

TCRP

SYNTHESIS 101

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

Implementation and Outcomes of Fare-Free Transit Systems

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A Synthesis of Transit Practice

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Implementation and Outcomes of Fare-Free Transit Systems

A Synthesis of Transit Practice

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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 Federal Transit Administration (FTA). A report by the American Public Transportation 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 TRB. 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.

Project J-7, Topic SA-26

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Cover figure: Breckenridge Free Ride, Breckenridge, Colorado.

Supplied by Maribeth Lewis-Baker

Transit Manager—Free Ride Transit System.

FOREWORD

Transit administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to the transit industry. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire transit community, the Transit Cooperative Research Program Oversight and Project Selection (TOPS) Committee authorized the Transportation Research Board to undertake a continuing study. This study, TCRP Project J-7, "Synthesis of Information Related to Transit Problems," searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute a TCRP report series, *Synthesis of Transit Practice*.

This synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems

PREFACE

By Donna L. Vlasak
Senior Program Officer
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The purpose of the synthesis was to document the past and current experiences of public transit agencies that have planned, implemented, and operated fare-free transit systems. The report concentrated on public transit agencies that are either direct recipients or sub-recipients of federal transit grants and provide fare-free service to everyone in their service area on every mode they provide. It will be of interest to transit managers and staffs; small urban and rural areas, university, and resort communities, as well as stakeholders and policy makers at all levels who would be interested in knowing the social benefits and macro impacts of providing affordable mobility through fare-free public transit.

A review of the relevant literature was conducted for this effort. Reports provide statistics on changes in levels of ridership associated with fare-free service. White papers or agency reports identified by the topic panel or discovered through interviews with fare-free transit managers were also reviewed.

Through topic panel input, Internet searches, listserv communications, and APTA and TRB sources, the first comprehensive listing of public transit agencies that provide fare-free service in the United States was identified. A selected survey of these identified public transit agencies yielded an 82% response rate (32/39). The report offers a look at policy and administrative issues through survey responses.

Five case studies, achieved through interviews, represent the three types of communities that were found to be most likely to adopt a fare-free policy: rural and small urban, university dominated, and resort communities. These were the Corvallis Transit System, Oregon; Cache Valley Transit District, Utah; Breckenridge Free Transit System, Colorado; Advance Transit, New Hampshire/Vermont; and Link Transit, Washington.

Joel Volinski, National Center for Transit Research, University of South Florida, Tampa, collected and synthesized the information and wrote the report, under the guidance of a panel of experts in the subject area. The members of the topic panel are acknowledged on the preceding page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

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Note: Many of the photographs, figures, and tables in this report have been converted from color to grayscale for printing. The electronic version of the report (posted on the Web at www.trb.org) retains the color versions.

IMPLEMENTATION AND OUTCOMES OF FARE-FREE TRANSIT SYSTEMS

SUMMARY Providing public transit on a fare-free basis for all passengers has tantalized public policy-makers for decades. Proponents claim that if other public services such as schools, libraries, and parks (as well as most roads) are considered important enough to provide at no charge to the user, then providing everyone in the community with at least a basic means of mobility should also be a public good.

The purpose of this synthesis is to document the past and current experiences of public transit agencies that have planned, implemented, and operated fare-free systems. An extensive literature review and the results of a survey of public transit agencies that provide fare-free service are used to document such important issues as:

- Why and where have fare-free public transit systems been implemented?
- How was the system conceived and implemented?
- What was the funding environment and institutional structure?
- What were the intended and actual outcomes?
- What are the benefits and challenges of a fare-free public transit system?
- What is the business case for operating on a fare-free basis?
- If a fare-free policy was discontinued, why and how was it discontinued?
- What evaluations were conducted after the fare-free system was implemented?

Fare-free public transit is currently provided in more than three dozen communities in the United States. Not included in this number are fare-free zones in downtown districts, exclusive university campus transit services, or other limited subsystem modes that might be offered on a fare-free basis such as automated guideways or other local circulators. This report focuses on public transit agencies that are either direct recipients or sub-recipients of federal transit grants and provide fare-free service to everyone in their service area on every mode they provide.

Identifying the public transit agencies providing fare-free service required Internet searches, communications through listservs, and other forms of personal contact through committees of APTA and TRB. This synthesis provides the first comprehensive listing of public transit agencies that provide fare-free service in the United States. Thirty-two of the 39 agencies that were identified responded to the survey that was sent to them either electronically or by means of an interview with the Principal Investigator, representing a response rate of 82%. This report focused on policy and administrative issues although survey responses and reports from the literature search provide statistics on changes in ridership increases associated with fare-free service.

The major findings of this synthesis include the following:

- Fare-free public transit services are typically found in three different categories of communities: (1) small urban areas with relatively modest ridership and large rural areas with relatively low ridership, (2) resort communities that carry significant numbers of passengers because of populations that swell inordinately during tourist seasons, and

(3) university-dominated communities where the clear majority of passengers in the service area are college students, faculty, and staff.

- Though a small number of public transit systems in larger urban areas have experimented with some version of fare-free service (including Denver, Colorado, in 1979, and Austin, Texas, in 1990), and a few others have carefully analyzed the potential impacts of implementing fare-free service more recently (including Portland, Oregon, in 1999, and San Francisco, California, in 2008), no public transit system in the United States with more than 100 buses currently offers fare-free service. Finding the source of funds to replace their substantial farebox revenues has proven too difficult, particularly during times of tight budgets.
- The largest jurisdictions currently providing fare-free service are Indian River County, Florida, and the island of Hawaii, both with populations of approximately 175,000. With 7,500,000 annual trips, Chapel Hill Transit in North Carolina carries more than twice as many passengers as any other public transit system offering fare-free service.
- Fare-free public transit makes the most internal business sense for systems in which the percentage of farebox revenue to operating expenses is quite low. In such cases, the cost associated with collecting and accounting for fares and producing fare media is often close to, or exceeds, the amount of revenue that would be collected from passengers, particularly when taking into account the capital costs of fareboxes and money counting equipment and facilities.
- FTA Section 5311 grants to small urban and rural public transit systems are reduced by the amount of fares the systems collect, providing further incentive for such systems to not collect fares. As a consequence, by providing fare-free service, these small agencies receive more federal assistance while providing their local passengers with free mobility.
- In states such as Indiana and Florida, where part of the transit agency's state financial support is determined by formulas including total ridership, transit agencies can generate more total revenue by eliminating fares because ridership will increase substantially as a result.
- Fare-free public transit in resort communities is regarded as a vital component of what makes the community attractive to visitors. Many ski resort towns now believe they need to provide fare-free public transit service to remain economically viable and competitive with other resort communities.
- In locales such as resort towns and university-dominated communities, there are often crush loads of passengers at many stops. The fare-free policy facilitates faster boarding, allowing passengers to board through all doors without the need to take the time to pay a fare or swipe a fare card. The reduction in dwell time helps to reduce travel time, thereby preserving service quality and avoiding costs associated with the need for placing more buses into service.
- Providing fare-free public transit service is virtually certain to result in significant ridership increases no matter where it is implemented. Evidence from the literature search and returned surveys indicate that ridership will usually increase from 20% to 60% in a matter of just a few months, and even more in some areas. The most recent institution of fare-free public transit service that occurred in Corvallis, Oregon, in 2011 resulted in a 43% increase in ridership within two months, with no increase in service hours.
- Although public subsidy and sometimes total cost may increase, the subsidy per passenger drops significantly. The effectiveness and productivity of the public investment in transit is enhanced.
- Some public transit systems that have experimented with or implemented a fare-free policy have been overwhelmed by the number of new passengers or been challenged by the presence of disruptive passengers, including loud teenagers and vagrants. Transit agencies could be well served by developing local ordinances to provide them with the authority to deal effectively with disruptive passengers. They could consider working with local teenagers to inform them of their rights and responsibilities as passengers. Agency managers could also work with local law enforcement and the local courts to

gain their understanding and support for assistance when needed in dealing with disruptive passengers. However, it is important to note that most managers of fare-free transit systems did not regard disruptive passengers as a significant problem. Many noted that their bus operators prefer to deal with a few more disruptive passengers if it means that they do not have to deal with fare collection and fare disputes.

- Systems offering fare-free service in areas of higher potential demand for public transit need to be aware that increased ridership might also result in the need for additional maintenance, security, and possibly additional equipment to provide sufficient capacity and/or maintain schedules. This will add to the expense of operating the system, and these expenses need to be factored into the cost-benefit equation when determining if fare-free service should be provided. The literature review and agencies responding to the survey indicated that if service quality deteriorates, gains in ridership will be offset by a defection of passengers with other mobility options.
- Reports documenting past fare-free experiments indicate that a relatively small percentage of the additional trips (from 5% to 30%) were made by people switching from other motorized modes. Most new trips were made by people who would have otherwise walked or used a bicycle, or would not have made the trip if there was a fare to pay. A disproportionate amount of new trips were made by existing riders, as well as students and seniors who were much more sensitive to transit pricing than automobile users are. In more recent implementation of fare-free public transit, it appears that choice riders are more likely to use the service.
- Fare-free transit has been a source of community bonding and pride that also has helped local communities earn positive recognition. A number of communities offering fare-free transit have received state and national awards as “best places to live.” Fare-free service is reported to help bridge the divides that exist in “town and gown” communities.

INTRODUCTION

PROJECT BACKGROUND AND DEFINITION OF FARE-FREE TRANSIT

At least 39 public transit agencies in the United States offer totally fare-free transit, while many more offer service that is free to certain segments of the population or in geographic subcomponents of their service area. For the purposes of this report, fare-free transit is defined as public transit services that require no passenger to pay when they board a public transit vehicle, nor do they pay at a platform or station before boarding the vehicle. Further, this report was intended to investigate only those fare-free systems that are either direct recipients or sub-recipients of federal transit grants and provide fare-free service to everyone in their service area on every mode they provide. Figure 1 presents the location of transit agencies that this report identified as providing fare-free public transit services in accordance with the preceding definition.

Of course, someone or some entity is paying for public transit that is fare-free to boarding passengers. A fare-free public transit system's revenues might come from such varied sources as a local sales tax, a payroll tax, real estate transfer taxes, parking fees, ski-lift surcharges, fees paid by university students as part of their tuition, special assessments charged to downtown businesses within a defined "district," a contract with a public school or other public or private employer, casino revenues, federal or state grants, nonprofit organizations, or other sources including donations. Revenues from such sources take the place of the revenue a public transit system would otherwise collect from passengers on a vehicle, at a transit station, or through some other form of purchase of fare media by an individual.

The concept of fare-free public transit has been considered and implemented in the United States since at least the 1960s. The small urban cities of Commerce, California, and East Chicago, Indiana, established themselves as fare-free in the early 1960s and 1970s, respectively, and continue to offer such service today. The Urban Mass Transit Administration (UMTA) helped pay for demonstration projects in Mercer County, New Jersey, and in Denver, Colorado, in the late 1970s to test the viability and impacts of fare-free transit in larger fixed-route systems. Other fare-free experiments not sponsored by UMTA/FTA were conducted in Topeka, Kansas, in 1986; Austin, Texas, in 1989–1990; Asheville, North Carolina, in 2006; and in Milton, Canada, in 2007.

Many public transit agencies serving towns with prominent ski resorts in the Rocky Mountains have offered fare-free transit since the 1990s. At least eight university communities (Amherst, Massachusetts; Boone and Chapel Hill, North Carolina; Bozeman, Montana; Clemson, South Carolina; Corvallis, Oregon; Logan, Utah; and Macomb, Illinois) have public transit systems that serve the university and all of the surrounding community and operate on a fare-free basis. Whether a student, community resident, or visitor, anyone can board buses without worrying about having money or any fare media. Recently, it appears more common for small urban and rural public transit agencies to operate on a fare-free basis as well.

Alternative Fare-Free Public Transit Programs

There are many other variations on the theme of fare-free public transit. Some public transit agencies such as King County Metro Transit in Seattle, Washington, offer a fare-free zone in portions of their downtown districts, although they are reconsidering its continuation owing to budget pressures. Anyone may have unlimited rides on bus or train services without paying a fare within certain geographic boundaries, but they must pay a fare if they intend to stay on the vehicle after it leaves the boundaries of the fare-free zone. For decades, TriMet in Portland, Oregon, has had a similar program known as the "Fareless Square" in the heart of its downtown, but recently decided to restrict free access to rail services resulting from problems with fare evasion on buses. Transportation management agencies such as the one in Emeryville, California (the Emery Go-Round), in the San Francisco Bay area offer internal circulators and connecting routes to the regional rail system for the business districts they serve at no cost to passengers. Other examples of prominent public transit services that do not charge fares include the Staten Island Ferry, a division of New York City Transit, which carries 75,000 passengers a day; the Metromover in downtown Miami, Florida, operated by Miami-Dade Transit, which links the downtown business district to the Metrorail with an elevated automated guideway and carries close to 30,000 passengers a day; the LYMMO downtown Bus Rapid Transit circulator in Orlando, Florida, operated by the Central Florida Regional Transportation Authority (a.k.a. Lynx); the electric shuttle system in downtown Chattanooga, Tennessee, operated by the Chattanooga Area Regional Transportation Authority; and the Orbit circulator system, operated



FIGURE 1 Communities with totally fare-free public transit systems in the United States.

by the city of Tempe, which links Arizona State University, downtown Tempe, and surrounding neighborhoods. However, all of these fare-free services are subcomponents of larger regional public transit systems that are not fare-free.

More than 25 municipalities in southeast Florida ranging in population from 10,000 to 130,000 provide fare-free public transit circulator services within their jurisdictions with fleets of between one and seven minibuses or rubber-wheeled trolleys. These circulator services connect with the regional transit services that surround them. A substantial portion of the cost of operating these services is provided by the surrounding counties, which have passed special taxes to help support local circulator services. These municipal circulators carry an average of 14.5 passengers an hour, with one (the Coral Gables Trolley) carrying more than 40 passengers an hour. However, none of these small systems is a direct recipient of FTA financial assistance, and both their operating and capital costs are heavily supported by the county systems that surround them that are not fare-free.

Fare-free shuttle service is provided in many of the national parks in the United States. Although these services help relieve traffic congestion and help preserve the parks' environment,

these park shuttles cannot be compared with urban or small public transit systems that are designed to meet the variety of mobility needs within a community.

Perhaps the fastest growing type of fare-free service is on the campuses of universities and colleges around the country. Student governments have negotiated with their universities to secure circulator services on and very near campus that they can board by showing a university ID or a Universal Pass rather than paying a fare. In other cases such as the University of Virginia in Charlottesville, anyone can board the on-campus vehicles without showing an ID. The students have mutually agreed for a fee to be assessed on every student every semester, whether they use the transit service or not. Because the entire student body is assessed the fee, the cost per student for fare-free transportation per semester is far lower than passengers would normally pay on a public transit system. This arrangement provides unlimited access to the transit services provided by the university. The program is advantageous to universities that aspire to making campuses safer for pedestrians and bicyclists and more environmentally sensitive, and that require fewer expensive parking facilities to be built. Students and faculty might also have access to the separate public transit agency serving the rest

of the community outside the campus through an agreement the university has reached with that agency. However, this project found only the previously listed eight examples of public transit agencies that provide fare-free service to the university students and to all other residents, workers, and visitors in the surrounding community. The more common arrangement is that public transit in the rest of the community, outside the campus and its nearby neighborhoods, is provided by a separate public transit agency that charges everyone else to board its buses, although discounted fares are often available to students.

In addition to these smaller geographic areas served by fare-free public transit, there are also many public transit systems that allow various segments of the population to ride fare-free. The Free Transit Program in the state of Pennsylvania, through revenues collected from a state lottery, allows those 65 years of age and over with a proper ID to ride free on local fixed-route services whenever the local public transportation system is operating. Similarly, after passage of a local sales tax, Miami-Dade Transit allows all seniors 65 and older to ride for free, as well as military veterans. The Chicago Transit Authority allows seniors below a certain income level to ride fare-free. Most transit agencies allow children under a certain height or age to ride for free. Citizens with disabilities are encouraged by many public transit agencies to ride fixed-route transit by being allowed to ride free. Finally, there are other promotions that feature fare-free service, such as free rides on ozone-alert days, election days, Try Transit Week, and/or New Year's Eve. Most of these promotions are marketing strategies intended to introduce new riders to public transit. They are usually short in duration.

PURPOSE OF REPORT AND INTENDED AUDIENCE

The purpose of this synthesis report is to document the outcomes various transit agencies have experienced as they implemented fare-free public transit service either on a demonstration basis or permanently. It also reports on the findings of public transit agencies that reviewed the feasibility of implementing fare-free service, but decided against doing so. Information in this report was obtained through a literature search focusing on the results of demonstration projects as well as from surveys completed by 32 transit agencies that currently provide fare-free service. The report summarizes the state of the practice, and reviews past and current fare-free systems.

The report will be of interest to policymakers and managers of any size transit system, although experience has shown that the greatest interest will likely be among operators of public transit systems serving small urban and rural communities, university communities, and resort communities. It will also be of interest to the various stakeholders and policymakers in those communities, including university administrators, city councils, county commissions, metropolitan planning organi-

zations, and economic development associations who might be asked to provide financial support; and to nonprofit agencies that want to assist clients with their mobility needs. In addition, this report might be read by state legislators and state departments of transportation, as well as federal transportation program managers that provide funding and develop policies governing local transit systems, who will be interested in knowing the social benefits and impacts of providing affordable mobility through fare-free public transit.

