, and other property?  Yes, Vehicles  No  
 Yes, Property  No
- Do you track passenger complaints related to safety and security, e.g., passenger "A" complained about a driver speeding on a particular trip?  Yes  No
- Do you record crimes against riders as well as against your employees while they are at work?  Yes, Riders  No  
 Yes, Employees  No
- If you track accident/incident statistics, and if your system's performance changes, do you investigate to determine *why* it has changed?  Yes  No
- Do you survey your passengers on a regular basis to determine their perceptions of the transit system's safety and security?  Yes  No
- Do you compare your accident/incident statistics with passengers' perceptions as revealed in surveys to determine if perceptions are accurate?  Yes  No
- Is there a comprehensive risk management program in place at your system?  Yes  No
- If your system has a risk management program, do you regularly review and update it?  Yes  No
- Do you maintain your facilities according to a regular schedule?  Yes  No



Is adequate lighting installed at all your facilities (office, maintenance garage, transfer locations, bus stops)?	<input type="checkbox"/> Yes, Office <input type="checkbox"/> Yes, Garage/Storage <input type="checkbox"/> Yes, Bus stops <input type="checkbox"/> Yes, Other Passenger Facilities	<input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
Has your transit system established procedures for communications with law enforcement personnel/emergency personnel?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does your system provide training in First Aid, CPR, and blood-borne pathogens/bodily fluids?	<input type="checkbox"/> Yes, First Aid <input type="checkbox"/> Yes, CPR <input type="checkbox"/> Yes, Pathogens/ bodily fluids	<input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
Are pre-trip vehicle inspections required and documented?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you provide training for driving techniques in inclement weather?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is Defensive Driving included as part of driver training?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are drivers trained in proper wheelchair management and securement, specific to the vehicles and wheelchair lifts that you operate?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does driver and other employee training include assistance techniques for riders with disabilities/special needs?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does staff training include emergency response procedures?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you record the training courses/areas that each staff member has successfully completed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you developed emergency/incident response policies and procedures for dispatchers and customer service representatives as well as for drivers?	<input type="checkbox"/> Yes, Drivers <input type="checkbox"/> Yes, Dispatchers <input type="checkbox"/> Yes, Customer Service Reps	<input type="checkbox"/> No <input type="checkbox"/> No <input type="checkbox"/> No
Are copies of the system's accident/incident report form available in all vehicles at all times?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Has your system implemented an <i>accident review board</i> ?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Does your system use an <i>employee safety committee</i> ?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Has your system developed clear, written procedures for handling cash and trained all employees in those procedures?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Has an appropriate fare storage receptacle been provided in each vehicle?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you implemented an incentive program to reward drivers and other system personnel who successfully meet safety criteria?	<input type="checkbox"/> Yes, Drivers <input type="checkbox"/> Yes, Other personnel	<input type="checkbox"/> No <input type="checkbox"/> No

Have you implemented training that provides for one-on-one coaching of experienced vehicle operators by other peer operators to improve driving skills, ensure use of appropriate safety equipment and safe practices, and to develop uniformity in operating practices among drivers?  Yes  No

Do you regularly inform law enforcement and emergency response personnel of planned changes to system facilities, operations, etc., so that they may respond quickly to emergencies?  Yes  No

Do you develop and conduct mock training exercises in cooperation with law enforcement and emergency service personnel?  Yes  No

**TOTAL "YES" SCORES FOR SAFETY AND SECURITY: \_\_\_\_\_**

## Self-Assessment Tool

### Part C: Convenience/Accessibility

Are fixed-route service headways that are longer than 10 minutes evenly divisible into 60-minute segments, i.e., 12, 15, 20, or 30 minutes?  Yes  No

Is there some consistency among the schedules of your routes, or do they all vary?  Yes, Consistent  No

If your transit system operates in a town or city with a college, are transit schedules coordinated with class starting and ending times?  Yes  No

Are transit schedules coordinated with shift start/stop times of major employers located on transit routes?  Yes  No

Do you have a maximum wait time policy for paratransit customers who place advance reservations?  Yes  No

For paratransit services, do you track the difference between *scheduled* pickup time and *actual* pickup time?  Yes  No

Do your routes minimize the use of loops?  Yes  No

Do your paratransit routes/services minimize extensive backtracking?  Yes  No

Do you have any bicycle racks or storage at stops?  Yes  No

Have you placed (or considered placing) bicycle racks on vehicles?  Yes  No

- Have you calculated your service area coverage, or the number of people living within a specific distance of transit routes (for example, ¼ mile), either manually or by using a geographic information systems (GIS) software?  Yes  No
- Have you conducted a passenger origin-destination survey within the past year?  Yes  No
- Have you determined the difference in travel time via transit versus private automobile for any trips in your service area within the past year?  Yes  No
- Have you surveyed passengers within the past year to two years to gather suggestions to make your transit system more convenient?  Yes  No
- Have you contacted any local retailers to determine if they would sell bus passes at the customer service counter of their store?  Yes  No
- Have you promoted transit use for shopping purposes by asking any local merchants if they would agree to provide discounted prices to customers who use transit passes to travel to those stores?  Yes  No
- Does your transit system have up-to-date user information materials (e.g., timetable, brochure, route map)?  Yes  No
- Do you have a process for regularly updating user information materials?  Yes  No
- Does your system have current information about other transit service options in the community to provide to your riders upon request?  Yes  No
- Does your transit system publish a newsletter on a regular basis?  Yes  No
- Do you have (or have you considered) a system Web site on the Internet to provide information online?  Yes  No
- Are there procedures for placing informational materials at locations frequented by current and potential customers, such as employment centers, senior centers, shopping/recreation facilities, childcare centers?  Yes, Employment ctr  No  
 Yes, Senior ctr  No  
 Yes, Shop/rec ctr  No  
 Yes, Childcare ctr  No
- Do you periodically conduct informational meetings/public open houses?  Yes  No
- Does transit management staff attend local job fairs and work with employers to develop methods for providing transportation opportunities to employment sites?  Yes  No
- Does management staff attend civic organization meetings and inform community leaders of your system's activities?  Yes  No

- Does your transit system keep local, state, and federal government representatives apprised of successes and of needs on a regular basis?  Yes, Regularly  No  
 Yes, When we need more \$\$
- Do you maintain ongoing relationships with other transit system peers?  Yes  No
- Does management staff conduct regular meetings with front-line employees to gather suggestions on how to improve service convenience/accessibility?  Yes  No
- Does your transit system provide other opportunities for employees (beyond regular meetings), such as work groups to tackle a specific issue or an accident review committee to provide input back to management?  Yes  No
- Within the past year, have you determined the percentage of passenger trips that require a transfer?  Yes  No
- Do you have voice mail or electronic messaging to accept reservations during times when your phones are not staffed?  Yes  No
- Does your system provide training in how to request and take a trip, and an explanation of the transit system's rules to customers with disabilities who are eligible for ADA paratransit service?  Yes  No
- Do you regularly involve customers in, and gather their input as part of, planning activities?  Yes  No
- Do you review routes and schedules with regard to changing community needs and development patterns at least every year?  Yes  No
- Have you modified your routes and/or schedules to better serve new residential, commercial, or employment development?  Yes  No
- Have you tried using relatively small vehicles (e.g., 22-foot vans) operated by private providers under contract to test new routes in unserved or under-served areas where ridership levels cannot be predicted adequately?  Yes  No
- Do you use geographic information systems (GIS) software to help plan community-based service designs?  Yes  No
- Do you actively investigate opportunities to provide new types of transportation services that are needed in the local community?  Yes  No
- Do you coordinate transportation services, or have you attempted to coordinate, with other local transportation providers?  Yes  No
- Does your transportation system use existing non-profit agency transportation programs to supplement and augment services to maximize available community transportation services, or serve a broader ridership base?  Yes  No

