
Section 2

TRANSIT SYSTEM CHARACTERISTICS THAT BETTER SERVE THE TRAVEL NEEDS OF OLDER PERSONS

Typically, when customers contemplate any purchase, choices are made between the competing products that are available. Transportation is no different. Older persons make travel choices each day and will continue to do so in the future based on their needs, preferences, and available choices for particular trips.

As noted in previous chapters, older persons now seldom choose public transportation as their preferred mode of travel. Stated and revealed travel preferences, as well as forecasted changes in demographics and spatial activity patterns, suggest that fixed-route transit services will experience even greater difficulties in attracting older riders in the future.

To better serve older persons, public and other transportation service providers need better understandings of the travel needs and service expectations of seniors, both now and in the future. A clear focus on customer needs and expectations is likely to be a key hallmark of successful transportation options for older persons in the future.

The choice of travel mode depends on many factors. These include the transportation options available and the design, pricing, and delivery of these options. Customer service considerations such as reliability, driver courtesy, vehicle comfort, safety, and passenger amenities are critical. Emphasis needs to be placed on how information about services is communicated, as well as

on making older persons aware of available services. Equally important is the use of marketing efforts such as introduction to, and trial use of, new or unfamiliar services through programs of travel familiarization and training.

This section examines measures of service quality and customer satisfaction.

The mobility preferences of seniors are documented both from the perspectives of seniors themselves and transit industry professionals. Transit system characteristics that would provide better service for older persons are also documented. Section 3 examines how to get some of these improved services into operational status in various communities.

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MEASURES OF TRANSPORTATION SERVICE QUALITY

Measures of service quality and customer satisfaction have been discussed for many years within the transit industry. The *Handbook for Measuring Customer Satisfaction and Service Quality* states that “increases in customer satisfaction translate into retained markets, increased use of the [transit] system, newly attracted customers, and a more positive image” (Morpace International, Inc., and Cambridge Systematics, Inc., 1999). One would expect to find few people disputing the importance or overall usefulness of consumer satisfaction considerations. Still, many within the transit industry feel that these measures have not been sufficiently understood or implemented in ways that affect operating decisions. The American Public Transportation Association’s (APTA’s) Transit 2000 Task Force reported “we are bound by a traditional

preoccupation with accommodating vehicles and inattention to accommodating people.” Few firms of any sort, in the transit industry or in any other industry, are said to be focused on satisfying customers (Morpace International, Inc., and Cambridge Systematics, Inc., 1999).

If lack of sufficient attention to consumer satisfaction is one concern, a second is the complexity of measuring the quality of transportation services. Many factors have been proposed for measurement in attempts to rate the adequacy of transportation services from a consumer perspective. Some agreement exists concerning key quality and satisfaction attributes, but there are real differences among some of the assessment schemes. Transportation operators need a complete understanding of how their services are perceived in

the eyes of their riders—which service components are given high-quality marks and which components need quality improvements.

A third consumer satisfaction issue, one that specifically relates to older travelers, is that past studies of customer satisfaction with public transit services have paid very little attention to the specific needs of older travelers. Given that relatively few seniors use public transit and that seniors use public transit for a very small proportion of their total travel, it appears that the transit industry will have to devote much greater attention to what older riders desire and how to meet their demands in order for the transit industry to have a reasonable expectation of better serving the travel needs of older riders. Some older travelers are among the most frail transit riders and the least familiar with transit services.

This chapter examines some of the current work on measuring service quality and customer satisfaction and then expands these efforts into measures that older travelers report are significant to them.

THE ROLE OF QUALITY ASSESSMENTS

There are four fundamental types of transportation measures:

- System characteristics,
- Service assessments,
- Service attributes, and
- Performance measures.

The system characteristics are considered the inputs required for service: funds, personnel, vehicles, and so forth. Service assessments reflect the outcomes of services, or how the services influence the lives of those who use them. Service attributes are the measures of quality such as reliability, accessibility, and affordability. The performance measures are the service outputs that can be measured in efficiency and effectiveness terms. Taken together, the service assessments and service attributes can be used to express customer satisfaction with the services consumed.