Although they might not carry the majority of passengers in the country, most public transit agencies in the United States tend to be small systems. They will be particularly interested in knowing if a fare-free policy is something they should consider. The report could also be of interest to those individuals and groups that advocate more for fare-free public transit.

Public transit managers and policy boards often grapple with the conflicting goals of increasing ridership to reduce traffic congestion and air pollution, etc., and maximizing operating revenues to reduce the amount of taxes needed to support the system. This report provides evidence that certain communities have found that fare-free public transit service can sometimes be implemented in ways that result in increased ridership and no higher costs to local taxpayers, whereas others have found that the benefits their communities enjoy from fare-free public transit are worth the cost of foregone farebox revenues. The few larger public transit systems that have explored the feasibility of providing fare-free transit have found that, absent a source of local revenue to replace the loss of substantial farebox revenue, fare-free public transit is not a likely option in their community in the near future.

After reading this report, local public transit agencies will have more data to consider the feasibility of implementing a fare-free policy in their community. Any decisions on fare policies would be determined by local economic conditions, political philosophies, and the particular circumstances and goals of each agency and community. The purpose of this report is to look at the experiences of those public transit agencies that have implemented such policies to identify the issues they faced, the solutions they adopted to deal with any problems, and the outcomes they experienced.

TECHNICAL APPROACH

The approach to this synthesis included:

- A literature review, supplemented by a Transportation Research Information Services (TRIS) search. A number of the publications that were found contained excellent information on the results of past experiments with fare-free public transit.
- Internet searches of articles or blogs that reported on (and helped identify) fare-free public transit systems.

- Communications with more than 3,000 members of listservs maintained by the Center for Urban Transportation Research at the University of South Florida. These listserv members were asked to identify any public transit agencies they were aware of that operated with a fare-free policy. This source proved to be among the most valuable for locating fare-free public transit systems.
- Inquiries sent to various transit industry associations, including APTA and CTAA, and state transit association directors to identify fare-free transit systems and any reports that they might be familiar with in that subject area.
- A survey of public transit agencies that were found to provide fare-free service or that had previously provided fare-free service.
- Telephone interviews conducted with a number of the survey respondents to clarify information that they had provided in the survey. Interviews were also conducted with those managers responsible for directing the public transit agencies featured as case studies in the report.

ORGANIZATION OF THIS REPORT

Following this introductory chapter, chapter two presents the issues surrounding fare-free transit and summarizes the literature that describes the experiences of public transit systems

that have considered, experimented with, or instituted fare-free transit. Chapter three identifies the 39 public transit agencies that were found to provide fare-free transit and the methodology used to identify them. It also provides the findings from the surveys that these agencies returned. Chapter four provides case studies of public transit agencies representing the three types of communities most likely to adopt a fare-free policy: rural and small urban, university-dominated, and resort communities. Chapter five summarizes the findings, presents conclusions from this synthesis project, and offers items for further study.

Appendix A is the survey instrument used to gain information from public transit agencies that provide fare-free transit. Appendix B provides the contact information for each of the agencies that responded to the survey. This synthesis represents the first comprehensive attempt to identify those systems that currently utilize, or at one time utilized, a fare-free policy. It is hoped that those systems might appreciate knowing the other agencies that have implemented this fare policy, and communicate with each other to their mutual benefit. Appendix C contains a bibliography of major articles and reports that were identified in the literature search and provides information of value to those considering implementing fare-free service. Appendix D is an example of a local ordinance instituted to govern rider behavior to address concerns about fare-free buses carrying disruptive passengers. Appendix E provides a compilation of survey responses.

LITERATURE REVIEW

INTRODUCTION

This chapter summarizes findings from a literature review related to the subject of fare-free public transit. A TRIS search was conducted to aid the review, using key phrases such as “free transit,” “fare-free public transit,” “no-fare transit,” and “free transit demonstration.” Internet searches applying the same terms were used to discover newspaper articles or other information that might be written by reporters or bloggers interested in this subject. A review was also conducted of any similar research listed in the TRB’s Research in Progress database. Finally, any white papers or agency reports identified by project panel members or discovered through interviews with managers of fare-free public transit systems were also reviewed.

Fare-free public transit has been discussed and considered ever since the federal government became involved in providing capital assistance to local public transit agencies in the 1960s (1, 2). The discussion continues to the present day through Internet blogs posted by passionate transit users and policy analysts who debate why, as a public service, transit is treated differently from other public services such as libraries and parks, and whether the charging of fares on transit is simply rooted in the origins of transit systems when they were private, for-profit companies (3).

The purpose of this report is not to explore all sides of the debate regarding the philosophy of providing fare-free public transit. As the title of the report clearly states, it is intended to review the implementation and outcomes of fare-free public transit systems. Chapters three and four provide information received directly from representatives of the dozens of agencies currently providing fare-free service. However, there have also been reports produced over the years that provide valuable information and insights regarding the experiences of those who have either implemented, or considered implementing, fare-free transit (see Table 1).

The primary concerns of those who consider implementing fare-free transit are:

- Whether it is cost-effective to eliminate the fare collection process,
- The effect fare-free transit has on ridership and system capacity, and
- The effect fare-free transit has on service quality and customer satisfaction.

COST-EFFECTIVENESS OF ELIMINATING THE FARE COLLECTION PROCESS

Passionate advocates of fare-free public transit argue that the following costs associated with fare collection can exceed the amount of money actually collected (4):

- Purchasing and maintaining fareboxes and automated ticket vending machines
- Provision of secure money counting rooms, equipment, and cameras
- Services to pick up and deposit money securely
- Accounting and auditing expenses
- Production/purchase of fare media such as passes and smart cards
- Commissions to third-party vendors and the staff effort to work with them
- On-board fare inspectors
- Staff time involved with analyzing modifications to fares and the necessary public hearings
- Lost time and productivity for bus trips as a result of having to collect and explain fares.

Those advocates also believe that most transit managers do not really know what the total cost of collecting fares is at their agencies. That may or may not be true, but there is sufficient evidence that the cost of fare collection has been examined through research and by a number of agencies. A report reviewing transit systems in Washington State noted that the net cost or income of fare-free transit is an important aspect of a fare-free policy (5). By eliminating fares, the revenues collected are reduced to zero. The costs related to fare collection can also be eliminated, potentially cancelling out the loss of revenue. The Seattle bus tunnel and Island County Transit are provided as examples. In both cases the costs of fare collection were greater than or equal to the revenues collected, meaning there was no net income from collecting fares. The costs of fare collection vary widely among public transit agencies. *TCRP Report 32* (6) documents that some agencies spend less than 1% of their total fare revenue collected on fare collection and related costs. The average for all agencies that responded to that report’s survey was 6.2%. For bus systems, the average was 3.4% for smaller systems and 4.0% for larger systems, although it could range from 0.5% to 22%. Based on 1990 operating statistics for Washington State systems, the gross farebox recovery ratio of most transit systems was below 10%, with only three having a recovery ratio higher than 20%.

TABLE 1
RESULTS OF SYSTEM-WIDE FARE-FREE PUBLIC TRANSIT EXPERIMENTS

Service Area	Dates of Demonstration	Population of Service Area	Results
Asheville, North Carolina	08/06–11/06	70,000	58.5% increase in ridership; some problem riders, schedule adherence suffered, retained an increase of 9% in ridership after demonstrations.
Austin, Texas	10/89–12/90	500,000	Credited for ridership increases of 30%–75%; reports of disruptive teenagers and driver complaints. Increased operating costs, but successful in promoting ridership.
Chelan–Douglas Counties, Washington	12/91–09/00	100,000	Ridership exceeded forecasts by a factor of 4. Policy ended when state funding source was eliminated by voters.
Denver, Colorado (off-peak hours only)	02/78–01/79	1,500,000	Reported increases in ridership of 36% to 49%, although inconclusive because of changes in service made during experiment; decreased schedule reliability, crowding.
Mercer County, New Jersey (off-peak hours only)	03/78–02/79	300,000	Ridership increases of 25%–30%; 45% of buses ran late, extra buses required, driver complaints, problem riders.
Milton, Canada	06/07–12/07	54,000	Ridership increased 63%; some increased rowdiness among young passengers, but 99% of customers “satisfied” or “very satisfied.”
Salt Lake City, Utah	October 1979	910,000	13% increase in ridership.
Topeka, Kansas	May 1988	120,000	Ridership increased 86% and 6% increase in ridership was retained after demonstration.

In general, the smaller the system, the more likely the net revenue of collecting fares is closer to zero. Many of the small transit agencies that responded to the questionnaire for this TCRP project reported they did not do any formal analysis to determine the cost-benefit of charging a fare. For these small urban and rural systems, it was an easy decision to forego passenger fares owing to the minimal revenues they expected to receive versus the perceived costs associated with collecting fares. Small systems in resort areas responding to this project’s survey indicated that it was imperative to their towns’ economic success to provide fare-free transit, even if fares could create net revenue for the system; that is, it was more important for the towns they serve to remain competitive with other resort communities by providing a convenient service to visitors and an affordable mobility option for relatively low-wage service employees. For some university-dominated towns, it was a perceived matter of equity to allow nonstudents to also board for free, particularly when fare-paying nonstudents might represent only a small percentage of all passengers. In the case of Chapel Hill

Transit, the administrators of the University of North Carolina believed they were spending an inordinate amount of time with the paperwork involved with subsidizing passes for their students. A fare-free system pre-paid by students that provided them with universal access virtually eliminated all university administrative tasks other than writing a check a few times a year to Chapel Hill Transit. This agreement also negated the need for Chapel Hill Transit to purchase additional equipment to read university ID cards. Although they did not do a specific cost-benefit analysis, they believed that foregoing farebox revenue would result in very low net costs because the additional funding they could receive from both state and federal formula grants would be increased as their ridership increased (C. Elfland, Associate Vice-Chancellor for Student Services, University of North Carolina, personal communication, Apr. 18, 2011).

In 2008, in a study conducted by Lane Transit District (LTD) in Eugene, Oregon, staff determined that the cost of fare collection was between \$100,000 and \$500,000 per year

(although it would appear closer to \$100,000) compared with the \$5 million in revenue that was collected (7). They found that no employees were dedicated solely to fare collection functions. These employees had several duties, and consequently, eliminating fares would not result in the elimination of jobs. For example, a customer service representative sells fare instruments, but also conducts trip planning for telephone callers and for walk-in customers. If the sales function were eliminated, those hours might be required to serve passengers in the Customer Service Center, particularly if ridership increased as a result of free fares. This same conclusion was reached in reverse by Link Transit in Washington State when they converted from fare-free service to charging a fare in 2001. Link's manager reported in a telephone interview that the agency was able to spread the responsibility for the fare collection process among many employees and that the cost to the agency was believed to be minimal (see the case study in chapter four of this synthesis).

LTD's fare collection system used very basic farebox technology. The success LTD has had in transitioning passengers to pre-paid fare instruments has meant that cash fare customers represent between only 20% and 30% of total ridership. The less cash that is handled, the lower the cost of the fare collection process, and the less delay there is in the boarding process. LTD empties fareboxes only three days a week. The staff report acknowledged that fare collection costs could be much higher at agencies that use more advanced collection technologies or use honor systems that require fare enforcement personnel. It also noted that the cost of fare collection at some small systems that might not receive much in fares could be a much higher percentage of overall revenue, making it more rational to establish fare-free policies. If LTD became fare-free, the report estimated it would lose between \$4.5 and \$4.9 million dollars in revenue, without an identifiable alternative source of funds to replace that revenue. This would require a 20% reduction in service at the same time the agency would experience a substantial increase in demand. The report did not estimate the cost of increased service, because LTD had no identifiable funds to pay for it.

The San Francisco Municipal Transportation Agency (Muni) utilized a consultant to conduct a detailed analysis of the cost-effectiveness of converting to a fare-free system in 2007–2008 at the request of Mayor Gavin Newsom (8). The study concluded that the costs of fare collection amounted to \$8.4 million of the FY 2006 Operations and Maintenance Budget. This represented 7.5% of the \$111.9 million Muni collected in fares. There would be a reduction of 91 full-time employees, representing approximately 2% of the total staff if fares were discontinued. However, the study also examined the results of other free-fare experiments conducted in places such as Austin, Texas, and Denver, Colorado, and developed projections on what their additional costs would be based on three different scenarios of ridership increases. The most likely scenario—a 48% increase in ridership—suggested a probable \$69 million increase in the annual operating bud-

get would be required to handle the increased demand for capacity. When coupled with the foregone revenue previously collected, the agency would need to find an additional \$184 million dollars a year to operate the system. Making matters more challenging, the San Francisco Municipal Transportation Agency would have additional capital costs of \$519 million to procure the vehicles, facilities, and infrastructure needed to accommodate the substantial increase in ridership.

In 1999, Mayor Vera Katz of Portland, Oregon, requested that a group of citizens, assisted by Tri-Met staff, research the role that making the transit system free might play in helping to keep the area from strangling on auto traffic. At the time of the study, Tri-Met recovered approximately 20% of its operating expenses through fares. The report that summarized the financial impact of converting to a fare-free system noted that the agency would lose \$41 million in fares, and need an additional \$8 million for operating expenses and \$5 million for capital expenses to accommodate the additional passenger demand (9). In summary, an additional \$54 million in revenue would be needed to replace foregone fares and handle new demand. Surprisingly, the report did not estimate how much the agency might save by eliminating the cost of fare collection, although its estimate of total costs may have accounted for what savings the agency might realize. The group developing the study researched the possibility of imposing a regional parking tax, but found there were a number of legal, institutional, and economic issues that would be difficult to overcome (see Table 2).

Advance Transit in Hanover, New Hampshire, serving small urban and rural areas, has been providing fare-free service since 2002 in the Upper Valley region of New Hampshire and Vermont. Respondents to this project's survey indicated that a number of transit systems that provide fare-free service are challenged from time to time to justify their continued use of the fare policy. In 2008, the CTAA produced a report that analyzed the cost-benefit of changing Advance Transit to a system that charged a fare (10). The capital costs to outfit their fleet of 33 buses with fareboxes would have amounted to \$407,550 (which could be amortized over more than 20 years at approximately \$20,000 per year). Other one-time costs such as the time to create the policy, hold public hearings, and inform the public about the change were estimated to be \$33,900. The estimated cost for ongoing fare collection functions per year (not including amortization of the new fareboxes) was \$53,354. These costs would be offset by the new fares collected. A \$0.50 fare would generate an estimated \$90,688 a year, whereas a \$1.00 fare would produce annual revenue of \$145,600, and a \$2 fare would produce \$175,550. Hence, fares collected would exceed the annual cost of collecting the fares, but only barely in one scenario. The highest estimate for revenue to be collected would represent only 4% of a total annual operating budget of \$4.3 million. To date, Advance Transit remains a fare-free service.

TABLE 2
PROJECTED COSTS OF IMPLEMENTING A FARE-FREE POLICY

Transit Agency and Year of Analysis	Savings from Eliminating Fare Collection Functions	Costs of Lost Revenue, New Service, and Additional Vehicles and Facilities	Estimated Cost of Implementing Fare-Free Policy
Lane Transit–Eugene, Oregon (2008)	\$100,000–\$500,000	\$5 million in lost fares	\$4.5–\$5 million in net new costs per year
Muni–San Francisco, California (2008)	\$8,400,000	\$112 million in lost fares \$72 million for increased service \$512 million in capital expenses	\$184 million in net new operating expenses per year
Tri-Met–Portland, Oregon (1998)	(not provided, but possibly accounted for in costs column)	\$41 million in lost fares \$8 million for increased service \$5 million for additional vehicles	\$49 million in new operating expenses per year
Hamilton, Canada (2008)	(not provided, but possibly accounted for in costs column)	\$900,000 in lost fares \$30 million for additional service	\$30.9 million in additional operating expenses per year

In Summit County, Colorado, the general manager reported that recent cost-benefit analyses have been undertaken to determine the feasibility of implementing a fare system. These have focused on the infrastructure costs of implementing the fare collection system including fareboxes, money counters, and retrofits to facilities to count and store money that was estimated to cost \$1 million. The general manager provided an undocumented estimate that the annual ongoing costs would be approximately \$225,000 to pay for four employees responsible for farebox maintenance, counting and accounting for money, and providing security. This would represent 16% of the \$1.4 million they estimate a \$1.00 fare would generate annually.

The Aspen Transit Development Plan produced in 2009 reviewed what the financial impact of establishing a \$1 fare would be (11). After careful consideration was given to the number of passengers who ride at a discount and the number of riders that would be lost as a result of the institution of a fare, it was estimated that a \$1 fare would generate \$447,300 annually. The report noted that there would be some new administrative costs, primarily as the result of the need for marketing and fare media production and distribution. It was also estimated that it would require only two hours per day of one person's time to count and account for fares. All of these functions were to be absorbed by existing staff. The purchase of 16 fareboxes for its bus fleet was estimated to cost up to \$144,000. However, the major cost concern was the effect collecting fares would have on buses' ability to maintain route schedules. The report calculated the increased dwell time resulting from fare collection would accumulate

to between two and four minutes per one-way trip. It was noted that an additional bus would need to be put into service on up to five routes to maintain the posted headways, or the buses would need to run less frequently. Because the cost to add even one extra bus a year to help routes maintain schedule would be \$476,000, the report concluded that establishing a fare would not be cost-effective if current levels of service were to be maintained. It was recommended that fares be established only as a last resort.