Has your system developed a formal agreement with an emergency service department (fire departments, hazardous waste removal teams, etc.) to provide transportation assistance during times of emergencies?  Yes  No

**TOTAL "YES" SCORES FOR CONVENIENCE AND ACCESSIBILITY:\_\_\_\_\_**

**Self-Assessment Tool**  
**Part D: Comfort/Cleanliness**

Are vehicles inspected for cleanliness on a regular basis and the results entered into a spreadsheet or database and tracked over time?  Yes, Inspected  No  
 Yes, Tracked  No

Are vehicles inspected for cleanliness on a *random* basis?  Yes  No

Are facilities inspected for cleanliness on a regular basis and the results entered into a spreadsheet or database and tracked over time?  Yes, Inspected  No  
 Yes, Tracked  No  
 No

Are facilities inspected for cleanliness on a *random* basis?  Yes  No

Are the exteriors *and interiors* of revenue vehicles cleaned on a regular basis?  Yes, Regularly  No  
 Yes, Before a VIP visit  No

Are all employees encouraged to report vehicle and facility problems to maintenance staff?  Yes  No

Is the condition of vehicle components such as mufflers and exhaust systems checked on a regular basis to ensure that vehicles are operating within noise design specifications?  Yes  No

Do you provide appropriate customer amenities (benches, shelters, trash receptacles, telephones, rest rooms, etc.), at fixed-route waiting areas?  Yes  No

Have you implemented or considered implementing a program through which individuals, civic groups, and businesses can provide taxdeductible contributions of plants, benches, trash cans, and other transit stop/facility amenities?  Yes  No

Has your system developed, implemented, and enforced policies on appropriate passenger behavior while in vehicles and facilities?  Yes  No

Has your system developed, implemented, and enforced policies for employees' personal grooming and cleanliness?  Yes  No

- Has your system implemented a policy requiring employees to wear only clean clothing and/or a uniform?  Yes  No
  
- Has your system developed and implemented a comprehensive, long-range vehicle maintenance plan keyed to the requirements of each type of vehicle operated to ensure vehicles will remain in good condition throughout their life?  Yes  No
  
- Has your system developed a comprehensive, long-range vehicle replacement plan to ensure a sufficient number of vehicles to meet customers' needs?  Yes  No
  
- Has your system developed a comprehensive, long-range facilities maintenance plan to ensure facilities will remain in good condition throughout their life?  Yes  No
  
- Has your system developed a comprehensive, long-range facilities construction and replacement plan to ensure adequate and timely provision and replacement of facilities?  Yes  No
  
- Have you developed and implemented a comprehensive, long-range maintenance and replacement plan for other needed equipment?  Yes  No
  
- Do you conduct customer surveys to track the comfort and cleanliness of your transit system on a regular basis?  Yes  No

**TOTAL "YES" SCORES FOR COMFORT AND CLEANLINESS:\_\_\_\_\_**

**Self-Assessment Tool**  
**Part E: Understandability/Intelligibility**

- Has your transit system developed and does it distribute rider information materials, including a schedule and, for fixed-route services, a route map?  Yes  No
  
- Have you developed or considered developing an Internet Web site to provide transit information?  Yes, Developed  No  
 Yes, Would like to but first need on-line access
  
- Do your rider information materials include information on transit system policies and procedures, such as expectations for rider behavior?  Yes  No

- Does your transit system post informational materials at appropriate locations, such as transit stops, senior centers, public offices (e.g., library, shopping centers, employment assistance/training centers, Website, local community access cable TV channel)?  Yes  No
- Have you used or considered using a "focus group" to review printed customer information--schedules, maps and "how to ride" guides--to determine if those materials are clearly written and easily understood?  Yes  No
- Do you survey passengers to determine their ease of understanding your system's information and procedures on a regular basis?  Yes  No
- Do you update information materials on a regular basis?  Yes  No
- Does your agency conduct community outreach activities on a regular basis (e.g., attend community events, update local political leaders)?  Yes, Regularly  No  
 Yes, Only when asked
- Is your fare structure relatively easy to understand and use by your riders?  Yes  No
- Do you use fare media other than cash or transfers?  Yes  No
- Do you have clear instructions for the purchase of all fare media?  Yes  No
- Have you developed and implemented a comprehensive marketing and public information program?  Yes  No
- Do you regularly update your marketing and public information program?  Yes  No
- Are all staff members trained so they are familiar with the entire system and its range of services?  Yes  No
- Are all employees instructed on the system's internal policies/procedures?  Yes  No
- Have you compiled a policy and procedures manual to serve as a single reference point for employees and to streamline existing policies?  Yes  No
- Have you developed a checklist mechanism for managers that lists all critical practices, documents, and facility and safety requirements?  Yes  No
- Have you established a set of service standards to facilitate performance monitoring and decision-making?  Yes  No
- Does your transit system have systemwide job descriptions for each employee to provide specific guidelines as to what is expected of them and to give supervisors a means through which to evaluate employees?  Yes  No
- Are all staff members trained in effective verbal and written communications techniques and procedures?  Yes  No

Have reservations personnel been trained to communicate clearly with passengers using proper telephone etiquette?  Yes  No

Do you periodically survey passengers to determine how well the system is performing and meeting customers' service expectations?  Yes  No

**TOTAL "YES" SCORES FOR UNDERSTANDABILITY/INTELLIGIBILITY: \_\_\_\_\_**

## Self-Assessment Tool Part F: Affordability

Do you periodically survey customers and service area residents to help in determining different people's varying abilities to pay for using your services?  Yes  No

Do you regularly survey customers and service area residents to help determine alternative transportation services (express services, shoppers' specials, employment transportation, etc.) that would be viable to provide in your area?  Yes  No

Have you completed an analysis of your fully allocated costs to determine the relative size of your expense categories and to ensure that resources are used as effectively as possible?  Yes  No

Do you track fully allocated costs over time in a spreadsheet or a database to see changes in costs and to help prepare annual budgets?  Yes  No

When it is necessary to increase fares, have you developed and implemented a public information process to explain the reasons for the increase to customers?  Yes  No

Do you compare fares and operating costs from comparable transit systems to see if your costs and fares are reasonable and if your operations are conducted efficiently compared to similar systems?  Yes  No

Does your fare structure provide differential fares by time of day?  Yes  No

Does your system have differential fares for different types of customers (seniors, students, individuals with disabilities, etc.)?  Yes  No

Do your fares reflect the differences in cost to provide different services?  Yes  No

Have you investigated the use of volunteers to keep services affordable?  Yes  No