QUALITY OF SERVICE MEASURES FOR THE TRANSIT INDUSTRY

The Transit Capacity and Quality of Service Manual states simply that

Quality of service reflects the passenger's perception of transit performance. It measures both the availability of transit service and its comfort and convenience. Quality of service depends to a great extent on the operating decisions made by a transit system, especially decisions on where transit service should be provided, how often and how long transit service should be provided, and what kind of service should be provided. (Morpace International, Inc., and Cambridge Systematics, Inc., 1999)

The Handbook for Measuring Customer Satisfaction and Service Quality notes that “within most service industries, consumers use basically similar criteria in evaluating service quality” (Morpace International, Inc., and Cambridge Systematics, Inc., 1999). These criteria seem to fall into 10 key categories labeled “service quality determinants,” which are the following:

- **Reliability** involves consistency of performance and dependability.
- **Responsiveness** concerns the willingness or readiness of employees to provide service. It also involves timeliness of service.
- **Competence** means possession of the required skills and knowledge to perform the service.
- **Access** involves approachability and ease of contact.
- **Courtesy** involves politeness, respect, consideration, and friendliness of contact personnel.
- **Communication** means listening to customers and keeping them informed in language they can understand. This may mean that the company has to adjust its language for different customers—increasing the level of sophistication with a well-educated customer and speaking simply and plainly with a novice.
- **Credibility** involves trustworthiness, believability, and honesty. It involves having the customer’s best interests at heart.
- **Security** is the freedom from danger, risk, or doubt.
- **Understanding/Knowing the Customer** involves making the effort to understand the customer’s needs.
- **Tangibles** include the physical environment and representations of the service.

The Morpace and Cambridge Systematics study also includes measures of customer loyalty and quotes Brandt (1996), who defines a secure customer as one who reports that he or she

- Is very satisfied with the service;
- Definitely will continue to use the service in the future; and
- Definitely would recommend the service to others.

The Morpace and Cambridge Systematics report further addresses how service quality measures are related to the various components of individual transit trips, which are defined as

- Trip planning,
- Cost of transit,
- Access to transit stop,
- Wait at transit stop,
- Travel by transit,
- Potential transfers to other transit services, and
- Egress to the final destination.

Total Quality Management

Applying the principles of Total Quality Management (TQM) has been suggested as a means of increasing the quality of transit services. TQM is described as “a management philosophy concerned with people and work processes that focuses on customer satisfaction and improves organizational performance” (MacDorman and Associates et al., 1994). TQM has been suggested as a tool to improve the responsiveness of various products and services in the face of demographic changes, shifts in societal demands, increased competition and fiscal constraints, and the requirements of new technologies. MacDorman and colleagues explain that

The principles of TQM appear to hold promise as a way to improve transit service, increase ridership, and fulfill transit’s broad social mission. . . . TQM requires an enterprise to systematically energize, manage, coordinate, and improve all business activities in the interest of customers. (MacDorman and Associates et al., 1994)

The MacDorman study defined seven fundamental, interdependent principles to

guide the implementation of TQM principles for the transit industry. The first principle listed is that of “putting customers first”:

‘Putting customers first’ is the basis for all quality management. TQM requires organizations to adopt the belief that service and product quality should meet—if not exceed—customers’ expectations. All people and processes of an organization should be directed towards this goal.

The success of public transportation depends on customer satisfaction— attracting and retaining customers to use or support its services. . . . Similar to many private sector services, public transportation has two types of customers: (1) consumers—the people who ride the service, and (2) stockholders—the general public who are taxpaying investors in the service. (MacDorman and Associates et al., 1994)

Key components of putting customers first are knowing the customer and responding to customer expectations. The other TQM principles listed are the following:

- Manage and improve processes;
- Manage by fact;
- Cultivate organizational learning;
- Train, empower, and recognize employees;
- Improve labor-management teamwork; and
- Lead the change in organizational culture.

The MacDorman report noted that most of the foundations for TQM applications were generally not in place in the transit industry. Problems in applying TQM principles to transit were said to include the following:

- Transit governing boards and union leadership are not generally involved in quality leadership;
- Transit employees are not yet sufficiently trained in tools and techniques for problem-solving and conflict resolution;
- Transit employees are infrequently rewarded for contributing to quality improvement; and
- Existing quality programs are not rigorous or thorough.

TQM offers a useful process for integrating service quality considerations into transit system management but does not necessarily identify the specific service quality measures themselves. The final report of MacDorman and colleagues (MacDorman et al., 1995) goes beyond the typical TQM exhortations by offering lists of “quality attributes” and subattributes and then relating them to various organizational functions of a transit system: administration, planning and marketing, finance, maintenance, and operations (see p. 36 of that report). This list of quality attributes and subattributes is shown in Table 16.