Fare-free transit is also present in European cities and has been subject to scholarly investigation over many years. In an article written in 1973 entitled "Free Public Transport," the authors look at the projected costs associated with fare-free transit for several German cities, noting that these costs would range from 22 million Deutschmarks (approximately \$15 million) in the city of Kassel to 350 million in a city as large as Hamburg (12). The study took into account lost farebox revenue, remaining advertising revenue, increased capacity required during peak periods, savings from the elimination of fare collection, and savings from greater productivity of buses as travel time improves owing to less congestion. The net costs were seen as substantial burdens to municipalities and the report casts doubt that the German government would be willing to fill the revenue gaps that fare-free transit would produce.

In 2008, the Public Works Department of the city of Hamilton, a city of approximately 500,000 in Ontario, Canada, prepared a report for the Public Works Committee of the city addressing the potential of offering fare-free service or some

other forms of fare discounts (13). The report stated that, based on a conservative estimate of a 20% increase in ridership and the elimination of fares, the increase in its operating budget expenditure would be in the order of \$30.9 million per year. This would require an additional tax per household of about \$161 per year based on a residential assessment of \$250,000 in 2008 dollars. In addition, a capital expenditure in the order of \$5 to \$10 million for fleet expansion and facilities accommodations would be required.

EFFECT FARE-FREE PUBLIC TRANSIT HAS ON RIDERSHIP AND SYSTEM CAPACITY

People may argue about the pros and cons of fare-free transit, but none of the literature reviewed for this project questions the fact that ridership will increase when fare-free policies are implemented. No matter what types of experiments, demonstrations, or permanent programs have been implemented, public transit systems have experienced significant increases in ridership when implementing fare-free policies.

To estimate the ridership impact of changes in levels of public transit fares, including deep discount fare policies, many transit operators over the years have used the “Simpson–Curtin Rule” as the standard to measure the relationship between fares and ridership termed as “elasticity.” This rule estimates that a 10% fare increase will result in a 3% drop in ridership (denoted as -0.3). Conversely, a 100% decrease in fares (fare-free) would be expected to result in a ridership increase of 30% (13). *TCRP Report 95: Traveler Response to Transportation System Changes* noted that limited data, including some of which are contradictory, suggest that the ridership responses to fare decreases do not differ significantly from rider responses to fare increases. A review of 23 fare changes in United States cities, selected for similar size, found that the fare elasticities were almost identical for fare increases and fare decreases (14). Dargay and Hanly (1999) studied the effects of U.K. transit bus fare changes over several years using sophisticated statistical techniques to derive elasticity values. They found that demand is slightly more sensitive to rising fares (-0.4 in the short run and -0.7 in the long run) than falling fares (-0.3 in the short run and -0.6 in the long run), and tends to be more price sensitive at higher fare levels (15).

In 1991, APTA staff produced a report to verify the accuracy of the Simpson–Curtin elasticity equation (16). An advanced econometrics model was used to review the results of fare increases and decreases at 52 transit agencies, examining the ridership performance 24 months before a fare change and 24 months after a fare change. The model attempted to isolate the impacts of the fare change from other factors such as employment trends, fuel costs, and labor strikes. APTA’s study showed that transit riders react more severely to changes in fares than the Simpson–Curtin rule would predict, and that their reaction varies depending on the size of cities and time of day the fare change is applied. The fare elastic-

ity was found to be -0.36 for systems in urbanized areas of more than one million population, whereas it was -0.43 in urbanized areas with less than one million population, indicating that travelers in large cities are less sensitive to fare increases. Further, the average peak hour elasticity was found to be -0.23 , whereas the off-peak elasticity was -0.42 , indicating that peak hour commuters are much less responsive to fare changes than transit travelers during off-peak hours (16). These elasticities can vary significantly depending on local circumstances such as income, driving conditions, level of transit service, and the location of work places in relation to the population. Hence, it should not be a surprise that public transit agencies that offer fare-free service might experience a wide range of ridership increases.

However, these analyses still do not fully account for increases experienced by fare-free transit systems that go well beyond these elasticity estimates, such as the 58% increase in Asheville, North Carolina (17), the 86% increase in Topeka, Kansas (18), or the 200% increase reported by the island of Hawaii in response to this project’s survey. An intriguing possible explanation is offered by Hodge et al. (5). In their 1994 report, they postulate that standard elasticity formulas might not apply in the same way when fare-free policies are implemented. They note that there is not just a financial cost associated with transit fares, but a psychological cost associated with the farebox. The removal of the farebox can eliminate a barrier in the minds of potential passengers, many of whom might see the farebox as a source of confusion and possible embarrassment. The limited capabilities of most fareboxes to accept common forms of payment such as credit cards and/or the requirement to have exact fare can certainly discourage passengers. The report prepared for Portland provides a wonderful hypothetical analogy: “The problem with fares is simple: imagine the result if people had to put \$1.40—exact change please—in a farebox in their car each time they wanted to take a trip” (9).

The first experiments in fare-free transit were conducted in the late 1970s in Mercer County (Trenton), New Jersey, and in Denver, Colorado. These demonstration projects were funded in part by the Urban Mass Transportation Administration. They were instituted to be in effect only during the off-peak hours between 10 a.m. and 2 p.m. and after 6 p.m. and all weekend because of unused capacity and the thought that marginal costs would be minimal. Peak period fares remained the same. The Denver experiment was more difficult to analyze because the transit agency also implemented major route restructuring during the experiment, had insufficient pre-demonstration data, and changed the off-peak hours during the experiment. The experiment in Mercer County led to a significant increase in ridership during the off-peak periods, with a 25% to 30% increase attributed to the removal of the fare. In all, the fare-free demonstration attracted approximately 2,000 new riders per day. Sixty-nine percent of the new trips were previously made by another mode—half by

automobile and one-third by walking. It was estimated that the fare-free off-peak transit service reduced Trenton's typical weekly 21 million vehicle-miles traveled by 30,000 miles per week (19).

The Topeka Metropolitan Transit Authority instituted free fares for one month on the bus system serving Topeka, Kansas, during May 1988. Compared with May 1987, ridership increased 83.2% on weekdays, 153.4% on Saturdays, and 93.3% overall. Ridership increased 156% on the downtown circulator route. Only one bus a day was added to address problems of overcrowding, indicating that smaller systems carrying lighter loads of passengers can accommodate rather large increases in ridership without needing to provide additional capacity (18).

The next substantial experiment in fare-free transit was implemented in Austin, Texas, and conducted from October 1989 to December 1990. This experiment was not limited to off-peak hours. The entire system became fare-free every hour and every day of the week. Ridership exploded, increasing 75% during the demonstration period, although some increased service might have also contributed to a portion of that increase. This experiment was not funded by the federal government, and no formal report that provides in-depth analysis is available. However, staff from that time reported that additional equipment was required to carry the heavier loads. Even with additional buses placed into service to help accommodate the new demand, the average cost per rider decreased from \$2.51 prior to the fare-free experiment to \$1.51 during the 15 months of the experiment. That the average cost per rider rose to only \$2.18 in the year after the fare-free program was terminated indicates that some of the new passengers gained during the experiment continued to ride once it concluded (20).

Templin, a health resort town located in Brandenburg, Germany, with approximately 14,000 inhabitants, modified their small bus service to be fare-free on December 15, 1997. Since then public transportation has been free for everybody. The declared goal of the fare policy was to reduce automobile usage and its collateral effects such as noise, pollution, and the risk of accidents. Within a year after the transit scheme's introduction, transit ridership had increased by almost 750%—from 41,360 to 350,000 passengers per year. Two years later, in 2000, ridership was above 512,000—more than 12 times its original amount. The study documenting this fare-free program did not include information on how many more buses were required to carry this substantial increase in ridership. It was more interested in determining the effectiveness of the policy's ability to reduce auto trips. A study carried out on behalf of the Federal Ministry of Transportation investigated transit ridership before and after the fare-free program by surveying passengers (21). The study found that the vast majority of new transit riders were children and adolescents. When asked what means of transportation would be replaced, most people answered they would substitute pub-

lic transportation for nonmotorized travel. The study found that 35% to 50% of transit passengers would walk less, 30% to 40% would replace bicycle rides, and 10% to 20% would reduce automobile trips. However, it was unclear whether this referred to the driver or the passenger (22).

Perhaps the most astonishing example of successful fare-free transit was implemented in Hasselt, Belgium. In 1997, this financially challenged and car-choked city of 70,000 determined it would completely modify its approach to transportation (23). Working on the assumption that you will not get people out of their cars without providing a comprehensive public transport system alternative, Hasselt transformed its two-line bus service to a nine-line service, covering every district in the city; and committed to half-hourly service during the day and a night bus that served every stop in the city. On day one—July 1, 1997—the numbers of passengers rose from the usual 1,000 to 7,832. Ridership increased more than 1,200% by 2001. A ring road near the inner city was converted to a pedestrian corridor, and parking in the inner city was restricted. Big car parks were banished to the edge of town, and parking priority within town was given over to residents and the elderly. Parking was allowed for a maximum of one hour. The maximum speed in town was reduced to 30 km. Clearly, more equipment was needed and provided for this major modification to the transportation system of Hasselt. The council was in deep debt in the mid-90s and the radical approach was partly prompted because it could not afford a new ring road. Improving the bus service and making it free was less expensive. In 1996, there were only three bus routes with approximately 18,000 service hours/year. By 2003, the city expanded service to offer 11 routes with more than 95,000 service hours/year. Service frequency now ranges from 5 to 30 minutes throughout the city (see Table 3).

Clearly, Hasselt anticipated the need for considerably more transit service with the implementation of free fares and a desire to totally modify its transportation services. The transit system in Hasselt cost local taxpayers approximately \$1.9 million in 2006, amounting to 1% of its municipal budget and making up about 26% of the total operating cost of the public transit system. Fortunately for Hasselt, the Flemish national government covered the rest (approximately \$5.4 million) under a long-term agreement (24).

Asheville, North Carolina, conducted a totally unrestricted fare-free promotion for three months in 2006. Ridership increased by approximately 60% during the promotion. In spite of the significant increase in ridership, insufficient capacity was not cited as a major problem. However, based on surveys, existing customers were not happy with the crowded buses; that issue represented 21% of all complaints by the 45th day (25).

The city of Milton, Canada, near Toronto, was the first municipality in Canada to provide fare-free service for an extended period of time. In 2007, public transit was made

TABLE 3
RIDERSHIP RESULTS OF TOTALLY FARE-FREE PROGRAMS OUTSIDE NORTH AMERICA

Location and Population	Description of Program	Effect on Ridership
Templin, Germany (14,000)	Small transit service in health resort town	Increase from 41,360 passengers per year to 512,000 per year in two years
Hasselt, Belgium (70,000)	Total change in transportation policies restricting cars and increasing transit	Increase from 1,000 per day to 13,000 per day within four years
Changning, China (53,000)	Eliminated fares without adding service	Increase from 11,400 per day to 59,600 per day within two years

free to all users during the midday off-peak time (9:00 a.m. to 3:00 p.m.) from June through December. Ridership increased an average of 63% over the seven-month period. The report did not include information on additional costs or equipment needed. Two private companies agreed to pay for lost revenue and additional costs; therefore, the main focus of analysis was on effects on ridership. On-board surveys were conducted during the demonstration and found that of the 80% of riders who used the bus at least two times per week during the fare-free demonstration, 86% would continue to use it as often even after fares were reintroduced. However, only 33% of senior riders indicated that they would continue to use the service as frequently after fares were reintroduced, suggesting that seniors are generally more sensitive to cost increases (26).

As noted earlier, in 2008, the city of Hamilton reviewed the potential impacts of providing fare-free transit in the ninth-largest city in Canada. Although the report noted there was no Canadian system-wide experience to draw from, it estimated that ridership increases would conservatively reach 20%, but might reach as high as 50% depending largely on the level of congestion and parking policies adopted (13). This same report included an appendix of a case study of Chapel Hill, North Carolina, that included a memorandum prepared by the town manager of Chapel Hill in October 2002. In January 2002, Chapel Hill Transit finalized agreements with local universities and townships to offer fare-free public transit service to all passengers in their service area. The town manager's report noted that ridership on the fixed-route services had increased by 43% from January 2002 through September 2002. Although the city manager's report also noted that service hours were increased 11%, the primary reason for the increase in ridership was clearly the fare-free policy (27).

One of the most recent instances of implementing fare-free public transit has been in the city of Changning, China, a municipality of approximately 53,000 people located in the central portion of the country. In July 2008, the city began providing fare-free service on the three routes serving the city. Based on information in a paper submitted to TRB in

2010, ridership increased from 11,400 a day to 59,600 per day, representing an increase of almost 550% in less than two years. It was not completely clear from the paper if any service hours were added to handle the additional demand, although it appears likely that it would have been reported if more service hours or buses were added. The paper indicated that an additional 7 million yuan (approximately \$1 million dollars) was spent on the program, presumably to replace fares previously paid by passengers (28). Apparently it is the only fare-free public transportation offered in China, and various observers question whether it is something the city can financially sustain given so many other priorities, including health care, education, and housing (29). For the time being, the economy and the public appear to support the fare-free service in this city, small by China's standards; however, observers believe the concept would not be so feasible in larger cities in the country.

EFFECT FARE-FREE PUBLIC TRANSIT HAS ON SERVICE QUALITY AND CUSTOMER SATISFACTION

As noted earlier, fare-free transit will attract more passengers to a public transit system. In some experiments, the increased number of passengers not only tested the capacity of the buses, but also the ability of the buses to stay on schedule. When fare-free transit is introduced, the time for each individual passenger to board is reduced, because they do not have to take the time to pay a fare. On average, taking into account that some passengers pay with cash and others with some form of pass, it takes a passenger between 3.0 and 3.5 seconds to pay their fare when they board (30, 31). In addition, it is possible that passengers who do not pay a fee can board through all doors, saving additional time. However, because fare-free transit will attract many more passengers, the bus is likely to make more stops than it would if fares were charged. The time a bus takes to decelerate to enter more bus stops and accelerate to regain cruising speed can eliminate any savings from reduced dwell time gained from the elimination of collecting fares (32). Schedule adherence is subject to being negatively affected by a significant number of people riding the bus a short distance who might have otherwise walked

(33). In the fare-free demonstration conducted in Trenton, New Jersey, between 5% and 15% more buses entering the downtown area were found to be overcrowded during the time fare-free service was provided. In addition, the number of buses running behind schedule increased to 45% (19). During the fare-free experiment in Asheville, North Carolina, the major complaint of riders was poor reliability. Travel time was estimated to have increased by several minutes per hour because of the increased number of stops and longer dwell times associated with the 58.5% increase in ridership (25).

It would appear that the potential negative impacts of fare-free transit on schedule adherence could be mitigated to a degree without degrading service frequency or adding to costs by a judicious reduction in the number of bus stops (32). Conversely, it can be noted that those transit agencies in resort and university-dominated communities that responded to this project's survey indicated that there would be no way for them to keep their schedules without a fare-free system. Transit agencies in these communities often have bus stops with substantial numbers of passengers boarding, and the boarding process would take much longer if each passenger had to pay a fare or show a pass.

Fare-free transit will please many passengers and frustrate others. In Asheville, several reported that some younger people refused to give up seats for more elderly customers. There was an initial drop in handicapped utilization. A few women reported being uncomfortable with what was described as a rougher than normal customer group; however, no reports of any actual physical abuse were made concerning these fears (25).

Because ridership escalates when a fare-free policy is implemented is the clearest indication that passengers, as consumers, appreciate the reduced costs. The seven-month experiment conducted in Milton, Canada, included a survey of passengers that indicated that 99% of all respondents were either "satisfied" or "very satisfied" with the program. The NSI Research Group found that 75% of transit users had a favorable or very favorable reaction to the elimination of fares during the Austin experiment (34). However, that same experiment also was subject to complaints by the system's bus operators who complained vehemently about excessive rowdiness among younger passengers and what they believed were conditions that jeopardized their safety and that of their passengers (20). Similar concerns indicating a decline in morale were expressed by bus operators during the Denver and Trenton demonstrations (35). It can be noted that many respondents to the survey for this project stated that they believed their bus operators viewed fare-free transit very favorably, and would gladly trade the need to deal with a few more undesirable passengers for being relieved of the duty of collecting fares with the attendant fare disputes.

In short, fare-free policies have the potential to either improve or detract from the quality of service. As a report on

fare-free public transit systems prepared for the Washington State DOT concluded, smaller communities are more likely to encounter fewer problems and more success, as are transit agencies and communities that are committed to the concept owing to concerns over the environmental impacts of transportation or social equity (5). The authors of that report noted the importance of instituting education programs to deal with middle and high school students in particular. They also noted that although some larger communities such as Austin might have found it overwhelming to deal with younger students (the former general manager noted how school buses would ride empty while students chose to ride the public buses) (A. Kouneski, General Manager, Austin Transit System, personal communication, June 28, 2011), other communities such as Logan, Utah, and Whidbey Island saw serving youth as one of the agencies' primary missions. Fare-free public transit relieved parents of the responsibility of serving as chauffeurs, and allowed students to access the many resources in their communities (5).