- Does your system provide coordinated services, in which clients of various human service agencies are transported on a single vehicle?  Yes  No
- Have you sought voluntary donations from the local community or local businesses to help offset costs?  Yes  No
- Have you contracted with other transportation providers in the local service area for transportation services as a means of increasing residents' access without expanding the transit system's personnel or equipment budget?  Yes  No
- Have you implemented specialized demand management techniques, such as requiring customers who are able to use fixed-route service to do so when and where such service is available?  Yes  No
- Has your system implemented or considered implementing any new technology such as automatic vehicle location (AVL), card readers, mobile data terminals (MDT), or automatic passenger counters?  Yes  No
- Do you conduct an annual performance evaluation of employees, using well-defined written criteria, to help ensure employees' skills are utilized effectively?  Yes  No
- Have you investigated the potential for utilizing regional or statewide contracts to procure goods or services?  Yes  No
- Have you investigated the potential cost savings from hiring a private management firm to conduct aspects of your program, e.g., planning, reporting, performance review, or grant application activities?  Yes  No
- If your agency has any excess facilities or services (such as maintenance, fueling, cleaning services), have you sold/leased such excess or considered selling/leasing?  Yes  No
- Do you sell advertising space on or in vehicles and/or facilities?  Yes  No

**TOTAL "YES" SCORES FOR AFFORDABILITY:\_\_\_\_\_**

**Self-Assessment Tool**  
**Part G: Empathy**

- Have you developed and implemented customer service policies and procedures to encourage staff to be empathetic to customers' needs?  Yes, For all riders  No  
 Yes, For riders with special needs

- Have you developed and implemented policies and procedures encouraging empathy to other staff members?  Yes  No
- Have you trained all staff members to listen carefully to customer questions, concerns, and complaints?  Yes  No
- Have you implemented training to teach staff members to respond more sensitively to customers, creating a more empathetic environment and fostering increased customer satisfaction?  Yes  No
- Do you circulate among employees on a daily basis, and record observations?  Yes  No
- Do you track commendations of employees who provide exceptional service?  Yes  No
- Have you implemented incentive programs that stress the importance of providing exceptional customer service and that reward those who provide exceptional service?  Yes  No
- Do you respond to changing customer travel needs by making adjustments to routing and scheduling on a relatively frequent basis?  Yes  No
- Do you teach front-line staff (drivers, reservationists, customer assistance personnel, etc.) customer service management principles that encourage them to assume greater responsibility for the service delivery process?  Yes  No
- If your area has a significant non-English speaking population, have you implemented a telephone reservations service in that language?  Yes  No
- Have you instituted training programs to increase the awareness and sensitivity of vehicle operators toward the needs of people with disabilities?  Yes  No
- Do you provide training to all staff in procedures to respond effectively to customers with special needs?  Yes  No
- Have you developed and implemented outreach activities to educate people with disabilities about your services such as notices/mailings to senior citizens and persons with disabilities, or community speaking engagements?  Yes  No
- Do you track customer complaints to determine if problem areas are improved promptly and satisfactorily?  Yes, In all cases  No  
 Yes, Just when a VIP complains
- Do you survey passengers to determine their perceptions of your system's empathy?  Yes  No

Do you track press coverage of the transit system to determine public perceptions toward the system?

- Yes
- No, We get press coverage only when there's a problem.

Have you ensured that an appropriate staff member responds promptly to each customer question, concern, or complaint?

- Yes
- No

**TOTAL "YES" SCORES FOR EMPATHY: \_\_\_\_\_**

## Scoring Sheet .....

To calculate your overall score for each section of the self-assessment tool, count the number of "YES" boxes that you checked in each section, and record below. For each section (numbered below as A through G), divide your total "YES" answers by the number of "Total Possible YES Answers" listed for that section. Record the resulting percentage in the third column. This is the overall score for that section. Continue to calculate your overall scores for the remaining sections. Add the total overall scores for sections A through G to receive your total score.

	<b>YES Answers</b>	<b>Total Possible YES Answers</b>	<b>% YES (Overall)</b>
<b>A. Reliability Score</b>	_____	<u>37</u>	_____
<b>B. Safety/Security Score</b>	_____	<u>42</u>	_____
<b>C. Convenience/Accessibility Score</b>	_____	<u>45</u>	_____
<b>D. Comfort/Cleanliness Score</b>	_____	<u>21</u>	_____
<b>E. Understandability/Intelligibility Score</b>	_____	<u>24</u>	_____
<b>F. Affordability Score</b>	_____	<u>20</u>	_____
<b>G. Empathy Score</b>	_____	<u>10</u>	_____
<b>TOTAL</b>	_____	<u>208</u>	_____

You may want to begin reading that section of the toolkit for which you received the lowest percentage score above. You can track changes in your system's (and your personal) customer service focus by completing the self-assessment tool on a regular basis, say once a year, and checking your new score against previous scores. This will allow you to see those areas in which you and your system have improved--as well as those areas in which there is still room for improvement.

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## Chapter 2: Managing for Reliable Transit Services

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### ***In This Chapter***

- ⇒ *What does transit system reliability mean?*
- ⇒ *How is transit service reliability measured?*
- ⇒ *How can transit service reliability be tracked?*
- ⇒ *How can you manage your system to improve reliability? Or, what makes your transit services reliable?*

### **What Does Transit System Reliability Mean? .....**



Reliable transit service means that your customers have confidence that vehicles will arrive on time or when promised and that they will arrive at their stops on time. As a transit system, being able to provide reliable, predictable service is critical to attracting and keeping passengers. Providing reliable service requires having sufficient backup vehicles, performing regular vehicle maintenance, hiring conscientious employees and training them well, and developing realistic schedules and adhering to them. Reliable service also requires having contingency plans in place to respond quickly and effectively to changes to the system's normal operations, and developing an effective public information campaign to alert customers to changes to schedules, routes, or other aspects of operations before those changes are implemented.

### **Measuring Reliability.....**



The reliability of transit services is generally measured by considering:

- On-time performance — the percent of fixed-route vehicles on time (within five minutes of scheduled time) or paratransit trips picked up within a particular window (15 minutes)
- The number of road calls made for your vehicles
- Rates of staff turnover, tardiness, and absenteeism
- The number of customer complaints
- The number of missed trips or runs
- Passenger perceptions gathered through user surveys or focus groups

## Tracking Measures of Reliability .....



You can track whether your services are reliable in a number of ways:

Fixed-route vehicle on-time performance can be tracked through random checks of fixed-route vehicle arrival times at various stops throughout the system. Do vehicles arrive late at certain stops? Are vehicles routinely late for certain stops at particular times of day such as during morning and evening rush hours? If either of these conditions occurs, adjust schedules to more realistically reflect operating conditions, to improve on-time performance.

On-time performance for your paratransit services can be tracked using on-going or random checks comparing scheduled arrival time with actual arrival time. Do vans arrive at passengers' homes within the established window? Are passengers arriving at destinations on time? If not, changes may be needed to the reservation and scheduling procedures.

Tracking your road calls (calls per 1,000 miles) may show a need for improved maintenance procedures or reduced intervals between preventive maintenance activities. Use a spreadsheet to track road calls by different types of vehicles and by time of year. Analysis of the call patterns may reveal a need to change maintenance procedures for certain vehicles or to better accommodate conditions resulting from varying seasonal driving conditions.