The final report of MacDorman and colleagues (1995) also discusses means of identifying customer satisfaction perceptions, priorities, and problems through customer and employee surveys and focus groups. Having transit system employees develop and conduct employee surveys is recommended as a technique for developing a customer focus among the employees. For the transit system, one approach to addressing customer satisfaction perceptions, priorities, and problems is to first design responses to those satisfaction measures with the lowest customer satisfaction ratings. Such actions might, for example, take the form of upgrading vehicles and transit stops in response to concerns about facilities,

Table 16
Transit Quality Attributes

<i>Service Quality Attributes</i>	<i>Subattributes</i>	<i>Service Quality Attributes</i>	<i>Subattributes</i>	
Availability	Service Level	Safety	Collision Accidents	
	Headway		Personal Injuries	
	Coverage		Fellow Passenger Behavior	
	Service Speed		Crime/Security	
	Service Span		Comfort	Seat Availability
Reliability	On-Time	Climate Control		
	Performance	Vehicle Interior		
	Service Interruptions	Plant and Equipment		Access to Stop/Shelter
	Operator Availability			Shelter/Station Cleanliness
	Vehicle Availability		Vehicle Designs	
Operator Attributes	Courtesy		Vehicle Cleanliness	
	Appearance		Information	Published Information Clarity
	Driving Behavior	Phone Information		
		Information Availability		

Source: MacDorman et al., 1995.

installing video cameras to deter crime in subway stations in response to concerns about safety, re-engineering the process the system uses to handle customer complaints in response to concerns about processing customer complaints, or creating more user-friendly schedules in response to concerns about the usefulness or legibility of schedules.

TRANSIT ASSESSMENT MEASURES FOR OLDER RIDERS

Transit Service Quality for Older Persons: The Research Perspective

Despite the wide range of useful measures available in other efforts, very little previous

research has directly or explicitly considered the travel preferences of older persons. One of the few reports to explicitly consider the travel preferences of older persons is *Supplemental Transportation Programs for Seniors* (Kerschner and Aizenberg, 2001). In this report, Kerschner and Aizenberg present a useful summary of criteria for transportation service quality entitled “the five A’s of senior-friendly transportation.” These were defined as follows:

- **Availability:** Transportation exists and is available when needed (e.g., evenings, weekdays, and weekends).
- **Accessibility:** Transportation can be reached and used (e.g., bus stairs are negotiable, seats are high enough, vehicle comes to the door, and transit stops are reachable).
- **Acceptability:** Transportation is clean and safe (e.g., the transporting vehicle is clean, transit stops are in

safe areas, and drivers are courteous and helpful).

- **Affordability:** Transportation is affordable (e.g., fees are affordable, and vouchers or coupons are available to defray out-of-pocket expenses).
- **Adaptability:** Transportation can be modified or adjusted to meet special needs (e.g., the vehicle can accommodate a wheelchair, trip chaining is possible, and escorts can be provided). (Kerschner and Aizenberg, 2001).

This report further identifies a number of “supplemental transportation programs” (STPs) that provide high-quality mobility alternatives for seniors. These programs range from small and informal operations to extensive and complex services (the largest operating STP has an annual budget of \$5.6 million).

Transit Service Quality, as Seen by Older Riders

Using the research noted above and focus groups conducted for this project, assessment measures were created to evaluate the relative importance of various attributes of differing travel modes in the eyes of older consumers of transportation services. These assessment measures are described in detail in Table 17, which also lists some specific kinds of customer (traveler) assessments that were offered by older travelers.

Table 17 expands Kerschner and Aizenberg’s (2001) original five criteria for senior-friendly transportation to eight elements of client satisfaction with transportation services. (Kerschner and Aizenberg’s original five are the first five in the list below.) These eight primary travel attributes can be used to express the universe of travel mode attributes; each of these primary concepts contains a number of specific measures of

service quality. The eight major travel attributes proposed for assessing transit service quality for older riders are the following:

- Acceptability,
- Accessibility,
- Adaptability,
- Availability,
- Affordability,
- Alternatives,
- Assessment, and
- Achievement.

In a complete assessment of transportation services (including both the customer and system operator perspectives), another factor should be added. This other factor is “accomplishment,” which represents the performance measures commonly used by transportation planners and operators to assess transportation operations.

Accomplishment includes factors such as

- Efficiency—cost per mile, cost per hour, cost per vehicle, miles per hour, and miles per vehicle;
- Effectiveness—trips per vehicle, trips per vehicle-mile, and annual trips per population served; and
- Cost-effectiveness—cost per trip and the ratio of farebox revenues to operating costs.