Based on the results of the survey for this project, there are no communities larger than 175,000 residents in the United States that provide fare-free public transit throughout their entire system, nor were any others found in the rest of the world. The primary reasons appear to be the difficulty in finding funds to replace the revenue they would lose through the farebox and the additional expenses they would incur in maintaining service quality for greater demand. The literature search has also shown that commuters in private vehicles are not attracted in large numbers to fare-free public transit. Absent other types of transit-supportive policies such as restricting parking, the vast majority of commuters will continue to prefer driving. Hence, without disincentives to using private vehicles, minimal gains toward the goals of reducing congestion and air pollution would usually be expected.

However, there are dozens of smaller communities throughout the nation that have implemented fare-free public transit. They are identified in the next chapter, along with the reasons why they have found fare-free public transit to be a positive service in their communities. Other communities such as State College, Pennsylvania, with a regional population of approximately 80,000 in an area dominated by Pennsylvania State University, have hired consultants to review the feasibility of establishing a fare-free system for its entire service area (36). The city of Longmont, Colorado, a community of approximately 90,000 people outside of Denver, has made application to the Denver Regional Council of Governments' Congestion Management Air Quality Regional TDM funding pool in the amount of \$300,000 for a two-year fare-free transit demonstration project. Funds would be used to plan for the demonstration, prepare ordinances to deal with disruptive passengers, market the program, and pay the Regional Transit District as a replacement for fares that would have been collected at the farebox (S. McCarey, Alternative Transportation Coordinator, Boulder County Transportation, personal communication, June 23, 2011).

The general manager of the Duluth Transit Authority in Duluth, Minnesota, a community with a regional population of approximately 280,000 on the western most point of Lake Superior, has also indicated that it is strongly considering a fare-free system following review of the total cost of the fare collection process against the amount of revenue being received. Cash fares have become a smaller part of their revenues because of a prepaid program with the University of Minnesota–Duluth (D. Jensen, General Manager, Duluth Transit Authority, personal communication, Apr. 20, 2011).

Should Duluth proceed with a fare-free system, it would become the largest community, in terms of population, to have such a policy in place. The Corvallis Transit System in Oregon (one of the case studies in chapter four) was converted to a fare-free transit agency in February 2011 (37).

A bibliography summarizing many of the reports noted in this literature search is included as Appendix C, and the reader is invited to read them for additional details on fare-free experiments and those agencies that analyzed the feasibility of establishing fare-free public transit.

SURVEY RESULTS: PUBLIC TRANSIT SYSTEMS THAT HAVE IMPLEMENTED FARE-FREE SERVICE

SURVEY METHODOLOGY—IDENTIFICATION OF FARE-FREE SYSTEMS

The purpose of any TCRP synthesis is to summarize the current state of the practice within the transit industry, usually requiring a survey of public transit agencies that provides information and insights on agency experiences. Because only a limited number of public transit agencies offer fare-free service, it was not practical to survey all transit agencies in the United States. Rather, the challenge was to find and survey only those agencies that offered totally fare-free service. No such list of such agencies existed, and most transit professionals were only able to identify one or two when asked. Therefore, to identify the public transit systems in the United States that offer totally fare-free service, this project relied on information from a variety of sources:

- TCRP SA-26 project panel members
- The APTA Public Transportation Fare Database
- The Transportation Research Information Database (TRID)
- The National Transit Database
- Transit management companies including Veolia, McDonald, First Transit, MV, and Techtrans (all of whom typically manage smaller transit systems)
- Leadership APTA alumni (more than 300 transit managers representing transit agencies from all over the United States)
- Members of the TRB Marketing and Fare Policy Committee and the Bus Transit Systems Committee
- The CTAA (typically representing small and rural transit systems)
- Broad Internet searches through search engines such as Google, Yahoo, and Bing
- State transit association directors
- More than 3,000 members of listservs maintained by the Center for Urban Transportation Research (CUTR) at the University of South Florida.

Multiple sources of information were required since the public transit systems that offer fare-free service tend to be smaller, and may not be members of APTA. Smaller public transit systems rarely have the wherewithal to conduct advanced research, minimizing any research references to them. The National Transit Database shows the amount of fare revenues by mode, agency, service type, and year from 1984 to 2008. However, there was no single agency reporting zero annual fare revenues. The best source of informa-

tion came from CUTR Listserv members who generously responded to a request for information based on their industry knowledge and connections.

The following simple communication was ultimately sent to more than 3,000 recipients from the categories noted earlier:

I am the Principle Investigator for a TCRP synthesis project entitled 'Implementation and Outcomes of Fare Free Transit Systems.' I am looking only at transit systems in which no one pays when they board any part of the transit system. . . . the project is not concerned with fare-free downtown service or fare-free service to certain components of ridership like seniors or kids, or fare-free temporary promotions. If there is a fare-free university based transit system that has a universal pass program that also allows others in the community to ride for free, we would be interested in knowing those as well.

I have already identified a surprisingly long list of transit systems that do offer fare-free service in the United States, but wanted to take advantage of your knowledge to ensure that I identify any systems that I have not yet discovered. While the focus is on fare-free systems in the United States, if you are aware of systems in other countries, we will be taking a quick look at those, too.

If you know of any totally fare-free transit systems, could you please email me back and let me know the name and location of the system? Thank you very much!" (Joel Volinski, Director—National Center for Transit Research at USF.)

The respondents to this request ultimately allowed the PI to identify more than 40 agencies that might provide fare-free service, or once did. A copy of the survey, which is included as Appendix A, was then sent to these agencies with the following request:

I am the Principle Investigator for a Transit Cooperative Research Program project entitled "Implementation and Outcomes of Fare-Free Transit Service" (TCRP SA-26). The project panel has asked that I identify and then interview as many directors as possible of fare-free transit systems in the country. Your system has been identified as one that offers fare-free service, and I am hoping you can help me with information about your system's experience that I can include in the report.

The project is not intended to determine whether a transit system should or shouldn't establish a fare-free system. The project panel is concerned with what the actual experiences have been in implementing and operating such a system. They basically want to know how, why, and where it is being done and what lessons they can learn, so that other systems in the country might be able to benefit in the event they are considering establishing such a fare policy. The report should be published in October, and I am sure you will be interested in the results.

Attached is a questionnaire that I have prepared. It is not a fill-in-the-blank type of instrument, because we need to know in more depth what your experience has been. If you have a report on your experience you can forward, that would be great. But we would also greatly appreciate your completion of the questionnaire. Not every question might apply to you, but please answer those that do. If you would rather have me call for an interview, I will do that as well. But if you could fill out as much as you could beforehand, that would be very helpful to me. I could then follow up with only a few questions for clarification. I have been the director of a mid-sized transit system, and I know how busy your job is. I also realize there might be some survey fatigue among transit managers. However, this subject is of growing interest around the country, and your contributions will be very meaningful. Again, I truly appreciate your assistance and look forward to talking with you as well.

A total of 39 transit systems were identified as providers of fare-free service as defined in the introduction of the report where all, or virtually all, of their service is provided on a fare-free basis to all passengers. In a few cases, some commuter express services that leave the political boundaries of the funding community charge modest fares. Charging these

fares was regarded as a political compromise during difficult budget times to maintain all of the rest of their service, including paratransit, as fare-free.

The public transit agencies that provide fare-free service fall into one of three distinct categories:

1. Small urban and rural public transit systems
2. Public transit agencies serving university-dominated communities
3. Public transit agencies serving resort communities.

These public transit systems are identified by categories in the following three tables. Small urban systems are sometimes near other larger transit systems, but operate independently from them. Rural systems serve larger areas of relatively low density, usually distant from major urban centers. Seventeen public transit agencies that utilize fare-free policies and serve small urban and rural communities were identified and are listed alphabetically in Table 4.

TABLE 4
SMALL URBAN AND RURAL PUBLIC TRANSIT SYSTEMS WITH FARE-FREE POLICIES

Transit Agency	Service Area Population	Annual Ridership	Source of Local Revenue	Number of Vehicles
Advance Transit–Hanover, NH	38,000	850,000	University, med center, towns, sponsorships, philanthropy	32
Atomic City Transit–Los Alamos, NM	18,550	433,800	Gross receipts tax (1/8th of 1%)	27
Canby Area Transit–OR	16,000	214,000	Employer payroll tax of 0.6%	15
Citylink–Edmund, OK	81,400	180,000	City general fund and University of Oklahoma	7
Citylink–Kootenai, ID	144,000	556,000	Native American tribe (casino)	13
Commerce Transit–CA	13,000	1,000,000	State transportation tax	9
Deerfield Valley Transit Association–VT	4,000	280,000	State and local	21
East Chicago Transit–IN	30,000	250,000	City general fund	6
GoLine Transit–Indian River County, FL	174,000	900,000	50% state, 50% local general funds	12
Hele-on-Bus–Hawaii County	174,000	1,300,000	County general fund, weight tax, carry-on package fee	50
Island Transit–Whidbey Island, WA	79,250	1,100,000	0.9% general sales tax	56
Marion City Transit–IN	30,000	300,000	State dollars based on formula	10
Mason Transit –Mason Co., WA	58,000	514,000	0.6% general sales tax	56
McCall Transit–McCall, ID	2,500	26,000	City general fund	2
Niles Free Bus–Niles, IL	30,000	300,000	State and city	10
North Central RTD–Taos, NM	218,000	112,000	Gross receipts tax (1/8th of 1%)	45
Treasure Valley Transit–ID	8,700	57,835	Local option tax on tourism	3

Note: Information within table provided by responding transit agencies.

Eight public transit agencies in university-dominated communities serve not just the university but the surrounding community as well. However, substantial percentages (in six of the eight cases) of passengers are students who usually prepay through university fees for the service they receive. These agencies are listed alphabetically in Table 5.

Fourteen public transit agencies that serve resort communities, particularly ski resorts, were found to provide fare-free service. The communities these agencies serve may see their populations swell from a few thousand permanent residents to almost 100,000 when visitors arrive during high season. These public transit agencies are listed alphabetically in Table 6.

IMPETUS FOR IMPLEMENTING FARE-FREE SERVICE

Each public transit agency identified as providing fare-free service was sent a questionnaire with 34 questions (Appendix A). The questionnaire was reviewed and approved by the project panel and was designed to ascertain why these agencies implemented fare-free transit and what their experiences had been. Questionnaires were returned in writing by 28 public transit agencies, while the remaining four requested that they be able to answer by means of telephone interview. The 32 total responses represent a response rate of 82%. This chapter will provide the responses in a series of tables corresponding to the questions from the survey included as Appendix A. Appendix E provides the detailed responses provided by all agencies. Among the questions asked was why a fare-free system was implemented and if a benefit-cost analysis

had been completed. Not every agency responded to every question, but the vast majority did.

REASONS FOR FARE-FREE SERVICE IN SMALL URBAN AND RURAL AREAS

Table 7 reports the variety of reasons that different transit agencies have adopted fare-free policies. Although the numbers from this table alone do not confirm this, answers to other questions in completed questionnaires made it clear that small urban and rural systems found that it simply made economic sense not to charge a fare. As the literature review also revealed, respondents representing small agencies noted that the costs associated with collecting a fare could come close to, if not exceed, the value of the revenues collected. Even in conservative communities that might discourage offering a service that provides direct benefits to the user available at no cost, the economic logic of avoiding the capital and operating costs and responsibilities associated with fare collection was compelling when the amount of expected revenue was relatively small.

Many passengers using public transit services in these communities were reported to be on fixed incomes, and the benefit of not paying a fare was reported to be helpful to them, and well understood by the communities where they live. Various managers noted that the recession and continuing uncertain economy has caused higher unemployment and under-employment. The free fare is meaningful to the unemployed and working poor as well as those on fixed incomes. GoLine in Indian River County, Florida, noted that ridership grows disproportionately during times of increases

TABLE 5
PUBLIC TRANSIT AGENCIES SERVING UNIVERSITY-DOMINATED COMMUNITIES

Transit Agency	Service Area Population	Annual Ridership	Source of Local Revenue	Number of Vehicles
ApplCART–Watauga, NC	15,000	1,144,000	University, town of Boone	16
Cache Valley Transit District	80,000	2,000,000	Local option sales tax	32
Chapel Hill Transit–NC	100,000	7,500,000	University of North Carolina, towns of Chapel Hill and Carrboro	98
Clemson Area Transit–SC	50,000	1,600,000	Clemson University, city and county	26
Corvallis Transit System–OR	54,845	Projected to be 850,000	City services fee	11
Go West Transit–Macomb, IL	20,000	1,750,000	Student fees, JARC, county	29
Streamline–Bozeman, MT	75,000	250,000	Montana state and city	10
UMASS Transit–Amherst, MA	110,000	2,766,000	Student fees, parking fees	38

Note: Information within table provided by responding transit agencies.

JARC = Job Access and Reverse Commute program.

TABLE 6
FARE-FREE PUBLIC TRANSIT AGENCIES SERVING RESORT COMMUNITIES

Transit Agency	Service Area Population	Annual Ridership	Source of Local Revenue	Number of Vehicles
Aspen Shuttles–Aspen, CO	6,000	1,000,000	Sales tax	16
Breckenridge Free Ride–CO	3,400	670,000	Sales tax, parking surtax	13
Community Transit–Cape May County, NJ	121,000	218,000	Local general funds and casino revenues	9
Estes Park Shuttle–CO	6,000	35,000	City general funds	4
Glenwood Springs–CO	8,200	526,000	Local sales tax	4
Mountain Rides–Ketchum, ID	22,000	400,000	Local option resort tax	15
Mountain Express–Crested Butte, CO	2,000/3,000	585,000	1% dedicated sales tax, 1% tax on events and ski lift tickets	17
Mountain Village Transit–CO	1,200/3,000	2,500,000	Real estate transfer tax, lift ticket revenue	4 buses and a gondola system
Park City Transit–Utah	8,000	2,000,000	0.25% sales tax	37
SPOT–Selkirk, ID	8,500	Starts 6/01/11	Local option resort tax	4
Steamboat Springs Transit–CO	12,000	1,050,000	City general fund	25
Summit Stage–Summit County, CO	28,000	1,700,000	0.75% county sales tax	33
Telluride Galloping Goose Transit–CO	5,000	300,000	City general fund including Real Estate Transfer tax	11
Vail Transportation Department–CO	4,200/28,000	3,200,000	City of Vail general fund and 4% surtax on lift tickets	35

Note: Information within table provided by responding transit agencies.

in gas prices and declines in times of accelerated economic activity. Small urban and rural service areas can often be quite large, and travel distances can be long for work, medical services, or training. One of the key reasons the large island of Hawaii implemented fare-free service was to reduce commuting costs for its residents, some of whom need to travel up to 80 miles to work. A surprising number of small agencies operating in rural areas reported that they offer fare-free service to discourage the use of automobiles and to reduce traffic congestion.

Three rural transit managers responded that another reason their rural systems adopted fare-free service involved safety concerns related to robbery, particularly in remote rural areas.

In other rural locations that had state taxes dedicated to supporting public transportation, agencies concluded that charging a fare would be like asking someone to pay for the service twice. Link Transit in Chelan and Douglas counties in Washington State, a system that offered fare-free service until 2000, promoted its service with the following marketing message: “Take the bus—you are already paying for it.”

Many small urban and rural systems appreciated the value fare-free policies have in terms of increasing ridership, and in so doing, addressing the occasional political problems associated with those who complain about “empty buses.”

Most of the small urban and rural respondents noted that FTA Section 5311 funding is reduced by the amount of money received in fares (although it is not reduced by the amount of other local matching funds). Therefore, local communities are taking advantage of the federal government’s contributing what otherwise would be paid by their passengers.

Fare-free transit provides agencies with the opportunity to improve performance metrics such as the passengers they carry per hour, per mile, and per capita in their community. This is not just a matter of making the transit agency look better on paper. Ironically, some small transit agencies reported earning more revenue by eliminating their fares. States such as Indiana and Florida provide block grants for operating transit services and capital assistance based on allocation formulas that take into account the passenger miles the system provides. As ridership increases as a result of free fares, the operating assistance received from the state increases as

TABLE 7
REASONS FOR IMPLEMENTING A FARE-FREE POLICY

Reasons for Implementing	Small Urban and Rural	University Communities	Resort Communities	Total Agencies	% of Agencies
Costs Consume Revenue Collected	6	4		10	31
Taxes Already Pay for Service	4	1		5	15.6
Fare Collection Distracts Drivers	1		1	2	6.3
Concerns Over Crime and Robbery	3			3	9.4
Marketing, Increase Ridership, Convenience	5	3	4	12	37.5
Reduce Traffic Congestion	2	1	3	6	18.8
Reduce Cost of Commuting	2		2	4	12.5
Encourage Reductions in Auto Use	3		3	6	18.8
Administrative Difficulties with Fares	1	3		4	12.5
Reduce Dwell Time	3	3	2	8	25
Social Equity	3	3		6	18.8
Preserve the Environment	1	2		3	9.4
Reducing Use of Oil	1			1	3.1
Increase Livability	1	1		2	6.3
Economic Development	1	1	4	6	18.8
Fare Would Reduce Federal Match	2	1		3	9.4
Reduce Need for Parking		2	1	3	9.4
Accommodate Short Trips and Trip Chaining			1	1	3.1
Condition of Development Approval			1	1	3.1
Private Service Was Free			1	1	3.1

well, owing to the higher number of passenger miles entered into the allocation formula. As an example, the Marion City Bus Department in Indiana decided to eliminate its \$0.50 fare in 2008 and offer fare-free service. Revenue from the farebox had generated only \$25,000 a year. However, ridership doubled with the elimination of fares, and the additional passenger miles they could report resulted in an increase of \$45,000 in state financial assistance. By eliminating fares, the Marion City Bus Department not only doubled its ridership, but also almost doubled the amount of revenue that it formerly received through passenger fares. Although the agency had not predicted such a positive result, it is enjoying the increased revenue, and reported that the community and passengers are appreciating the money they save on fares that can now be used on other necessities.