Tracking the number of missed trips may also reveal shortcomings in your vehicle maintenance program. You need to maintain a sufficient number of backup vehicles to ensure service is available in case of a vehicle breakdown.

*Review routes with drivers. Sometimes minor adjustments in routing to eliminate bottlenecks can improve running time. [E]*

*If your service area covers a wide area, basing one or more vehicles at remote locations can minimize the time required to place a backup vehicle in service on remote routes. [E]*

### Real-Life Example

#### **Rigorous Preventive Maintenance and Tracking to Improve Reliability and Reduce Fleet Size and Spare Ratio**

The Metropolitan Transit Authority of Harris County (MTA) in Houston, Texas, believes that the best way to improve the reliability of its service, manage its fleet, and limit the number of spare vehicles is to adopt a strong preventive maintenance program. The program includes performing preventive maintenance during the day shift and an opacity program, in which residents are encouraged to phone in reports of any bus observed to exhibit excessive exhaust smoke. These measures were implemented in addition to regular 4,000-mile inspections, oil sampling on a regular basis, pre-inspection steam cleaning of major component systems, and a program to identify and eliminate repeat road calls.

Tracking the average length of employment at your system can determine if you have a high rate of employee turnover. If employees are continually leaving, your service is in danger of becoming less reliable, as replacement employees must be trained in operating policies and procedures. A high rate of employee turnover can indicate the need to improve your employees' job environment, to review rates of pay for adequacy, or to implement an employee appreciation program to boost morale.

Do you track customer complaints? Tracking not only the number of customer complaints but also the subject of those complaints may point to problems in system operations that need to be improved in order to provide more reliable service. It is not enough to simply record complaints. An effective manager also investigates complaints and determines the root cause of each complaint, and then follows through with corrective action. In the same manner, tracking customer commendations can help in recognizing employees who provide outstanding service.

## Managing to Increase Your Transit System's Reliability .....



If the reliability of your system leaves something to be desired, you can improve it by focusing on management functions described below.

Reliability improvements can be achieved by:

- Developing regular vehicle maintenance procedures and implementing adequate spare ratios and an appropriate vehicle replacement plan.
- Following effective staff hiring procedures, training drivers and staff on a regular schedule, and using employee incentive programs.
- Developing appropriate operating procedures for your services, especially for paratransit or other demand-responsive service.
- Designing or planning services that can be operated reliably.
- Developing good communications internally and with riders.

### Vehicle Maintenance Program

A well-established comprehensive maintenance program is as important to making your system reliable as the purchase of the vehicles. If routine maintenance is not performed, a vehicle's reliability will suffer, its work life could

### Real-Life Example

#### *Preventive Component Replacement*

The **Ohio Maintenance Managers Manual for Small Transit Agencies** suggests identifying potential component failures before they occur, rather than waiting for a component to fail and then repair/replace it. Review maintenance records to develop anticipated failure points for critical vehicle and equipment components. Replacing these components prior to failure can reduce road calls, down time, and maintenance costs.



## Real-Life Example

### *Hiring Smarter*

**Laidlaw Transit Services** has developed a personnel management approach and system with associated forms and examples for projecting staffing needs, developing hiring programs, screening and testing techniques and effective interviewing to increase the likelihood of hiring good employees. The program is intended to increase management awareness of the importance of identifying and hiring good employees and to provide the tools to accomplish that objective.

The program begins with an analysis of employee turnover statistics and time involved in recruiting, hiring, and training a new employee. A recruiting plan is then developed, timed to historical employee replacement requirements. This helps avoid short-staff conditions that lead to poor hiring decisions, inadequate training, attitude and safety problems, poor service, etc. Employee turnover statistics are collected by employee classification for several years to develop a turnover profile. The profile may be based on average time or according to seasonal characteristics.

The program also requires determining typical time requirements for placing employment ads, obtaining and prescreening applications, conducting interviews and making employment offers, securing medical results, driver records and fingerprint clearances (as required), classroom and other training, and licensing for operator positions. These data are used to develop a recruiting plan specifying how often to initiate the recruiting/hiring/training cycle and the number of new/replacement employees needed during each cycle.

The program reduced short-staffed systems, increased the overall quality and retention of new hires, and reduced accidents. The company discovered that in order to reach potential employees most effectively, it is necessary to customize employment ads and where they are placed according to each community.

be shortened, and its warranty provisions might become void. An effective maintenance plan should include:

- Adhering to a maintenance schedule appropriate to each different type of vehicle the system operates.
- Conducting daily vehicle inspections prior to driving a vehicle.
- Completing inspection checklists.
- Keeping a comprehensive maintenance record on file for each vehicle and piece of equipment (lifts, etc.) operated by the system.

The general manager should be educated on maintenance functions so that he/she can better control costs and oversee the system's safety and efficiency. General managers do not typically have maintenance expertise and may not understand the complexities of maintenance requirements. With some training, perhaps just spending a day with the maintenance manager or head mechanic, the general manager can better understand how maintenance fits into the system's overall operations.

Customizing vehicle inspection forms can help to improve the quality and uniformity of vehicle maintenance inspections and servicing, especially in mixed and specialized fleets. Customized vehicle inspection forms tailor the listed inspection and service items to each vehicle's service requirements instead of just using generic inspection forms with service

items that may or may not apply to certain vehicles in the fleet. This eliminates checks for service items that are not appropriate or possible for some vehicles. Customized

forms promote carrying out inspections in a more uniform manner and help ensure that unique vehicle or equipment components are properly serviced.

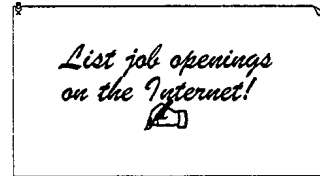
✦ REFER TO THE MAINTENANCE MANAGEMENT SECTION FOR MORE DETAILED INFORMATION.

## Human Resources Program

Employees are the cornerstones of building transit system reliability. To develop reliable service, you will need to recruit the best possible candidates, carefully screen job applicants, train both new and existing employees in order to maximize skills, and provide incentives to encourage employees to work to the best of their abilities.

### *Hiring Process*

It is especially important for you to hire the right employee for the right position. This will require you to analyze your personnel needs and prepare a job description, listing specific tasks and responsibilities. When recruiting make sure the candidates you want to attract will see your position opening. Place advertisements for position openings at all appropriate sites in order to attract the best-qualified candidates. Check with other local employers to learn what has worked well in your community.



It is also important to develop and use consistent procedures for the application and interview processes. Having each applicant complete an application form and arranging all interviews within a short period of time help to better compare the strengths of all candidates. Tell all candidates a firm date by which the system will make a hiring decision, and notify all candidates, successful or unsuccessful, of the outcome of their candidacy. Keeping all applications on file for a one-year period allows you to contact qualified candidates who were not selected for a position should a new employment opportunity arise. Some transit systems have become proactive in their hiring process, and have developed recruiting plans based on employee turnover statistics.