As much as possible, each of the eight concepts is defined in terms of operational measures that specifically apply to the transit industry. For example, one component of acceptable services is reliability: being able to count on announced departure and arrival times. Accessibility can be measured in both physical and informational terms, as well as in terms of distance to accessing a vehicle. Specific affordability measures should

Table 17

Assessment Measures for Transportation Options

Concepts	Customer Assessments
<i>Measures</i>	<i>Alternative Assessments</i>
ACCEPTABILITY	
Reliability: departure and arrival times	<i>I can count on specific departure and arrival times.</i>
Origin/destination connectivity	<i>I can get to the places I want or need to go.</i> <i>I have greater access to this community and its services now than before I started using this mode of travel.</i>
Trust and confidence	<i>This mode cares about passengers and treats them fairly.</i>
Image/attractiveness	<i>This is a good mode of travel for someone like me.</i> <i>I am happy to be seen riding this mode.</i>
Comfort/amenities	<i>I'm protected from the weather.</i>
Security	<i>I feel safe when using this mode of travel.</i>
Service quality: vehicles	<i>The vehicles are clean.</i> <i>The vehicles are comfortable.</i>
Service quality: personnel	<i>The drivers and customer service staff are courteous.</i> <i>[See Trust and confidence assessments also.]</i>
ACCESSIBILITY	
Can physically use the system	<i>I can [see, hear, walk, stand] as needed.</i> <i>I can get help into and out of vehicles as needed.</i> <i>I can get help into and out of my home as needed.</i>
Proximity	<i>This mode is easy to access from here, door-to-door service.</i>
Can get information on services	<i>I can get all the information I need to schedule and take trips.</i>
ADAPTABILITY	
Flexibility	<i>I can go when and where I want to go.</i>
Responsiveness of service	<i>I can get a ride soon after I decide to travel.</i> <i>It is easy to schedule a ride.</i>
Assistance with special needs	<i>I can get help with packages as needed.</i> <i>Escort assistance is available when needed.</i>
Eligibility	<i>This mode is available to people like me.</i>
Public participation in service planning	<i>Planners and politicians will listen and respond to my needs.</i>
AVAILABILITY	
Service span (hours/days)	<i>I get rides at the times and on the days I need them.</i>
Sufficiency	<i>I get all the rides I need on this mode.</i> <i>Getting all the rides I need is a problem.</i>
Frequency	<i>The service is available often.</i> <i>I can get rides as often as I want to</i> <i>[i.e., no limits on frequency or purpose].</i>
Independence	<i>I can travel at my own convenience, not that of others.</i>
AFFORDABILITY	
\$ cost per ride [or per month or year]	<i>I can afford all the trips I need on this mode.</i> <i>Trips are a good value for the price.</i>
Time required	<i>Trips using this mode are short and direct.</i> <i>I don't have to wait long before being picked up.</i>
Level of effort	<i>I don't have to expend a lot of effort to use this mode.</i>
Obligations to others	<i>I don't have to do favors to get a ride.</i> <i>I don't have to depend on or inconvenience others to get a ride.</i>
ALTERNATIVES	
Dependency on this mode	<i>I could use other means of transportation for my trips.</i> <i>I have no other means of travel.</i>
ASSESSMENT	
Overall rating	<i>I would rate the service I receive as ... [excellent to poor].</i>
Recommends to others	<i>I would recommend this mode of travel to a friend.</i>

(Continued)

Table 17

**Assessment Measures for Transportation Options
(continued)**

Concepts Measures	Customer Assessments Alternative Assessments
<p>ACHIEVEMENTS/OUTCOMES</p> <p>Impacts on their lives</p>	<p><i>I couldn't get to necessary/enjoyable places otherwise.</i></p> <p><i>This mode increases my mobility and social interaction and decreases isolation.</i></p> <p><i>With this mode, I can still live independently in my own home, not a nursing home.</i></p> <p><i>With this mode, I feel secure and confident; I have more peace of mind.</i></p> <p><i>With this mode, I'm happier, less depressed, less lonely.</i></p> <p><i>Now I can save money by getting rid of my car.</i></p>

include dollar costs, time costs, level of effort, and more personal factors such as obligations to others. Assessment means overall satisfaction and the willingness to recommend services to others, and achievements are measured in terms of the overall impacts on the lives of individual riders.

CONCLUSION

This chapter described an overall framework for measuring transit service quality in terms of factors that make a difference in older persons' satisfaction with transit. Specific mobility preferences of older travelers will be discussed in Chapter 5.