REASONS FOR FARE-FREE SERVICE IN UNIVERSITY-DOMINATED COMMUNITIES

Students make up the vast majority of passengers who use fare-free transit in communities where the university is the dominant stakeholder. In the case of ApplCART Transit in

Watauga, North Carolina, 85% to 95% of its passengers are students who prepay for their service through student fees and board by showing the driver their university ID. ApplCART received only 2% of its revenues through the farebox. The transit agency collected such a small amount in cash fares that it emptied fareboxes only once a month. When auditors told the agency it could have no more than \$250 in fareboxes without needing to deposit the money, it was required to empty fareboxes more than once a week, which cost more than the money taken in. ApplCART suggested to the city of Boone that if it would pay the estimated annual fare revenue (\$18,000), the agency could then make the buses fare-free for everyone. After the Boone Town Council agreed to do this, the ApplCART board adopted the new fare-free policy in July 2005.

Go West Transit in Macomb, Illinois, reported that it started service on a fare-free basis for the university, but not the remainder of the community. According to its general manager, the agency was forced for a year to charge a fare (\$0.50) to residents. That fare generated less than \$10,000 a year, and although no one complained, ridership was clearly

affected. The fare was eliminated after a year when the Illinois governor exempted senior citizens from paying fares since students and people with disabilities had already been exempted and university students were prepaid; the only people left paying were the poorest people. There was general agreement that charging those few passengers a fare made no fiscal or socially responsible sense.

UMASS Transit in Amherst, Massachusetts, reported that it carries ridership similar in nature to ApplCART. Approximately 85% of UMASS passengers are students, 13% are faculty and staff, and 2% are part of the area's general population. The university's strategy was if parking fees were increased and a fare-free public transit system was put in place, the result would be less traffic, reduced hitchhiking, and fewer cars on campus, and that is exactly what occurred. The transit service also operated much more efficiently by being able to board passengers from both doors of their buses. In the early 1980s, a doctoral student did an extensive analysis of the bus system and payment methods. One of the findings was that it would cost the system \$0.15 to collect a \$0.25 fare. The conclusion was to stay fare-free for many reasons. UMASS Transit now serves five different campuses and the communities between those campuses, and no one is required to pay a fare or show an ID.

Chapel Hill Transit's general manager and a university administrator provided the background behind the establishment of fare-free transit in their North Carolina community. For years, Chapel Hill Transit had charged fares while serving that city, the city of Carrboro, and the University of North Carolina. The university, with its population of 45,000 students and faculty, was experiencing ever-increasing costs to administer a fair subsidy program through the sale of discounted passes for employees and students. As a result, it concluded that if it went fare-free through an approved student fee it could save significant costs in program administration and generate substantial increases in ridership. With no room for increased parking on campus, it was also in the university's best interest to shift its focus to encouraging the use of park-and-ride lots on the edge of town with shuttles to the campus. The student body voted to assess themselves, as students at some other university campuses had done, to create a universal access program. This helped the university to reduce administrative costs dramatically. It also provided the revenue required for Chapel Hill Transit to increase service to the university and to the rest of the surrounding community.

In 2001, Chapel Hill Transit conducted an analysis of ridership and fares. It determined that when university revenues were removed from consideration, there was approximately \$250,000 in farebox revenues collected by the town that was not directly related to persons travelling to the university. Understanding that revenues from fares were relatively low

(approximately 8% of total system operating costs), the town decided it could forego that amount of revenue to encourage greater utilization of public transit in the community. The town of Carrboro agreed as well, allowing the entire area to be served by one transit system in a fare-free environment. The policy-making environment in Chapel Hill is progressive, environmentally conscious, and transit-oriented. The community has viewed the transit system as a key player in the overall development of the community. Although many factors were considered, the fare-free public transit system contributed to the town of Chapel Hill's being named "Most Livable City" in America in 2009 by the Mayors' City Livability Awards Program.

Another example of a fare-free system in a university community is the Cache Valley Transit District (CVTD) system in Logan, Utah. Although students comprise 45% of all riders, its general manager reported that this powerful university presence was not the primary reason for establishing a fare-free system as it was in North Carolina and Massachusetts. He noted that fare-free public transit is consistent with the CVTD board's adopted mission:

The Cache Valley Transit District is committed to maintaining and enhancing the Region's quality of life by:

- Delivering reliable and safe public transit services
- Offering innovative services that reduce dependency on the automobile
- Providing progressive leadership for the region's transportation needs
- Supporting efforts to improve air quality.

According to the current general manager, the fare-free philosophy was initiated because the board at the time did not think the residents of the conservative community would ride the bus, but that a fare-free policy would help encourage people to use the new service.

Although the board anticipated the policy would only be in effect for the first year, it has remained unchanged for 20 years. Utah State University students do not pay a fee that goes toward the expense of the transit system; instead, the system is supported by a 0.3% local option sales tax that must be approved by all 11 cities that are members of the district. Everyone can ride fare-free. The spirit behind this practice is evident by the phrase on the CVTD website: "Cache Valley Transit District: We're Community, We're Family, We're CVTD." The agency also receives FTA 5307 and 5311 grant funds. It has determined that it would be required to charge passengers \$0.50 to recover the costs associated with fare collection. They also project that establishing such a fare could reduce ridership by as much as 50%.

Fare-free transit was also reported to be consistent with university communities' interest in sustainability and livability.

REASONS FOR FARE-FREE SERVICE IN RESORT COMMUNITIES

Public transit agencies in resort communities have their own unique reasons to offer fare-free service. In ski resort towns, as noted earlier, communities can be swamped by visitors on weekends and holidays in particular. The manager of the Vail (Colorado) Transit System reported that the number of visitors can exceed 100,000 on such days. Fare-free transit has helped to encourage people to park their cars and use public transit; the policy helps to relieve traffic congestion on local streets. Transit managers who are carrying more than one million passengers a year reported that they are taking between 300,000 and 500,000 cars off the roads as a result of their service, much of it owing to the attractiveness of fare-free transit.

Most ski resorts were reported to be fairly compact, and the distance between origins and destinations is relatively short. Transit managers have stated that they would not expect people to pay a very high fare for many of the short trips taken on their buses. Surveys in Breckenridge, Colorado, revealed that people would prefer to move their cars more often than pay a fare for multiple short trips. Eliminating the fare encourages those people who might otherwise walk or take short car trips to wait for the bus.

Public transit managers noted that there can be crush loads of people looking to board at major stops such as hotels and ski lifts. Fare-free transit allows passengers to board from both doors, helping to speed the boarding process and reduce dwell time, thus allowing the bus to stay on schedule more reliably. One transit manager reported that dual-door boarding has allowed them to reduce the rate of acquiring additional equipment to remain on schedule, thereby minimizing the increase in capital and operating expenses caused by buying and utilizing additional equipment.

Agency managers observed that it is difficult for people wearing ski suits and heavy gloves during cold weather to access cash or passes. Some managers also pointed out that visitors to such resorts have been known to enjoy partying and drinking in the evening, and fare-free transit provides a safer means of travel for all involved.

Another reported reason that ski resort communities offer fare-free transit is simply to remain competitive with other resort towns that offer well-used fare-free transit. Most resort communities clearly recognize fare-free transit as an essential component of their communities' economic development. Almost all the prominent ski resort towns in Colorado provide fare-free service as an element of community service their guests and visitors have come to expect. Ski resort communities are service-oriented, and anything to make a visitor's stay more pleasant is in the town's best economic interest. As one transit manager in a ski resort said, "Everything we do is feeding the economic engine." In the same

light, she also noted that her drivers love to serve as ambassadors to the community. Having a fare-free system allows the drivers to provide more information on the town to visitors since they do not have to deal with handling fares or answering questions about fares.

Public transit managers in some ski resort communities also reported that they took over providing shuttle service from resorts and hotels that had provided free service prior to the public system being established. A precedent to provide fare-free service had already been set and they were expected to provide no less, particularly when tourist taxes are typically paying for the service. As one transit manager in Idaho stated, "In order for the hotels to advocate the Local Option (Resort) Tax there had to be a benefit to them directly. The fare-free public transit system was the benefit they were looking for."

Transit managers responded that land is often scarce, expensive, and challenging to develop in mountainous areas. This can minimize the amount of parking that resort municipalities can offer. Providing fare-free public transit service encourages visitors to get to stores and restaurants without clogging the local roads and cruising the streets looking for a parking space. It also helps minimize the unwanted overflow visitor parking that might occur in residential areas. One transit manager noted that there has been a dramatic increase in ridership for special events when parking is at a premium and transit can get people close to their intended target.

Respondents to the survey noted that most resort towns are expensive places to live. The service workers in the community can rarely afford to live in the heart of the resort area, and must sometimes live a considerable distance away before they can find affordable housing. Respondents reported that providing fare-free public transit to service employees is one way of attracting and retaining employees by reducing their expenses in towns where a living wage can be more than \$17 an hour. The fare-free transit service reduces their cost of commuting, and provides reliable service during all weather.

Who Was Responsible for Initiating Fare-Free Policies?

Responding agencies indicated that the most frequent initiators of fare-free public transit service have been the elected city or county council or the executive director of the public transit agency. However, fare-free policies have been initially promoted by a number of different stakeholders as noted in Table 8.

Was a Nominal Fare of \$0.25 or \$0.50 Considered Rather than Fare-Free Service?

Ten of the responding agencies indicated they had considered charging a nominal fare rather than offering fare-free service. However, they reached the same conclusions as the

TABLE 8
STAKEHOLDERS CREDITED WITH INITIATING FARE-FREE POLICIES

Stakeholders Who Initiated Fare-Free Policies	Number of Agencies Responding
Mayor	2
Transit Agency Executive Director or Staff	8
Consultant	1
City/County Council	8
Local Businesses	1
Community Advisory Board	3
Transit Agency Board	1
University	2
National Park	1
Developer	1

22 agencies that reported that they had not considered establishing a nominal fare. The primary reasons for not charging a nominal fare was the very low net gain (or loss) in revenue after accounting for the expenses of collecting fares, and for the negative impact fares would have on ridership.

In response to survey question 7 (see Appendix A), nine of the agencies reported that they had fares before establishing fare-free service. Three of these agencies served university communities and reported farebox ratios of 8% or less, with the largest amount of fare revenues being \$250,000 in Chapel Hill, North Carolina. However, the other five agencies reported more substantial farebox ratios of between 14% and 35% that provided revenues that would need to be replaced through local support; Hawaii needed to replace the largest amount of fare revenue (\$800,000 a year). Two agencies noted that although the vast majority of their service was fare-free, they charged a fare for out-of-county service as a way of appeasing those in their community who did not fully support fare-free policies.

Throughout their responses, a number of agencies noted that the Federal 5311 program has a provision that actually encourages nonurbanized areas to strongly consider eliminating fares. FTA Circular C 9040 1F, dated 4-01-07 includes the following guidance on page III-11:

Net operating expenses are eligible for assistance. Net operating expenses are those expenses that remain after the provider subtracts operating revenues from eligible operating expenses. States may further define what constitute operating revenues, but at a minimum, operating revenues must include farebox revenues. Farebox revenues include fares paid by riders who are later reimbursed by a human service agency or other user-side subsidy arrangement. Farebox revenues do not include payments made directly to the transportation provider by human service agencies to purchase service. However, purchase of trans-

it passes or other fare media for clients would be considered farebox revenue. A voluntary or mandatory fee that a college, university, or similar institution imposes on all its students for free or discounted transit service is not farebox revenue.

In short, federal operating assistance that is provided to a nonurbanized local recipient is reduced by the amount of farebox revenue reported. However, if no farebox revenue is reported, the federal grant will be larger by the same amount. Consequently, a small local transit agency can eliminate fares and still receive the equivalent amount of revenue from its 5311 grant if the local community finds it acceptable to do so. This allows passengers to save the money that they would have otherwise spent on bus fares. The transit agency remains whole, and the passenger receives fare-free transit service.

Question 8 of the survey asked if a cost-benefit analysis had been done prior to implementing the fare-free policy. Eleven agencies responded that they did do a thorough review of what the net costs or benefits would be if they went fare-free. Eight indicated that they did not, with some indicating it appeared to be obvious that the revenues collected simply would not make the cost of collection worthwhile. Two implemented the fare-free policy on a trial basis without real analysis, whereas five others indicated they had performed an informal analysis.

Policy-Making Environment in Which Fare-Free Policies Have Been Approved

Twenty-four respondents to the survey provided their opinions on the policy-making environment of the communities they served in response to question 4 (see Table 9). Although the answers show fare-free policies have thrived mostly in

TABLE 9
POLICY-MAKING ENVIRONMENTS OF
COMMUNITIES WITH FARE-FREE SERVICE

Policy Making Environment	Number of Communities
Conservative	5
Mixed	6
Progressive	13

progressive areas, communities described as conservative or mixed have also adopted and maintained such policies.

In addition to noting their policy-making environment, respondents provided the organizational structure of which they are a part. Five of the agencies, all from small urban or rural areas, are operated by nonprofit agencies. Nine are regional transit authorities, and 13 are agencies within a city or county government. One is governed by a Native American tribe and county government, while another is a university-run system.

Effect of Fare-Free Service on Ridership

The effect of fare-free policies on total public transit ridership is invariably positive, many times at levels unanticipated even by the most optimistic transit managers or policymakers. Although the Simpson–Curtin fare elasticity formula noted in the literature review suggests an increase in ridership of approximately 30% when fares are eliminated (reduced 100%), it is not always possible to rely on that formula. The inherent difficulty of applying this formula is that it is designed to be applied to small changes and to pre-existing fares. Any increase

in fare above a zero fare is technically an infinite increase—there is no way to put a percentage on such an increase. In spite of these difficulties, the survey asked the following questions:

Did the agency make a fairly accurate estimate or projection of the impacts on total ridership and any new expenses that would be incurred? (9)

If you never had a fare and have always been fare-free, do you have any estimate of what instituting a modest fare would do to your ridership? (13)

What were the intended/expected and actual outcomes of offering fare-free service? (15)

Many of the systems did not provide statistical answers to these questions, simply responding that they expected increased ridership, and they got it. Almost 75% of the systems responding to the survey began as fare-free systems, so it is not possible for them to provide comparisons of ridership before and after a fare-free policy was put in place. However, 22 public transit agencies provided actual numbers or best estimates of the effects of fare-free policies on their ridership (see Tables 10 and 11).

At the island of Hawaii, the general manager responded that the Hele-on-Bus collected 35% of its required operating revenues through fareboxes before going fare-free. After a fare of \$1.00 was eliminated in 2005, ridership jumped more than 200% from 425,000 to 1,300,000 passengers a year (in spite of a fee of \$1 charged for carry-on items measuring more than 16 in. by 22 in. that generates \$30,000 annually). Go West Transit's general manager indicated that when the agency charged a fare of \$0.50 for residents of Macomb (although students, the elderly, and disabled rode free), ridership from this segment of its service area remained flat

TABLE 10
ACTUAL AND PROJECTED RIDERSHIP IMPACTS OF FARE-FREE POLICIES ON SMALL URBAN
AND RURAL PUBLIC TRANSIT SYSTEMS RESPONDING TO SURVEY

Agency	Expected Ridership Increase	Actual Ridership Increase	Estimate of Loss in Ridership if a Fare Was Instituted
Advance Transit	No prediction. Fare-free was begun as a trial.	32% within one year of fare-free policy implementation	9% with a \$0.50 fare up to 57% with a \$2.00 fare
Deerfield Valley Transit Association	Has always been fare-free		20%–30%
Edmund Transit	40% to 80%	200% increase in 18 months	50%+
East Chicago	Has always been fare-free		50%+
GoLine Transit	Has always been fare-free		33%, but depends on level of fares
Hele-on-Transit	Was 425,000 when charging \$1 fare in 2005	Ridership increased 205% to 1,300,000 by 2011.	(not provided)
Mason Transit	Has always been fare-free		40%

TABLE 11
ACTUAL AND PROJECTED RIDERSHIP IMPACTS OF FARE-FREE POLICIES ON PUBLIC
TRANSIT SYSTEMS SERVING RESORT COMMUNITIES RESPONDING TO SURVEY

Agency	Expected Ridership Increase	Actual Ridership Increase	Estimate of Loss in Ridership if a Fare Is Instituted
Aspen Shuttles	Has always been fare-free		26%–33%
Breckenridge	Has always been fare-free		35%–45%
Glenwood Springs		125% within a few months	Surveys indicate 22% would not ride if there was a fare.
Mountain Village	Has always been fare-free		25%
Park City		125% in less than 6 months	25%–42%
Steamboat Springs	20%	53% after the \$0.50 fare was eliminated	(not provided)
Summit County	Has always been fare-free		20%–26%

at approximately 100,000 riders per year. Once the fare was eliminated, ridership from that same segment increased quickly by 200%. Steamboat Springs, Colorado, experienced a 24% increase during the first year after eliminating a \$0.50 fare and has doubled ridership in six years.