Standardizing employee recruitment and selection criteria on a regional,

## Real-Life Example

### *Rural Transit In-House Training*

Rural transit systems often lack the capability to train new staff. To ensure that all drivers are properly trained in all aspects of safety, system procedures, and safe handling of passengers and vehicles, **Hill Country Transit**, a nine-county system in Texas, has developed and implemented a comprehensive staff training program. The operations manager over a period of years, became experienced and certified as a trainer, where necessary. This individual initially provided some basic driver training. The training program evolved to where a variety of issue areas were covered, including administrative, operational, and vehicle-related topic areas. Four to five staff members are currently involved in training. Management reports lower employee turnover, better quality drivers, a well-focused attitude, and an increased sense of professionalism among staff.

statewide, or national basis can be an effective means of ensuring consistent hiring practices. The Canadian Urban Transit Association (CUTA) has developed the National Bus Operator Recruitment and Selection Standards to achieve a standard industry task bank and performance standard for the position of urban bus operator. The task bank serves as a basis from which to construct a behavior description interview that can be used at transit systems across Canada, regardless of system size or location. The standards serve as a reliable predictor of future performance.

### ***Training***

Orienting and training new employees provides them with information and skills to succeed at their jobs. Orient new employees on their first day to introduce them and your existing employees to each other. Review company policies and rules and job responsibilities. Employees who do not know their roles and responsibilities cannot participate in providing reliable service.

### ***Establishing Adequate Driver Staffing Levels***

Reliable service requires adequate backup personnel (driver extraboard). Some systems that cannot afford to hire additional full-time staff have added part-time staff to ensure an adequate number of drivers is available. Other systems have trained some staff members in several areas of job responsibility to ensure skilled staff are always available to handle all jobs.

**✦ THE OPERATION MANAGEMENT SECTION INCLUDES MORE DETAIL ON ESTIMATING THE NUMBER OF DRIVERS NEEDED AND MAKING DRIVER ASSIGNMENTS.**

### ***Incentive/Disciplinary Programs***

Employees are a system's most valuable resource. Recognizing and rewarding employees who provide excellent service to the transportation system and to customers serve as incentive for all employees to provide better customer service and improve job performance. While many transportation systems have given driver-of-the-year awards, this recognition can and should include all system employees.

Base awards on explicit criteria. When developing criteria for award programs, emphasize areas in which you want to improve the system's delivery of services. For

## **Real-Life Example**

### ***Cross Training Employees***

The **Municipal Transit Administration** in Clinton, Iowa, cross trains both full- and part-time employees in many different tasks. The two-fold purpose is to promote employee's involvement in their jobs, and to ensure that there is a staff member present who knows how to perform every task should an emergency arise.

Cross training increased employees' loyalty to the system, particularly among part-time staff. Staff who have the interest and ability to learn several areas of responsibility are selected for this training. Several maintenance workers have learned procurement procedures in addition to their regular tasks. Bus drivers and dispatchers have each learned how to perform both types of tasks. This practice has not only reduced the employee turnover rate but also provided employees with a greater possibility for advancement.

## Real-Life Example

### ***Special Services Motor Coach Operator and Call Taker Incentive Program***

The **Ann Arbor Transportation Authority** in Michigan rewards vehicle operators and call takers with bonus payments for increases in ridership. This incentive program is intended to encourage employees to be courteous and polite to customers and potential customers. Bonus payments are awarded to all motor coach operators and call takers for each hour worked in either job classification based upon increases in certain categories of ridership when compared to ridership for the same quarter of the previous year. Bonuses are related to percentage increases: at a 10-percent increase in ridership, employees receive a \$.25 per hour bonus, rising to a \$.50 per hour bonus for a 45-percent increase. To implement this program successfully, ridership data must be retrieved daily, and ridership must be calculated each quarter to determine the appropriate bonus.

instance, to encourage drivers and dispatchers to use correct radio codes, radio communications using correct codes could be included as an award criterion. Discover what specifically motivates each employee, and incorporate those motivating forces when designing incentive programs.

Even with the best recruiting, hiring, training, and motivational efforts, a manager is likely to encounter some problem employees. Do not ignore problem employees. Establish clear personnel policies and procedures and follow them if it becomes necessary to discipline an employee. Request that the system's attorney review your disciplinary policies to ensure that both employees' and the system's legal rights are respected.

Administer discipline fairly, uniformly, and consistently. Developing and distributing an employee policies and procedures handbook is one means of making employees aware of causes for disciplinary action and the disciplinary action(s) that will be followed. An effective discipline system utilizes rules and regulations, a

system of progressive penalties for infractions, and an appeals process. Progressive penalties typically include:

- Verbal warning
- Written reprimand
- Short-term suspension
- Long-term suspension
- Demotion
- Dismissal

### **Paratransit Operating Procedures for Drivers, Dispatchers, and Customer Service Staff**

If you provide paratransit or other demand-responsive service (including route deviation), effective, efficient reservations, scheduling, and dispatch procedures are the key to providing reliable service.

**✦ THE OPERATION MANAGEMENT SECTION INCLUDES MORE DETAIL ON EFFECTIVE OPERATING PROCEDURES FOR PARATRANSIT SERVICES.**

## **Reservation and Scheduling Procedures**

Service requests may come from an individual who desires transportation one time only or ongoing subscription service, from a contracting human service agency reserving a group trip for passengers traveling to a destination on a regular (subscription) basis, and from a general public rider. The ability to balance limited resources against often competing interests is a demanding task requiring a skilled scheduler.

*Systems with Internet access should encourage human service agencies to e-mail client reservations. Be sure to check your e-mail often!*

To reduce personnel time required to schedule trips for human service agency clients, request that a representative from each contracting human service agency makes reservations on behalf of all of that agency's clients. This procedure helps to verify trip eligibility more quickly and reduces the number of incoming telephone calls to the system's reservations agent. To reduce the chance of errors, encourage agencies to make reservations via fax machine or via e-mail when possible, especially when an agency wants to book trips for a group.

The objective of scheduling is to accommodate as many trip requests as possible while maximizing the use of limited personnel and equipment resources. To maximize the efficiency and effectiveness of your system, match passengers according to:

*When possible, confirm pick-up time when a reservation is placed to eliminate a call back to the passenger.*

- Location of origin
- Time of pick-up or arrival at destination
- Location of destination

Constraints on the supply of transportation available include:

- The number of vehicles available
- Seating capacity and availability of special equipment, such as wheelchair lifts on vehicles
- The maximum amount of time passengers may be on board a vehicle, especially for those individuals with special needs that limit their on-board time period

When a system contracts with various agencies to provide transportation service for agency clients, scheduling and dispatching conflicts will inevitably arise. The extent to which the scheduler can match passengers based on compatibility of origin/destination location and departure/arrival time while not exceeding the system's constraints determines the operating performance of the system.

**✦ THE OPERATION MANAGEMENT SECTION ADDRESSES DETAILED PROCEDURES FOR SCHEDULING TRIPS IN A WAY THAT MAKES SERVICES RELIABLE AND EFFICIENT.**

### ***Dispatching Procedures***

Once trips for a given period have been scheduled, they are assigned to specific drivers for pick-up. This is where dispatching begins. Ensure that dispatchers are properly trained to:

- Review schedules to ensure they are realizable prior to assigning trips.
- Assign a list of trips to specific vehicles.
- Assign vehicles to drivers with appropriate skills/certifications.
- Arrange the order in which each trip will be picked up.
- Assign each driver to a specific vehicle.
- Record mileage, actual times of pick-ups, and other trip information.
- Maintain regular contact with the drivers to monitor progress, update trip requests, and respond to operational problems, such as vehicle breakdowns, accidents, delays, and other unplanned events, which may occur.