ApplCART expected no more than a 10% increase in ridership when it went fare-free, since approximately 90% of its passengers were students who were already riding on a pre-paid basis and the farebox only generated 2% of the total revenue needed to operate the system. However, ridership increased 21% overall with the fare-free policy (see Table 12).

At Chapel Hill Transit, ridership increased 43% during the period from January to September of 2002 compared with the same period in 2001 (from 2,100,866 in 2001 to 3,006,798 in 2002). Although service hours were increased 11.3%, the major cause of the dramatic ridership increase was the implementation of the community-wide fare-free service. The program has enabled the university to move more of its parking to perimeter park-and-ride lots, allowing for more development of facilities on the university while also creating a safer pedestrian environment. Since 2002, transit ridership has continued to grow and the system now carries 7.5 million passengers a year, making Chapel Hill Transit the largest fare-free system in the world.

TABLE 12
ACTUAL AND PROJECTED IMPACTS OF FARE-FREE POLICIES ON PUBLIC TRANSIT SYSTEMS
SERVING UNIVERSITY-DOMINATED COMMUNITIES

Agency	Expected Ridership Increase	Actual Ridership Increase	Estimate of Loss in Ridership if a Fare Is Instituted
ApplCART	10%	21%	—
CVDT	Always been fare-free	N/A	48%–54%
Chapel Hill Transit	Made no prediction	43% within 9 months	—
Clemson	Always been fare-free	N/A	50%+
Corvallis	20%–50%	43% after two months	—
Go West Transit	Made no predictions	200% for non-student ridership after eliminating \$0.50 fare	—
Streamline	200 a day	1,200 a day	—
UMASS Transit	Always been fare-free	N/A	50%

— = not provided by transit agency; N/A = not available.

None of the responding agencies reported that capacity was a critical issue. Even large percentage increases can be handled with existing capacity if the base number of passengers prior to fare-free policies is relatively small. For instance, even though Corvallis (Oregon) Transit reported a 43% increase in ridership after only two months, it had not yet experienced capacity problems. However, the more frequently any system might have fairly full buses before eliminating fares, the more likely it will have capacity issues that should be anticipated as a possibility depending on the nature of the community. South Carolina's Clemson Area Transit reported that it needed to purchase previously used buses from as far away as Fargo, North Dakota, to keep up with the demand for service.

CVTD provided information from its Short Range Transportation Plan, which is provided here. It indicates that although there would be considerable losses in ridership if fares were instituted, the amount of the fare appeared to not make a great deal of difference in terms of the impact on ridership:

Based on the Arc elasticity model, we believe the introduction of any fare would have a significant impact on LTD and/or CVTD annual ridership. Depending on a number of variables, ridership could decrease as much as 54% should LTD introduce a one-dollar base fare. The following table indicates an array of 'probable' fare options.

Proposed Fare	Projected Ridership	Projected Revenue
\$1.00 full fare \$0.50 seniors/disabled	466,768	\$186,707
\$0.75 full fare \$0.35 seniors/disabled	467,044	\$140,113
\$0.50 full fare \$0.25 seniors/disabled	467,595	\$93,518
\$0.25 full fare Free—seniors/disabled	469,246	\$46,924

Note: FTA policy limits the senior/disabled component of a fare structure to no greater than 50 percent of the adult cash fare during off-peak hours.

It is clear that the introduction of any fare structure on this historically fare-free service will have immediate and potentially long-lasting implications. We believe the preceding forecasts are tied in large part to the mere inclusion of a free component rather than the actual fare amount. Further, as the projections indicate, the impact of (subsequent) incremental fare adjustments is minimal once a fare has been introduced.

It is important to note these projections are relatively short-term in nature (i.e., 12–18 months) and reflect solely a cash-based fare structure. Alternative fare media including monthly passes, discounted tickets, and free-ride promotions are often employed to minimize ridership loss. Further, our experience in numerous communities throughout the western U.S. reveals a tangible relationship between ongoing targeted marketing and sustainable ridership growth.

There are two other cases where even modest fares instituted at formerly fare-free transit services resulted in substantial losses in ridership. Both the Miami Beach Electrowave and the Santa Barbara, California, downtown electric shuttle, services providing 15-minute frequencies in popular tourist

towns, instituted a \$0.25 fare in the late 1990s after running their services for more than a year on a fare-free basis. Both witnessed a decrease in ridership of approximately 45% after instituting that modest fare (38, 39). Many of the trips that had been taken on the electric vehicles were short, and people might have elected to walk rather than wait for a bus. It can be noted, however, that the institution of the fare also discouraged what the agency regarded as "problem riders" and allowed the service to operate in a more reliable manner, improving rider satisfaction.

Effects of Fare-Free Policy on Passenger Satisfaction

The respondents to this survey indicated that there is also a very high level of customer satisfaction with the fare-free service they provide. Question 23 asked the following question: "Have you conducted surveys of your rider's pre-and post fare-free service? Do you know your passengers' opinions on fare-free service in terms of their satisfaction with the quality of the experience of using the free service?" In response to Question 23, small urban and rural systems provided the following responses:

- Riders primarily support fare-free policies.
- Passengers all note the high quality of service.
- The vast majority appreciate it.
- Riders universally prefer free to paying a fare.
- Because we do not have that farebox barrier, our operators are able to develop individual rapport with our passengers.
- 83% considered the service excellent, whereas the other 17% rated it good.

Perhaps the response that best summarizes how riders in small urban and rural communities feel about fare-free service came from the North Central Regional Transit District in New Mexico: "We offer a quality service for free, how can you beat it! Riders love it!"

Transit managers reported that these services represent a lifeline for many people, particularly in rural areas, but the value is apparently appreciated by virtually all who use it for the many different reasons people travel. It is important to note that three agencies reported that passengers have asked if they can make voluntary contributions to the system in an effort to help ensure its continuance. Advance Transit in New England reported that it receives almost \$100,000 a year from philanthropic contributions large and small, and has a donor base of almost 1,000 people.

Fare-free systems serving university communities report similar passenger satisfaction:

- Passengers are very supportive of the fare.
- If not fare-free, passengers would seek alternative ways to get to the University and work.
- They could not survive without it is a common response.

- Customer satisfaction surveys indicate a very high degree of satisfaction with the quality of our services.
- We have done 20 surveys and we get consistently excellent ratings.

Fare-free systems serving resort communities provided fewer and more mixed responses to this question:

- Customers are satisfied but also would like to see expansions—as long as it remains fare-free.
- We received high marks both before and after fare-free.
- Less than 1% found the service unacceptable.
- 22% do not want a fare and would not ride, whereas others say their experience on the bus has been less favorable.
- Receive complaints about vagrants, drug addicts, and alcoholics who we assume would stop riding if they had to pay.

Issue of “Problem Passengers” On Fare-Free Systems

Question 21 of the survey asked fare-free public transit agencies if they had to put more resources into supervision or security as a result of rowdy passengers or vagrants. This question was included because earlier fare-free demonstrations in

Denver, Trenton, and Austin all reported that the public transit systems experienced a higher-than-normal incidence of disruptive passengers. However, the report on fare-free policies prepared for the state of Washington in 1994 argued that fare-free policies are easier to administer and result in fewer problems in smaller communities (5). Answers provided by survey respondents support the findings from the state of Washington study. A summary of the responses received from current providers of fare-free service is provided in Table 13.

A few respondents took pains to note that although they have protocol to deal with “problem passengers,” they do not regard them as a major issue in their communities. GoLine stated that this issue appears to be no more frequent or noticeable than on peer systems charging a fare. Clemson’s general manager noted that students will tend to be rowdy whether you charge a fare or not. Respondents from agencies serving smaller communities noted that the drivers might well know the family of a rowdy teenager, or that other passengers might help the driver in getting the problem passenger to modify his/her behavior. Other respondents noted that vagrants are an issue on their systems. One agency in a resort community regarded this as a significant problem, whereas others estimated that these types of passengers might represent no more than 1% of all riders. Many transit managers reported that they do not experience problems to any greater extent

TABLE 13
WHAT FARE-FREE AGENCIES HAVE DONE TO DEAL WITH ISSUES OF “PROBLEM PASSENGERS”

Responses from Systems Serving Small Urban and Rural Communities	Responses from Systems Serving University Communities	Responses from Systems Serving Resort Communities
<ul style="list-style-type: none"> • This is not an issue (five agencies provided this response) • Video surveillance is in all buses • We train operators • We have a staff position dedicated to mentoring teens and ensuring passenger satisfaction • Enforce Unlawful Conduct Ordinance • Reserve the right to refuse service to disruptive passengers • We get to know our youth by name • Issue “blue slips” and deny service until meeting with agency resolves issues • Student rider policies are distributed to high schools each year • Drivers ask, “What’s your destination?” to discourage joyriding 	<ul style="list-style-type: none"> • This is not an issue yet • Security cameras on all vehicles and facilities • Allow only one round trip and then put them on another bus • Suspend disruptive rider and require a signed agreement to reinstate passenger • Maintain a liaison with town police • Disruptive passengers may be “trespassed” and not permitted to ride (two agencies provided this response) • A no-loitering and no round-tripping policy is posted on the bus 	<ul style="list-style-type: none"> • This is not an issue (two agencies provided this response) • Security cameras are on all buses • Local police respond within 5 minutes • Adopted a “zero tolerance” policy for disruptive behavior • Drivers may eject passengers as long as they call supervisor and give location • Adopted local ordinance to allow ejection of passengers for “hindering public transportation” • Developed a good relationship with law enforcement including the courts • We have a police/security presence at certain times

than one might expect, and their experience is no worse than systems that charge fares.

Two responding transit systems noted that they provide a police substation at their bus transfer center that deals with people who fail to cooperate with their code of conduct policies. The Breckenridge Free Ride general manager reported on how riding privileges are suspended under its zero tolerance policies and how word gets around pretty quickly among other youths when that happens. This helps to reduce the amount of disruptive behavior.

The transit system in Corvallis reported that its issues with homeless passengers and vagrants have been not as noticeable as administrators thought they might be. Managers reported that this could be attributable to the fact that two years before implementing the fare-free policy, the city allowed homeless men to travel from the Downtown Transit Center to the Cold Weather Shelter on a specific route once in the morning and once in the afternoon. This appears to have had two positive effects. First, it provided an opportunity at least partially to separate passengers using that route from the rest of the system's service. Second, the special route also familiarized those passengers with the bus system's code of conduct, which allowed for a smoother assimilation to the transit system once it became fare-free. Similar service to assist the homeless is also offered in the Washington, D.C., area (41). Although such service has multiple benefits for the homeless and for the transit system, transit agencies might

need to recognize this as another cost and challenge of providing fare-free service.

Some form of education and mentoring might be necessary for systems to persuade teenagers to maintain a certain level of respect for others on board the bus. Although much of their noise is just youthful energy on display, general managers responding to the survey noted that behavior that is too loud and raucous can be uncomfortable and possibly intimidating, particularly to elderly passengers. The CVTD general manager provided the ordinance it has had approved addressing acceptable behavior on buses; that document is included in Appendix D. Mason Transit in Washington State has a position dedicated to assuring customer satisfaction that focuses on mentoring teens. CVTD reported on how riding privileges are suspended for repeat violators and how word gets around pretty quickly among other youth when that happens. This helps to reduce the amount of disruptive behavior.

Community Acceptance

Although it is clear passengers support fare-free service, the survey asked if communities also support it. Question 34 asked: "Have you ever had significant complaints from any element of the community that led to reconsideration of the fare-free system? For instance, some people say if the service is not important enough for the users to pay for, why should others pay?" The responses provided are included in Table 14.

TABLE 14
HAVE THERE BEEN SIGNIFICANT COMPLAINTS ABOUT THE FARE-FREE POLICY?

Small Urban and Rural Systems Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> • No (five agencies) • Many comments for and against. Complaints declined when we charged for out of county service • Yes. This has to be defended every year before city/town councils • No, we keep getting requests for more service and it has grown dramatically • Not much, but occasional complaints that riders aren't paying their own way like auto users • No, they are glad to have a regional service they never had before • Yes, but far outnumbered by supporters • Yes, but less intense as more support for transit occurs with higher gas prices 	<ul style="list-style-type: none"> • A vocal minority state a fare should be charged, but system is voter approved • Faction that thought we should charge has totally dissipated • It continues to come up once in a while, but argument is moot since no local taxes are used • Never, to the contrary, we are a source of community pride • No significant complaints (two agencies) 	<ul style="list-style-type: none"> • No (five agencies) • With tightening budgets the desire to make transit pay for itself continues to be raised • As they make service cuts, they have been asked to charge nominal fees • Some talk about a fare, but no groundswell for change • A majority of the community believes the fare-free system is vital to the community • No, but we have scaled back summer operations to react to the economy • We've been asked to let people donate rather than reduce service

A few of the respondents indicated that there are occasional complaints from taxpayers who grumble about the service being fare-free, although the magnitude of these complaints has not been great enough for any system to reconsider their status as providers of such service. In some cases there are municipal officials whose jurisdiction provides matching funds to federal grants and who ask why their agencies should pay if the direct recipients of services are not paying. A number of respondents reported that as budgets get tighter, they have concerns about policymakers' resolve in continuing to keep the service fare-free.

Depending on the community, more security personnel might be needed to help prevent or attend to disruptive, unwanted, or criminal behavior. The following excerpt is from a letter to the editor written by a passenger of the Southeastern Regional Transportation Authority in New Bedford, Massachusetts, an agency that conducted a fare-free experiment during the summer of 2010. It provides an unvarnished opinion of one passenger's experience during a planned three-month experiment of fare-free service, and shows how quickly a well-intentioned program may have to respond to negative impacts on passengers, operators, and the transit system's image:

Our transit problem began with a seemingly wonderful offer: Free bus fare for the months of June, July and August. For me, that meant \$120 in summer savings. In my mind, I had spent the money already. But the road to you-know-where was paved with good intentions; no good deed goes unpunished. Everything began just fine, but soon changed. One-third-filled buses became two-thirds filled, and then filled to capacity. Soon it became standing room only! With the increased number came, shall we say, a different type of clientele: large groups of teenagers taking long-distance rides, mixed with the psychologically challenged and just plain drunk. Human body odor became more and more obvious. With little space to sit or stand, I frankly became uncomfortable. Crowd trouble began to develop boarding the buses, and the police suddenly appeared at the station. Finally, buses could no longer keep up with the demand, and suddenly did not make stops at appointed locations and times. For me, this meant standing around for an extra 40 minutes more than several times. Even this was not consistent. You just do not know. Finally, this generous program-turned-near-catastrophe ended the last day of June. SRTA has demonstrated gross insensitivity to myself and others. A more thoughtful approach to unheralded and ill-considered 'innovation' would be appreciated (40).

Bus Operators' Attitudes Toward Fare-Free Service

In an earlier fare-free experiment in Austin, operators were reported to be at a point of "insurrection" over on-board conditions that they believed had badly deteriorated for themselves and for long-time passengers (20).

None of the managers responding to the questionnaire for this project reported anything as bad happening in their systems, although it can be noted that none of the agencies listed in Tables 4, 5, and 6 are in communities that are even one-quarter the size of Austin. Most of the agencies that are now providing fare-free service have not found these concerns to be too difficult to deal with, but at least one manager serving

a resort community stated he would rather see a return to some sort of fare. Although in the clear minority, he believes it would help to minimize the presence of undesirable passengers and restore more respect for the service.

Many of today's fare-free transit agency directors acknowledged that bus operators have had to deal with more homeless, alcoholics, and disruptive youth. However, based on the feedback from this project's questionnaire, the vast majority of bus operators are happier not to be dealing with fares than they are concerned with how they must deal with a few more undesirable passengers. Question 24 of the survey asked, "Have your operators embraced the fare-free system, or do they note any difficulties?" Many agencies did not respond because their system had always been fare-free and their bus operators had only worked in a fare-free environment and had nothing to compare their experience to. Table 15 provides comments from those who did respond.

How Fare-Free Service Affects Schedule Reliability

Survey respondents provided a mixed response to Question 25 which asked "Do you think fare-free service has allowed your buses to stay on schedule more easily owing to reduced dwell time, or does additional ridership cause the bus to operate more slowly?" A number of responding agencies noted that reduced dwell time per passenger is often countered by the increase in the number of boarding passengers and additional stops. Although time will be saved per boarding passenger by not collecting fares, the additional stops require more deceleration and acceleration of the bus, which can be more time consuming than the fare collection process, particularly if passengers are already using fare media of some type that takes passengers less than two seconds to record their fare. Reducing the number of stops on a route can help minimize schedule delay, although the experience systems have had is that they have more demand at all their stops after implementing fare-free policies. Many university and resort communities reported that they could not possibly keep to schedules if they implemented a fare. The general manager of Aspen's public transit system noted that adding a bus to a route to maintain published service frequency would cost almost \$500,000 per year per bus.