### ***Reservations, Scheduling, and Dispatching Policies***

You will need to develop and implement policies for the following:

- Degree of advance notice required (same day, prior day, 24 hours, etc.)
- Days and hours of service operation
- Holidays or other days with reduced service
- Trip sharing
- Incidental general public trips on existing subscription routes

### ***Computer Tools***

Automating tasks can enhance the efficiency of your operation. If you are just beginning to automate some work tasks, begin with word processing (for correspondence, reports, etc.). Next enter your basic passenger data into a database program. You can then readily pull up customer addresses, eligibility information, emergency telephone numbers, directions, etc. Then consider designing spreadsheets and inputting system data regularly. Various data are then readily available and can be manipulated to help the manager better understand and stay on top of system performance. Spreadsheet reports are frequently the basic statistical reports that are provided regularly (monthly, quarterly) to funding sources and to your local transportation advisory board/committee.

## **Real-Life Example**

### ***Dealing Effectively with Cancellations and No Shows***

"Cancellations and No-Shows Study and Guidelines," a report by the Hickling Corp. for the **Ontario (Canada) Urban Transit Association**, Centre for Transit Improvement, discusses the problems caused by no-shows and cancellations and suggests strategies for transit systems to minimize these problems. Strategies involve administrative concerns, operations and service delivery, and communications, and are designed to help managers improve system performance. Managers can assess their systems in relation to the study's definitions as an "acceptable" level of cancellations (5-10%) and an "acceptable" no-show rate (<1%).

## Planning Program

Well-planned routes and schedules are critical to achieving highly reliable service. Develop and implement policies prescribing the time window for permissible deviation from arrival/departure from fixed-route and/or demand-responsive stops. Demand-responsive service schedules are particularly prone to variations arising from passenger cancellations and no-shows. Implementing and adhering to trip cancellation and no-show policies can help limit the effect of these inevitable occurrences.

Regularly consult with local planners and traffic engineers to stay informed of changes to circulation patterns resulting from new development and/or changes to roadways. Develop and maintain contingency plans to provide alternate routes in the event of a route becoming impassible.

In addition to a regular maintenance plan, implement a vehicle replacement plan/procurement program to ensure that vehicles are replaced according to a timetable

that supports reliable operations. If your system is experiencing growth, plan a vehicle procurement program that addresses the need for additional vehicles to ensure that existing as well as new services are operated in a reliable manner.

✦ SEE VEHICLE MAINTENANCE AND PROCUREMENT SECTIONS FOR ADDITIONAL INFORMATION.

## Real-Life Example

### *Route Adjustment and Fine-Tuning*

**The City of Downey, California**, which operates a small community-based fixed-route system, adjusts routes frequently to better meet local travel needs. The transit manager stays in close touch with community residents through her role as Downey's community services manager, and closely monitors the system's performance trends. She maintains frequent contact with passengers and drivers by riding routes, conducting on-board surveys, and maintaining a thorough knowledge of the city and local community services. The manager also monitors system performance through regular monthly and quarterly performance data reports.

To adjust effectively and fine-tune routes, a manager needs to have a thorough understanding of customers' needs, the system's routes and performance, the needs and desires of the local community, and a willingness to make changes. This is an iterative process, in which the manager continually assesses and reassesses system performance in relation to customer needs. Changes to routes are not dictated by brochure production and printing schedules.

Ridership has **continued** to increase over the initial three-year period of implementation. The community views the transit system positively, based on elected leaders' support and local press reports, as well as ridership figures. Customers appreciate the system listening to their needs, and drivers feel better connected to the planning process.

## Communications Program

Good communications, both within the system and with passengers, are required to ensure the provision of reliable service. Good internal communications within your agency are necessary to alert staff of changing conditions in the operating environment — a vehicle breakdown, delays resulting from traffic, a vehicle accident, etc. Train your staff to communicate the nature of the problem concisely, quickly, and

accurately in order that an effective solution may be implemented and service disruptions are minimized.

Good communications with passengers help to allay passengers' fear of the unknown. Customers are more likely to tolerate an unanticipated delay when they are informed of the cause of the delay. Inform customers not only of the existence of a problem, but also of the system's efforts to manage and correct the problem.



## Reliability Checklist.....



In order to provide reliable on-time services, transit managers need to ensure that their system has:

- Sufficient vehicles -- which requires an effective:
  - ✓ Annual vehicle replacement plan
  - ✓ Adequate spare ratio
- Reliable vehicles -- which requires an effective:
  - ✓ On-going preventive maintenance program
  - ✓ Maintenance repair program
  - ✓ Procurement program
- Sufficient drivers/dispatchers -- which requires:
  - ✓ Effective recruiting procedures
  - ✓ Adequate staff benefits
  - ✓ Adequate backup personnel (driver extraboard planning and management)
- Reliable drivers/dispatchers -- which requires effective:
  - ✓ Applicant screening procedures
  - ✓ Disciplinary/incentive programs including procedures to minimize tardiness and absenteeism
  - ✓ Training programs
- Good operating procedures for pull outs and service adjustments en route
- Adequate on-street supervision
- Well-planned routes and schedules
- Contingency plans for unexpected changes or emergencies
- Good reservations and dispatch procedures
- Good communications procedures
- Passenger and driver understanding, training and cooperation to manage service disruptions (e.g., procedures to control passenger behavior)

# Chapter 3: Managing for Safe and Secure Transit Systems

## In This Chapter

- ⇒ What are safe and secure transit services?
- ⇒ How are safety and security measured?
- ⇒ How can safety and security be tracked?
- ⇒ How can you manage your transit system to improve safety and security?

## What Does Transit System Safety and Security Mean? .....



Your customers should not only *be* safe and secure, they must also *feel* that they are safe and secure when using your public transportation system. Your employees also need a safe and secure work environment. Some factors that contribute to a safe and secure environment at a transit system are fairly obvious, such as minimizing accidents on vehicles and in facilities, and minimizing risks to passengers from the time they arrive at a boarding area until they reach their destinations. Passengers must not only feel safe when on board your buses or vans, they must also feel safe at transfer stations, bus stops, and other pick-up and drop-off locations. Research shows that passengers feel safer in clean, well-lit vehicles and facilities, as they perceive that someone is in charge. Safety and security is also promoted through reliable service and good communication within the system and to customers.

## Measuring Safety and Security.....



Safety and security of transit services are generally measured by the following:

- The number of accidents
- The number of crimes against passengers
- The number of crimes against staff
- The number of incidents of vandalism on vehicles and facilities
- The number of safety- and security-related passenger complaints
- Passenger perceptions often identified through user surveys or focus groups

## Tracking Measures of Safety and Security.....



To take effective action to improve the safety and security of your system, you must first know your system's current levels of safety and security. This can be accomplished in a number of ways:

The number of incidents and accidents the system has over time can be tracked by developing a simple database using Excel®, Access®, or similar software to record each of these statistics. Or, a simple log could be kept on paper. Then, add your statistics each month to show monthly totals. Adding the monthly totals for a 12-month period will result in the annual totals. Decide on a date that will be your starting date for annual calculations, then calculate annual totals *at the same time* from year to year. This will enable you to track month-to-month and year-to-year changes in your accident and incident statistics. By tracking each of these statistics over time, you will be able to see if your system's performance has improved, remained the same, or worsened.

If your system's performance changes, you should investigate to determine why it has changed. What were the factors responsible for the change? Are those factors within the system's control? If so, you can develop a plan of action to improve your system's performance. If the cause of deteriorating performance is from outside the system, consider how you can effectively respond to those external causes.

Compare accident/incident statistics with passengers' perceptions of your system's safety as shown through passenger surveys. Do passengers' perceptions of the system's safety correspond to the level of safety shown by accident/incident statistics? If there is a disparity between perceptions and reality, you should develop a way to convey to your passengers what is really going on. Is there a perception that there is a greater level of crime against passengers than really exists? If so, you will need to better educate passengers (and the community) on the true level of safety at your system.

*In addition to collecting and calculating statistics, survey your passengers on a regular basis to determine their perceptions of your system's safety and security. [P]*

Track customer complaints that relate to security. Tracking not only the number of customer complaints, but also the subject of those complaints may point to problems in system operations that need to be improved in order to provide more secure service.

## Managing to Increase Your Transit System's Safety and Security.....



If you want to improve the safety and security of passengers using your services (as well as your staff), you should concentrate on a number of management activities needed to achieve these improvements, including:

- Vehicle maintenance procedures, including effective and regular vehicle cleaning
- Risk management program
- Facility maintenance program
- Staff hiring and training and incentive program
- Operating policies/supervision policies
- Cash handling procedures

Following are discussions of how safety and security can be addressed in each of these management functions.

## Vehicle Maintenance Program

Well-maintained vehicles are essential to providing a safe and secure environment for transporting customers. Regular preventive maintenance can help in avoiding breakdowns that can jeopardize passenger (and operator) safety, and can also help to ensure all vehicle accessories (doors, lifts, etc.) are functioning properly. Also, ensure that vehicles are cleaned regularly. Customers will feel more secure in clean transit vehicles, as this shows attention to their comfort and well being.

**✦ REFER TO CHAPTER 5 "MANAGING FOR CLEAN AND COMFORTABLE TRANSIT SERVICES" AND THE SEPARATE VEHICLE MAINTENANCE SECTION FOR ADDITIONAL INFORMATION.**

## Risk Management Policies and Procedures

Establishing and regularly reviewing/updating a comprehensive risk management program is essential to providing a safe and secure environment for the transportation of customers. A comprehensive risk management program addresses the whole spectrum of activities at a public transportation system.

While all activities contain some risk or the potential for unintended loss or damage, your public transportation system has special and unique risks. For example, a passenger may fall and become injured, a maintenance employee may sustain an injury from a slip on spilled oil, or an advisory board member may be sued for negligence as the result of an injury to a passenger in a vehicle accident.

Risk management is a systematic process for planning, organizing, directing, and controlling the resources and activities of an organization to protect its assets and minimize the effects of accidental loss. Accidental losses include loss of property, loss through liability suits, and loss through employee injury or illness.

An effective risk management program can provide protection from severe financial disruption due to accidental losses at an affordable cost that does not fluctuate severely from year to year. Risk management objectives include protecting the system's assets from loss or destruction, creating a safe work environment for employees, and reducing the likelihood of injury to a customer or other third party.

In terms of management, risk management promotes safe practices to minimize anticipated and unexpected losses. The financial role of risk management is to analyze available options to pay for potential loss and recommend alternatives that make the best use of the system's financial resources. Development and implementation of safe practices, policies, and procedures can positively affect operations. Finally, risk management involves personnel through development and support of sound standards for employee hiring, training, performance, evaluation, and medical benefits.

**✦ REFER TO THE RISK MANAGEMENT SECTION FOR MORE DETAILED INFORMATION.**

To assist in providing high-quality liability insurance coverage for public transportation operators, some state departments of transportation have created a statewide liability insurance pool. For example, the Pennsylvania Department of Transportation maintains a statewide liability insurance pool for rural and small urban public transportation providers.

Many transit providers have implemented internal programs to reward drivers with safe driving rewards for achieving zero preventable accidents over a specified period of time (e.g., one month, quarterly, one year, five years, etc.). A reward may be special recognition such as a plaque or poster or patch for the driver's uniform. Some transit providers give more. For example, a private provider gives special prizes for safe driving records, with increasing prize value as the length of time without a preventable accident increases.

Some transportation systems have increased the thoroughness of staff training and implemented a program in which drivers are penalized for preventable accidents. The City of Jackson, Mississippi, Transportation Authority (JTA) has adopted such a policy as part of its effort to minimize and limit accidents and to reduce the financial costs that could be incurred from those accidents. In addition to providing more thorough training, JTA focuses attention on accurately completing an accident report in order to determine the cause of loss and to help prevent future similar incidents.

**✦ REFER TO THE RISK MANAGEMENT SECTION FOR MORE INFORMATION.**

## Real-Life Example

### *Master Drivers Program*

Laidlaw Transit Services has implemented a Master Driver Program to recognize vehicle operators who achieve and maintain high levels of professionalism and safety in carrying out their duties. This program is open to all vehicle operators who meet the following requirements:

- Two consecutive years' safety awards
- No negative customer service reports
- No miss-outs
- Passing score on written test

The written test includes questions on the commercial driver test, company safety goals and objectives, actual transit system performance on safety goals and objectives, and safety principles.

Master Driver candidates are provided a study guide that indicates the types and sources of information that can be expected on the test. Master Driver qualification is for a one-year period, and drivers may re-certify for a succeeding year if they continue to meet the program requirements.

Successful candidates receive a plaque, Master Driver jacket, and uniform shirts with a Master Driver patch. Plaques are awarded for each year a candidate qualifies as a Master Driver. Approximately 100 vehicle operators have qualified as Master Drivers since the program was initiated in the mid-1980s. The program not only provides recognition to superior drivers, it also encourages other drivers to aspire to the standards of professionalism, safety, and conduct that define the Master Driver.

## Facilities Maintenance Program

Regular, comprehensive maintenance of facilities is another factor that is essential to providing a safe and secure transportation environment. Customers need to be safe at boarding and alighting, and transfer locations as well as while they are on board a vehicle.

Strategically located shelters can help to reduce crime. Locating stops or shelters near residential or commercial buildings that have windows facing the stop puts abnormal users under possible surveillance by observers living or working in the surrounding buildings. Lighting at stops and shelters can help reduce crime. However, if lighting is used improperly, it may create problems. For example, if lighting directly illuminates windows of adjacent buildings, occupants may draw curtains to prevent undesired illumination of their living or work space. This eliminates the potential for surveillance. High-mounted lighting fixtures usually create a form of light pollution that results in a neighborhood turning its back on the facility.

✦ **REFER TO THE MATERIAL ENTITLED "CONVENIENT ACCESSIBLE BUS STOPS" IN CHAPTER 4 FOR ADDITIONAL INFORMATION.**

## Human Resources Program

A well-trained staff is critical to providing a safe and secure environment for public transportation passengers. Drivers must be trained in safe vehicle operations procedures, such as vehicle pre-trip inspection procedures, defensive driving techniques, inclement weather driving techniques, and proper wheelchair management and securement procedures.