Table 16 displays the responses received from systems representing all the types of communities served.

Intentional and Unintended Benefits of Fare-Free Public Transit Service

Survey question 20 asked respondents to identify what they considered the major benefits of fare-free service. The responses were quite varied and are provided in Table 17.

Island Transit in the state of Washington reported that the benefits it has realized go far beyond operating efficiencies,

TABLE 15
FARE-FREE PUBLIC TRANSIT AGENCIES' BUS OPERATORS' ATTITUDES TOWARD
FARE-FREE SERVICE

Small Urban and Rural System Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> Operators prefer it because of fewer arguments over fares Operators are grateful not to deal with fares Operators have had some difficulties with rowdy passengers Operators love it (two agencies) Operators totally embraced it Operators feel safer and many have come to work at their agency because it is fare-free Operators can serve as ambassadors for the system with more time to answer questions 	<ul style="list-style-type: none"> Operators embrace and support fare-free Operators have many distractions and are very pleased not to deal with fares Operators strongly desire it Operators appreciate not monitoring fares, but more need to police vagrants Operators were wary, but have been pleasantly surprised by lack of incidents Operators love it 	<ul style="list-style-type: none"> Operators glad not to collect fares, but sense a lack of respect Operators love to be ambassadors for the town Operators loved going to fare-free Our drivers love not dealing with money Drivers say there would be more arguments with fares Operators had mixed feelings, but believe a fare should be charged due to economy Operators can focus on the safe operation of their bus

reducing congestion/carbon emissions, or increasing ridership. The general manager believes the system is not just a bus service, but an integral component of the island lifestyle that has contributed to the following broader benefits:

- Enhanced community bonding and cooperation
- Relationship building and social opportunities
- Building social skills and respect for personal space and individual property with youth
- Merging the elderly, disabled, and able-bodied community members
- Dramatically reducing the waiting lines at the state ferry docks
- Helping develop life-long relationships through the bus-riding "community"
- Promoting and encouraging public transit use
- Appreciating and protecting the island's eco-systems
- Having a bi-partisan service leading to more cooperative relationships and dialogue.

Clemson Area Transit (CAT) also noted how its fare-free system has helped develop community pride through

TABLE 16
HOW FARE-FREE TRANSIT AFFECTS ON-TIME PERFORMANCE

Small Urban and Rural Systems Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> Operates more efficiently by boarding through both doors (three agencies provided this response) Can factor less dwell time when designing bus schedules Experience delays because of increased boardings (two agencies provided this response) Average time per boarding is less, but increased boardings slow the bus Additional boardings during peak does not cause the bus to operate more slowly 	<ul style="list-style-type: none"> Allows better schedule adherence Faster without fares, dwell time minimized Load factors are huge, fares would cause schedule problems Saves time overall Stay on schedule more easily even with more passengers Increasing ridership causes major scheduling challenge 	<ul style="list-style-type: none"> Reduces dwell time Loading from all doors saves time, especially for people with ski equipment Free service facilitates on-time performance Fares would greatly impact schedule Staying on-time is easier Passengers in ski suits do not have to fumble for change

TABLE 17
THE BENEFITS OF FARE-FREE PUBLIC TRANSIT AS REPORTED BY SURVEY RESPONDENTS

Small Urban and Rural Systems Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> • Provides more trips to residents • No fares leave more revenue for residents to spend locally (two agencies reported this) • Significantly reduces administrative costs • Improves quality of life with free transportation (two agencies reported this) • Increases ridership (five agencies reported this) • Satisfied customers • Modal split of 7% on one major corridor • Carries several more passengers per hour than peer agencies that charge fares • People leave their vehicles at home • Ease of operation • Provides affordable mobility for students, employees, and seniors • Saved agency from providing 34,000 hours of service that would have been required if a fare was charged 	<ul style="list-style-type: none"> • Provides users with a much easier system to navigate • Faster boarding process • Reduces driver complaints • Students can get to classes at any of five colleges • Increases social mobility for students on nights and weekends • Increases ridership (four agencies reported this) • Increases state and federal funding as a result of increased ridership • Higher degree of local citizen support • Reduces run times and boarding times • People retire to the community partially because of fare-free service • The transit system is a source of pride in the community 	<ul style="list-style-type: none"> • Reductions in peak season congestion • Fewer impaired drivers on the roads • Eliminated 1,730,557 pounds of carbon • Lodging, businesses, workers, and visitors use service more and more • Reduction in administrative costs • Ability to serve a larger area and more stops • Allows parking to be reduced • Remove between 300,000 and 500,000 trips a year from local roads • Improves “small town character” • Enhances the town’s economic competitiveness • Reduces congestion, pollution, and gas usage (five agencies reported this)

the many awards they have received from the International City Management Association, APTA, and the state of South Carolina. Its fare-free service has helped to bridge the normal tensions between a university and its surrounding community. The International Town and Gown Association decided to locate its headquarters in Clemson because of the successful relationship-building that has occurred in CAT’s service area.

Fare-Free Public Transit’s Impact on Livability and Development

Question 18 of the survey asked “Can you attribute any advances in ‘livability’ to the fare-free service?” while Question 19 asked “Have you been able to quantify any of the benefits to your community due to fare-free service?” Because livability can be subject to different definitions, the answers received were not always precise. Appendix E contains the detailed responses, although relatively few specifics were provided. However, one of the general themes was that public transit itself promotes livability and having it available at no fare promotes livability that much more. Four agen-

cies noted that fare-free service attracts more choice riders, which translates to less traffic congestion and pollution and an improved quality of life.

Go Line Transit reported that its fare-free service at the Vero Beach Marina is regularly acknowledged by the international yachting community as a key local amenity and is called “the best service of its kind anywhere.” After Chapel Hill Transit implemented fare-free service, the A&E channel recognized Chapel Hill as the number two city in their “Top Ten Cities To Have It All” and *Money* magazine rated the town as the “Best Place To Live in the South” (42). Hanover, New Hampshire, with the service area of Advance Transit, was rated the second-best place to live in the United States by CNN and *Money* magazine after it implemented fare-free transit (43).

Three agencies indicated that they were an important part of making their communities more walkable. Aspen reported how its fare-free transit service complements the car-share and bike-share programs to promote community vitality and car-free living. The idea for fare-free service in Corvallis was promoted by the Corvallis Sustainability Coalition.

A number of agencies provided estimates of the environmental benefits that their systems produce:

- The Breckenridge Free Ride transit agency submitted a Livability Grant to the federal government, citing the transit-oriented developments that are being built for affordable housing and the reduction of 202,336 pounds of carbon dioxide emissions in the prior year because choice riders used the system.
- Streamline Transit estimated a net reduction of 929,043 vehicle-miles traveled and a carbon dioxide savings of 1,041,642 pounds during the first ten months of 2009.
- Aspen noted that traffic remains at 1993 levels thanks largely to fare-free public transit and its aggressive TDM programs. In 2004, the city of Aspen proudly became a PM-10 attainment area after 17 years of non-attainment status.
- Advance Transit determined that a fare of \$1.00 would result in a diversion of 62,400 riders to automobiles, with a corresponding 15,200 pounds of additional emissions and an additional 336,960 vehicle-miles traveled requiring 13,478 gallons of fuel.

Effect of Fare-Free Transit on Parking and Development

Question 16 asked “Did the implementation of fare-free service impact parking in any way, positive or negative?” while Question 17 asked “Did fare-free transit cause any increase in development or an influx of residents or employment or

change in property values?” Table 18 provides the responses to the question dealing with parking.

Based on responses to Question 16, it would appear that fare-free transit is attractive enough to entice people to either forego car trips or to park their cars and complete their trips by means of transit. However, there also appears to be a need to recognize that fare-free transit can result in the need for more designated parking to avoid conflicts with certain businesses and residential communities.

Island Transit has taken the concept of park-and-ride lots to a new level consistent with its practice of promoting environmental sensitivity in everything they do. The agency was successful in receiving state grants to develop “transit parks,” with great care given to utilizing native landscapes and protecting natural environments and animal habitat. These facilities include walking trails and shelters designed by local artists. Community volunteers maintain the facilities and Island Transit ensures that there is hot apple cider available in the colder times of year.

Advance Transit in New England reported that it is in negotiations with a developer who wishes to build a mixed-use development that would include housing, offices, shops, and a new transit transfer hub.

In response to Question 17 dealing with development, representatives of every community category frequently pointed out that real estate companies within their service districts advertised that they were on the free bus line (Advanced Transit, Island Transit, UMASS Transit, Clemson

TABLE 18
THE IMPACT OF FARE-FREE PUBLIC TRANSIT ON PARKING

Small Urban and Rural Systems Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> • None (four agencies reported this) • Fare-free service has had positive impact reducing the need for parking supply • There are inadequate park and ride lots causing parking issues • They provide flag stop service in rural areas and people sometimes park where they should not • Keeps cars off the roads and reduces parking needs at major attractors • Casinos need less parking • Park-and-ride facilities are developed as ecologically sensitive “transit parks” 	<ul style="list-style-type: none"> • “Unofficial” park and riders caused bus service to be removed from major mall • University eliminated parking lots and put in facilities • Student parking decreased • Informal parking lots have caused towns to establish neighborhood parking perm it system • One-third drop in parking tags on campus • There are “stealth park and ride” locations near established park and ride lots • University had six parking lots in their master plan and never built one 	<ul style="list-style-type: none"> • None (six agencies reported this) • Success in getting people out of their cars and parking all day • Greater use of transit for events where parking is at a premium • Town has not had to add any significant amount of parking since fare-free transit and TDM programs were established • Overflow parking affects residential neighborhoods • Recent charges for parking has resulted in less parking and more use of buses • Reduces “cruising” by those looking for parking spots

TABLE 19
WHAT ARE THE CHALLENGES ASSOCIATED WITH PROVIDING FARE-FREE TRANSIT?

Small Urban and Rural Systems Responses	University Community Systems Responses	Resort Community Systems Responses
<ul style="list-style-type: none"> • There are no challenges, it is all good (three agencies reported this) • Need to contract for school buses for supplemental service • Route deviation is provided in lieu of separate paratransit service • Public perception that charging fares would solve tight budgets (two agencies reported this) • The need to deal with increased vandalism, ridership, and operating costs • Securing support from elected bodies when budgets are tight • Accusations that riders are not “paying their own way” • Must provide free ADA service as well which increases costs • Funding 	<ul style="list-style-type: none"> • None • More demand than supply and difficulties of funding additional service • The number of riders is a challenge • Increase in ridership requires much more maintenance • Schedule adherence given the huge loads • Need for tight ADA eligibility determinations • Capacity is a concern (two agencies reported this) 	<ul style="list-style-type: none"> • Funding (six agencies reported this) • Fare-free attracts vagrants and suspended students • Sustainability in terms of funding and the need for a dedicated source of funds • What to do when budgets are being reduced and ridership is going up • Increasing system capacity as ridership continues to grow • Reduced services or shutdown due to lack of funding

Area Transit, Crested Butte, and Steamboat Springs); and how they believed their public transit service has a value-added impact in their communities. Park City Transit reported that fare-free transit has influenced new development with a “transit oriented mindset” that influences where employees and residents look for housing, thus increasing property values with proximity to bus routes. According to UMASS Transit and Breckenridge Free Ride, homes or apartments on the bus lines might not be worth more, but they tend to sell or rent more quickly. ApplCART reported significant infill development on its bus routes. CAT reported that a major development firm from Boston said it would invest \$25 million if the community provided transit to its development; otherwise, it would build elsewhere. Chapel Hill reported that the development review process of the town of Chapel

Hill emphasizes identifying ways that the development can support transit.

Challenges of Providing Fare-Free Service

As noted earlier, most communities in which fare-free public transit is provided support the fare policy, bus operators prefer it, and transit managers appreciate the beneficial effects on schedule adherence and marketing as well as the elimination of administration associated with collecting fares. However, this does not mean providers of fare-free service are worry-free. Question 26 asked “What are the challenges (anticipated or unanticipated) associated with your fare-free system?” The answers provided are in Table 19.

CASE STUDIES

INTRODUCTION

The synthesis survey results provide an overview of the major issues regarding fare-free public transit service as it is provided in 39 communities throughout the United States. After a review of all returned surveys, five agencies were chosen as case study sites. Personnel who provided thorough responses to the surveys agreed to be interviewed by telephone to offer further insights and information. The case studies provide more background and context in terms of the implementation and outcomes of the provision of fare-free transit in these communities.

The case study sites were selected with the following criteria: (1) include at least one example from each of the three categories of communities, small urban and rural, university-dominated, and resort; (2) include agencies from different states representing a geographic distribution throughout the United States; (3) include public transit agencies that had provided fare-free transit for various lengths of time; (4) include public transit agencies from different political environments; and (5) include one agency that has discontinued providing fare-free public transit after encountering financial and political challenges.

The case study sites are in five different states. The length of time they have provided fare-free service varies from a few months to 20 years. Two have conservative political environments, two have progressive political climates, and one has a very mixed political climate. The five agencies chosen provide a representative sample of the types of agencies that provide fare-free transit in the United States. All agreed to be the subject of case studies for this report. The information in the case studies comes from a combination of the responses to their returned surveys and follow-up phone calls and e-mails.

Figure 1 in chapter one shows the locations of each of the fare-free systems including the following five case study sites:

- Corvallis (Oregon) Transit System
- Cache Valley Transit District (Logan, Utah)
- Breckenridge (Colorado) Free Ride
- Advance Transit (Upper Valley of New Hampshire and Vermont)
- Link Transit (Chelan–Douglas Counties, Washington)

PUBLIC TRANSIT AGENCY THAT CONVERTED TO A FARE-FREE SYSTEM IN AN AREA WITH A STRONG UNIVERSITY PRESENCE

Corvallis Transit System

Agency and Community Background

The city of Corvallis is located in central western Oregon (Figure 2). It is the county seat of Benton County and the location of Oregon State University (OSU). As of the 2010 United States Census, the population was 54,462, including the 20,000 OSU students. Corvallis Transit System (CTS) is a small urban system owned and operated by the city of Corvallis that uses eleven 35-ft buses to carry approximately 2,100 passengers a day. Fare-free paratransit service is provided through contract by Benton County's Dial-A-Bus. CTS received revenues from Federal 5307 and JARC (Job Access and Reverse Commute program) 5316 sources through a state grant, fares (including group-pass programs), a direct contribution from OSU, local property taxes (the general fund share), rental of space on the buses for advertising, and revenue from the Oregon State Business Energy Tax Credit program.

OSU students account for 43% of the overall CTS ridership. OSU faculty and staff account for another 4% of ridership. Both of these groups were riding "fareless" through group-pass programs. The students were paying a small amount (\$2.76 per student per term) through their quarterly student fees for unrestricted use of the public transit system, and the university provided \$20,000 per year to CTS to allow faculty and staff to ride fare-free. The university was supportive of these group pass programs to help ease parking pressures on campus. Cash fares, coupons, individual bus passes, and group pass programs (that included a number of businesses) accounted for approximately \$330,000, or 14% of the agency's \$2.4 million operating budget. The base cash fare was \$0.75.

Corvallis has long been very progressive and supportive of public transportation and environmental and social initiatives. That environment was important to the process of the system becoming fare-free.

In 2008, the Corvallis Sustainability Coalition, a grass roots group of organizations and citizens, held a series of town hall meetings, attended by more than 500 citizens, to gather public input on how to make Corvallis an even



FIGURE 2 Corvallis Transit System, Oregon.

more sustainable community. The result was the Community Sustainability Action Plan, which listed more than 300 action items in 12 topic areas. Eventually, five action items were presented to the city council, one being to provide fare-free transit in the community. This was proposed to encourage increased ridership, reduce air and water pollution and greenhouse gas production, and to increase the availability and ease of transit service to seniors, youth, and low-income community members.

Funding Support for Fare-Free Service

To replace the lost farebox revenue, a small monthly transit fee of \$2.75 a month charged to Corvallis Utility residential customers was proposed. The fee would accomplish three things: replace farebox revenue; replace the amount of local general fund (property tax) that funded public transit; and add a small amount for system expansion. On a 5 to 4 vote, the city council supported the change for sustainability reasons, but also to reduce the competition for general fund dollars used for other critical city services including police, fire, library, and parks and recreation. There was consideration given to lowering the transit fee to the level where only the general fund component was being replaced, but it was ultimately decided to include the costs of replacing the passenger revenues and small expansion components to provide more service than what the citizens were already paying for in their property taxes. The new Transit Operations Fee also eliminated the \$2.76 quarterly student fee.

Fare-free transit began on February 1, 2011, and the new Transit Operations Fee began to appear on monthly city services bills. The fee paid ranged from \$2.75 for a single household to more than \$1,000 for a business. All passengers could now board fare-free without the need to show any kind of pass. Individuals were provided the opportunity to obtain a refund for previously purchased bus passes, coupons, and day passes. There were a few letters to the local newspaper objecting to the three new fees for transit, sidewalk maintenance, and street tree maintenance by people who thought

they were of no or little personal value. However, there has been no recognizable resistance or push-back to this new fee.

Operations and Security Issues

No employee positions were reduced as a result of going fare-free. Only one employee was required to take farebox revenue to the agency's financial institution, a task that took only a few hours per week. This employee was assigned additional non-transit duties to complete his work schedule.