*Peer training provides for one-on-one coaching for experienced vehicle operators by other operators to improve driving skills, to ensure safety equipment and practices, and to develop uniformity in operating practices among operator staff.*

All staff should receive training in CPR and First Aid techniques, proper passenger assistance procedures, and appropriate techniques to manage difficult passengers. In addition, all staff should receive drug and alcohol awareness training and testing, and training in proper response to emergencies/incidents.

One method to ensure that staff receive regular training is to develop a training log using a computer spreadsheet program. Create a record for each staff member and a field for each type of required training. By entering the date when each staff member received a specific type of training, a record of staff training can be created.

In addition to a regular group training sessions, some employees may benefit from, and respond more favorably to, individual peer training. This typically provides for one-on-one coaching of new drivers by experienced drivers. It has been used to improve driving skills, to ensure that safety equipment and practices are followed, and to develop uniform operating practices among drivers.

This type of training can be especially valuable at systems that encounter safety problems or accident losses related to use of new equipment, such as larger vehicles,

## Real-Life Example

### *Employee Incentive Programs*

Many transit systems use employee incentive programs. The **Chatham Area Transit Authority**, in Savannah, Georgia, utilizes an incentive program in which drivers and maintenance personnel with either a year of perfect attendance or a year of accident free driving receive management recognition, a \$50 bond, a personal leave day, and attendance at a banquet. Master mechanics receive a salary increment in addition to management recognition. Service awards may be earned after three years of employment, culminating with special recognition for 25 years of service. Management believes this program has resulted in improved attendance, reduced accidents, and improved employee morale.

**Connecticut Transit** has implemented a "Safety Sweepstakes" program in addition to the National Safety Council safety awards program. Those drivers with no preventable accidents each month receive a Safety Award with a Safety Sweepstakes game card. Each card contains four true or false questions taken from the Operator's Rule Book or from study materials for the commercial driver's license manual. Cards from drivers who correctly answer all four questions are entered into a monthly drawing. The winner receives a U.S. Savings Bond. All cards are entered into an annual drawing in which the winner receives paid leave time.

new lift or securement designs, different mirror placement, etc. It is also valuable to systems that have experienced changes in the local road network or routing that introduce problems with visibility or clearance. Peer training is most effective in situations that can be remedied by one-on-one assessment and coaching in a non-threatening manner. This technique is also effective with new drivers as a follow up shortly after they have completed initial training and started actual service operation.

When selecting peer trainers, choose drivers who are respected by other drivers and who demonstrate a professional attitude and driving skills. Instruct these trainers in coaching skills, and driving and operating practices to ensure uniformity among trainers.

Laidlaw Transit Services developed a peer training program called Advanced Skills Training. As a result of implementing this program, drivers now show more uniform driving practices and the system's accident loss rate has decreased significantly.

Recognizing employees who work diligently also encourages improved performance, resulting in safer transportation for customers. Recognition or tangible rewards also provide employees with additional incentives to provide good customer service.

## Operating Procedures for Safety

There are a number of operating procedures that you need to have in place in order to ensure that your drivers and dispatchers provide safe and secure services. In addition to a staff training program, you should have standard procedures for proper responses in emergencies.

You should also develop emergency/incident response policies and procedures for dispatchers and customer service representatives as well as for drivers. This will help to provide a quick response from emergency personnel in the event of an emergency event. Develop policies and procedures for providing information to the media in the event of an accident/incident. Providing timely and accurate public information will help to reduce public fear and chaos generated by rumors and false information.

Another key element of your safety program is to ensure that staff in safety-sensitive positions are not abusing substances that impair the safe operation of services you offer. Develop a substance abuse policy to not only comply with federal regulations governing workplace anti-drug and alcohol programs, but also to protect employees, passengers, and the public from the risks posed by misuse of alcohol and drugs.

Every public transportation system should have clearly stated reporting procedures to be followed in the event of a vehicle accident or an incident on a vehicle. Drivers should provide detailed and accurate reports of all accidents resulting in personal injury, damage to any vehicle, or to other property. Every system should develop and use a standard accident report form, train drivers in proper procedures to complete those forms, and keep copies of the form in all vehicles. Supervisors should also be trained in proper procedures for accident or incident response. A disposable or instant camera can be kept in the supervisor's vehicle so the supervisor can take photos, if appropriate, when responding to an accident or incident.

## Cash Handling Policies and Procedures

Every transportation system should have clear, simple procedures for handling cash. This ensures proper accounting of your fares and decreases the chance of theft or loss of cash or scrip. Each vehicle should be provided with an appropriate fare storage receptacle.

Requiring passengers to pay the exact fare eliminates the need for drivers to carry and give change, reducing boarding time at stops and inconvenience to other passengers. Tokens have the advantage of being reusable and easily counted. Tickets and scrip are not reusable, but are less

### Real-Life Example

#### *Safety Review Board*

The **Municipal Transit Administration** in Clinton, Iowa, has implemented an accident review board and an employee safety committee. The objective is to reduce the number of accidents and place greater responsibility for improving the transit system's approach to accidents with employees.

The accident review board operates similar to a jury. Following an accident, the board meets to determine methods to prevent a similar accident from recurring. The board investigates the cause(s) of the accident as well as if the accident was preventable. The transit system director determines appropriate disciplinary action.

The employee safety committee meets monthly to discuss safety concerns involving routes, customers, children, etc., and ensures that all government-mandated safety procedures, such as OSHA requirements, are followed. Employees have become more careful in their work, and the number of accidents has declined since implementing this system.



expensive to purchase initially, and can be printed in several denominations for use with a variable fare structure.

A payment option for human service agency trips is to utilize prepaid script to eliminate cash handling problems. In this procedure, drivers record the amount of tickets, tokens, or scrip accepted, and reconcile this with the amounts indicated on the driver logs.

Agencies, and in some cases general public passengers, may receive a monthly invoice for the total amount of tickets, tokens, or script that they have used instead of making payment in advance.

**+ REFER TO THE OPERATIONS MANAGEMENT SECTION FOR ADDITIONAL INFORMATION.**

## Safety and Security Checklist .....



Your system should have the following in order to provide as secure an environment as possible for your customers:

- A risk management program in cooperation with the system's insurer(s)
- Adequate exterior lighting at all facilities (bus stops, transfer facilities, office, maintenance garage)
- Well-maintained vehicles (regular preventive maintenance schedule)
- Clean vehicles and facilities
- Well-trained drivers (CPR, defensive driving, passengers with special needs, etc.)
- Policies and employee training in proper procedures for:
  - ✓ Communications between drivers and the base station, and the transit system and law enforcement personnel/emergency personnel
  - ✓ Emergency/incident actions and inclement weather operations
  - ✓ Blood-borne pathogens and bodily fluids clean-up
  - ✓ Accident investigation procedures
- Drug and alcohol awareness training and testing
- Policies and driver training on proper passenger handling and vehicle operations procedures
- Policies and procedures for cash handling
- Security personnel/community policing
- Bus stop location standards for vehicle and pedestrian safety