Transit staff discussed the issues they would need to be prepared for, but did not complete a cost-benefit analysis. They anticipated an increase in ridership in the range of 20%–50%. They also anticipated issues with overuse of the system by the homeless (the buses becoming rolling homeless shelters) and individuals presenting behavioral challenges.

The results of the change to a fare-free system have been impressive. Ridership increased more than 24% the first month and 43% the second. Even though ridership has increased substantially, the buses have been able to stay on schedule more easily even with increased numbers of stops being made. The time for boarding has been reduced significantly.

CTS still requires people to enter the front door for a greater sense of control and safety. After two months, there was still sufficient capacity to handle the additional passengers. No passenger has been denied boarding as a result of inadequate capacity, but the agency is monitoring this carefully. No new service had been added at the time of this report, although the new fee produced \$75,000 (plus anticipated match) to increase service hours. CTS provides 30-minute service during peak hours and 60-minute service off-peak.

The staff identified a few other factors that might have contributed to the increases in ridership. Gas prices have gone up sharply in Oregon, as they have in other areas of the country. Coincidentally, the parking control for the customer free zone in downtown Corvallis went from an unlimited time to a three-hour limit. This was done totally separately from the transit fare change, and likely has little if any impact on transit use. OSU also has accepted more international students who might have more comfort using public transportation. However, CTS staff believes that the fare-free policy is clearly the reason for the vast majority of the increase in ridership.

Staffers have not yet had the opportunity to survey the riders to find out how many are new to the system and how many are veteran riders who are using it more. Anecdotally, they have seen and heard from new riders and claim they know previous riders are using the system more. No significant complaints have been received.

Nor has the agency experienced any new issues with members of the homeless community or increased behavioral issues

with teenagers; therefore, no additional supervision or security has been required. Operators were wary of the conversion to fare-free service before it was implemented. Management speaks with drivers on a daily basis and although there are always concerns, drivers have been pleasantly surprised that there has been no increase in incidents. CTS staff believes there might be two reasons that problems that have plagued other experiments have not surfaced in Corvallis. First, the city already had a group pass program that allowed the local school district middle and high school students to ride free by showing a valid ID. Hence, they were already riding fare-free and were aware of rules of behavior. Second, during the previous two years, the city allowed homeless men to travel from the downtown transit center to the cold weather shelter on a specific route once in the morning and once in the afternoon. Staff believes that since these two groups were already familiar with the code of conduct, the transition to fare-free service was smoother than in earlier fare-free demonstrations in places such as Denver, Trenton, and Austin. As a precaution, staff and the citizen's advisory commission have discussed putting a policy in place that would require the trip to be destination-based if this becomes a problem.

A portion of the system, the Philomath Connection (PC), had free two-way transfers and used the same fare structure as CTS. PC is a service connecting Corvallis and Philomath, and the bus and local match are provided by the city of Philomath. The PC did not go fare-free; therefore, although the transfer from the PC to CTS is still free, riders transferring from CTS to PC must pay the PC fare. The only other complication is that the fare for CTS Paratransit is also free. CTS's contractor had to set up the billing system to charge no fares for those rides as opposed to other rides provided to seniors and persons with disabilities, including paratransit rides in the PC service area.

Livability and Other Issues

The fare-free service is simply too new to have had the time to influence development in Corvallis. Anecdotally, CTS has received comments that riders appreciate the fare-free system and view it as a community livability factor, and others have commented that they see the positive impact this change has made in the contribution to making Corvallis even more livable. Staff is not aware of either positive or negative impacts on parking and no survey has been done.

Annual ridership for July 1, 2009 through June 30, 2010 was 700,791. For FY 2010 to 2011, ridership is projected to be more than 850,000, even though the fare-free program did not start until February 1, 2011. Ridership for the most recent month had increased to more than 100,000, leading staff to anticipate that ridership will increase to at least 1,200,000 in the next fiscal year, which would represent an increase of 71% in one year's time.

PUBLIC TRANSIT AGENCY THAT ESTABLISHED A FARE-FREE SYSTEM FROM INCEPTION WITH A STRONG UNIVERSITY PRESENCE

Cache Valley Transit District

Agency and Community Background

The Cache Valley Transit District (CVTD) is headquartered in Logan, Utah, and serves 11 municipalities in the Cache Valley, in the northern part of the state (Figure 3). Logan is the county seat of Cache County and the home of Utah State University. The population of the CVTD service area is approximately 80,000. The agency operates 36 vehicles of 35 ft and 40 ft length. CVTD operates a hub and spoke system with city routes that are designed to meet at the transit center every 30 minutes in a pulse fashion. Managers noted that the fare-free service definitely allows the buses to maintain schedules more effectively. They have significant ridership during peak times, which can make staying on time a challenge even with no one paying fares.

The fixed-route system carries 2 million passengers a year and enjoys a very productive rate of 39 passengers per hour. Students at Utah State account for approximately 45% of the total ridership. The system provides approximately 30,000 paratransit trips a year, which are also fare-free. Commuter service is provided that crosses the border with Idaho.

Funding Support for Fare-Free Service

CVTD is funded primarily through a 0.3% local option sales tax. It also receives 5311, 5307, and 5309 funds through FTA. Advertising on vehicles generates additional funds. Initially the sales tax was passed by only the voters in Logan City, and



FIGURE 3 Cache Valley Transit District, Utah.

the transit district was first created as a department of Logan City. In 2000, the voters in nine other cities and the county were allowed to vote on creating a regional transit district and passing the sales tax. This vote created the Cache Valley Transit District. From 2000 to 2007, CVTD contracted to have services provided by the Logan Transit District. In 2007, CVTD officially separated from Logan City and became a specialized service district or authority under Utah code.

The original policy board initiated the fare-free philosophy in 1992. The Cache Valley area is a very conservative community, and the original intent was to retain the fare-free policy for only the first year of operations. According to Transit Director Todd Beutler, the board at the time doubted that enough people would want to use public transit in such a conservative community, and believed that offering fare-free service would attract riders. Although only intended to be fare-free for one year, it remains so 19 years later. The voters of each community the district serves had to pass the local option sales tax to join the district and receive fare-free service.

The district board, now with 19 members, sets goals for management and then lets management determine how to best achieve those goals. The board's diversity results in goals that are broad and supported by all members, whether they are conservative, moderate, or progressive. The district board has adopted the following mission: "To offer innovative services that reduce dependency on the automobile." The agency believes that operating fare-free is an important tool to use to achieve this objective.

CVTD studies the fare-free issue in its short range transit plan every five years. In the last plan, completed in 2006, it was estimated that CVTD could lose up to 50% of its ridership if a fare was charged at a level to cover the costs of imposing the fare. A phone survey was conducted as part of the short-range plan. One of the survey's findings was that the primary reason non-riders did not use CVTD's services was because of the inconvenience associated with riding transit. The agency believes that imposing a fare would make using the system more inconvenient. If a fare were instituted, CVTD states that it would need to increase headways to allow extra time to collect fares. It would also need to create fare zones and transfers, prepare fare media, and gear up for all the activities associated with collecting fares. These are the primary reasons CVTD has chosen to remain fare-free.

Unless the board's goals change, staff anticipates that CVTD will remain fare-free. However, they will be studying the fare-free philosophy again this year in the Short Range Transit Plan. They want to make sure their current understanding of conditions and community attitudes are supportive of continuing the fare-free policy. If they are presented with information indicating conditions have changed and policies need to be reconsidered, it will be shared with the Board for discussion.

The staff believes that if any fare were to be charged, it would *not* be a minimal fare, which is sometimes used with the intent of keeping problem passengers from riding the service.

Operations and Security Issues

Transit managers report that they have a very respectful community, and undesirable passengers might represent only 2% of all riders. Indeed, in 2005 and 2007, Morgan Quitno, a research and publishing company based in Kansas that compiles statistics of crime rates, health care, education, and other categories and ranks cities and states, determined the Logan metropolitan area to be the safest in the United States (44).

In their response to the questionnaire, staffers provided considerable detail on how they deal with vagrants or disruptive passengers. Because this topic comes up quite frequently when the subject of free fares is discussed, it is worth providing their responses in this report. There are several passengers that will ride the buses to pass the time. Operators allow this so long as they are not causing problems. However, after one round trip, operators specifically ask them where they are going and put them on the appropriate bus or make them switch to another route. They are vigilant in making sure it is the passenger's behavior that is monitored (not just their presence) and the basis for any action they might take. The staff reported that not many individuals do this, and even some of the elderly like to get on and ride around to see the sights or visit with people, which operators do not mind. They view this as a quality of life issue and if passengers are being respectful, then they see no harm. A few years ago, CVTD suspended an elderly woman's riding privileges because she violated the agency's policy on round tripping. This incident made international news. The woman took the issue to court, claiming her rights were being violated, and the court cited CVTD. CVTD re-instated her riding privileges as soon as she agreed to abide by the conduct policy.

Although Cache Valley is considered to be a safe community, system managers, like agencies elsewhere, note that they have vandalism and disruptive behavior. The drivers have the authority to ask passengers to leave their bus and the agency allows them to make the initial determination on the length of time they should be denied boarding. Drivers can keep disruptive riders off for one trip or one day. If they want them kept off longer, they give the individual the card of a member of management and tell him/her to talk with the manager before riding again.

Item 30 in CVTD's conduct policy reads: "The General Manager will take a picture of the person which will be posted in the operations facility; this picture cannot be used for any other purpose than to inform CVTD representatives that the person's riding privileges have been suspended or restored."

The pictures allow the drivers to know which individuals to keep from boarding the bus. Most of the drivers already know the violators. The individuals know that if they try riding while they are suspended the punishment will be much greater than if they follow the process. Word spreads quickly about how they deal with individuals when they follow the process and when they do not.

Before an individual can have riding privileges restored, he/she must meet with CVTD staff, with a legal guardian if necessary. The proper behavior for riding the bus is explained, and the person must sign a contract promising to abide by the rules before having riding privileges restored. This meeting resolves most issues. If the individual cooperates, the time of revocation is brief, but if he/she does not, the policy is followed in full. Almost all individuals value the opportunity to ride and agree to cooperate. CVTD reported that it has only a few times had to keep someone off the bus for more than a month.

CVTD has a police substation inside its transit center with the logos of the county sheriff and the local police department prominently displayed. Law enforcement personnel have all the necessary equipment in the office to file reports. CVTD contracts with the sheriff's department to provide a deputy at the transit center for four hours each day during peak times. The deputy has CVTD's radio frequency, which enables bus operators to make direct contact with him/her if necessary. Most of the deputy's time is spent at the transit center, but he/she can board the buses if there is a problem or go to stops in his or her car. This has been reported to be a good partnership and helps CVTD maintain control.

CVTD instructs its supervisors and the sheriff's department that it prefers warning unruly passengers at least a couple of times before resorting to discipline because it wants people riding the bus. The CVTD manager emphasized that the agency does not want riders removed and wants them riding again as quickly as possible. CVTD believes it does not have larger problems because it treats all individuals with respect.

The use of security cameras allows CVTD to deal with vandals quickly and effectively, and word of this tends to spread. The agency repairs any vandalism immediately to demonstrate a zero tolerance for such behavior.

CVTD reports that its bus operators are highly supportive of the fare-free system.

Livability and Other Issues

CVTD's fare-free policy has been the source of political pressure on other nearby systems that have had to justify why they charge a fare when CVTD does not. Initially CVTD did not connect with any other systems. In 2006 it began providing service across the state border into another transit system. Recently that system started providing midday service

to CVTD's transit center. Because the morning and evening service CVTD provides to the system in Idaho is fare-free, the Idaho system elected to provide the midday service fare-free, even though this has resulted in lost revenues.

The fare-free policy has had no major impact on parking in cities but, not surprisingly, CVTD managers note that it has helped reduce the required parking at the university, which has been able to eliminate existing parking lots and build more facilities.

In terms of livability, the transit service has enabled more discussion of higher density housing. A county-wide planning process conducted in 2010 dealt with better land use planning and Transit-oriented Development (TOD) planning; however, the transit agency has not been able to determine if any new development has gone forward as a result of the availability of its service.

There is a vocal minority of non-riders that strongly believes a fare should be charged to ensure that riders are paying their "fair share." However, surveys conducted by CVTD revealed that passengers are very supportive of the fare-free policy, as is the majority of the population in the service area.

CVTD intends to expand the system as revenues allow to meet the growing needs of its community. The agency anticipates asking the voters for a second tier sales tax in the next few years to provide the funding necessary to meet the growing need.

FARE-FREE PUBLIC TRANSIT IN A RESORT COMMUNITY

Breckenridge Free Ride

Agency and Community Background

Breckenridge, Colorado, is one of many ski resort towns in the Rocky Mountain States that provides fare-free transit service (Figure 4). All the systems it connects with also provide



FIGURE 4 Breckenridge Free Ride Transit System, Colorado.

fare-free service. The permanent population of the town is 3,400, but the community is host to more than 50,000 visitors on busy weekends. The transit service the town provides called "Free Ride" is considered essential in the winter to manage this substantial increase in population. Thirteen buses of varying lengths are used to provide fixed-route service. The town contracts for complementary paratransit service, which is also provided fare-free. The system reports that it carried 669,208 passengers in 2009. Breckenridge is the most visited ski area in the country. The town is very environmentally oriented and pro-transit.

Free Ride is a complementary system to the one that is operated by the Breckenridge Ski Resort and the two separate transit systems coordinate their efforts. The public transit mission is to move the low-income job access commuters to and from work, encourage guests to park their cars for the entire day to eliminate all-day gridlock, move the overnight guests into town for the restaurants and nightlife, and provide convenient transportation for residents. The system is intended to enhance the guest experience, which in turn can make the difference in the choice people make to return to Breckenridge for another visit. As the Free Ride transit manager put it, "Everything we do is feeding the economic engine." She noted that public transit is seen as providing important value in the community.

From its inception, the town council decided to offer the service on a fare-free basis. Charging a nominal fare had been considered, but survey data and cost-recovery projections provided reasons for the system to stay fare-free. A consultant estimated the system would need to charge a minimum fare of \$1.00 to break even on the costs of fareboxes and other money-counting equipment and facilities, and for the on-going costs of administration (collections, counting, and accounting).

Free Ride carries a significant percentage of choice riders. Many of the trips taken on Free Ride are short, and surveys revealed that people would more likely move their car more often than have to pay a fare for multiple short trips. In addition, skiers often do not carry change or cash, which would pose a problem during the boarding process. Survey data indicated that there would be a 35% to 45% decrease in ridership if a fare were charged. The result would be far worse traffic congestion, streets that were not as safe, and a less attractive community to visit and live in.

Funding Support for Fare-Free Service

Transit service is funded through the town's general fund, which is supported through a sales tax, an accommodations tax, and real estate transfer taxes. Although none of these sources is dedicated to transit, there is a \$2 surcharge on the town's parking facilities that is directed to transit. This surcharge provided \$78,000 dollars in 2010, which is only a small portion of the \$2 million operating budget, but it does help to relieve some pressure on the general fund.

The biggest challenge the system faces is funding sustainability. Without a dedicated revenue stream, the system is described as "a big tap" on the general fund. When revenues decline, as they did during the recent recession, the agency has had to make hard choices about what services to scale back. There has never been any noticeable negative public comment from any elements of the community regarding the fare policy. Free Ride still carefully manages its costs and has scaled back summer operations in recent years in reaction to the downturn in the economy. The budget for Free Ride had been as high as \$2.8 million in 2007. The town is exploring alternative tax options with a partial dedication to support transit to take to the electorate at a future date.

Operations and Security Issues

Free Ride's Transit manager stated that its bus operators are very supportive of the fare-free policy and that they enjoy being ambassadors for the town. They have more time to answer guest questions than they would if they had to collect fares. It makes for a more positive experience when guests receive assistance and personal attention.

The fare-free system has also helped Free Ride to provide on-time service, except at some peak traffic days/times, but during those times bus service is no slower than the general traffic. The system has steadily gained ridership over the 14 years since its inception. The agency believes that people return to Breckenridge as a choice destination at least partially because of the convenience and positive experience they have with Free Ride.

Free Ride's Transit Use Policies and Guideline document prohibits loitering and riding without a destination. Buses also have on-board video surveillance technology. Through a zero-tolerance policy, drivers effectively eject anyone who is not complying with their use policy.

Free Ride's transit operators are empowered to have anyone violating system policies removed at the next bus stop. They are required to radio the supervisor where they left the individual. Supervisors provide support to the operators and have the difficult conversations with passengers who are offensive or disruptive. Law enforcement is called as a last resort, but is supportive. The individual is charged under local ordinance for "hindering public transportation," because the bus does not move until police respond. Hindering is the minimum charge; the individual might also be charged with disorderly conduct or other offenses.

The driver follows specific protocols, attempting to redirect the person's behavior twice. If after two attempts the rider is still being belligerent or not complying, the driver will ask him/her to disembark. If the person will not get off the bus, then dispatch is called. The supervisor and/or police respond depending on the situation. The agency prefers to

have clearly abusive people charged with hindering so it can seek a restraining order. The judge in town will only permit Free Ride to deny service to someone for a 24-hour period if operators or supervisors remove him/her from the bus. However, when police are involved and charge a passenger with a violation(s), a court order can deny service. The judge in Breckenridge has issued 90-day, 6-month, 1-year, and permanent suspension of bus privileges, depending on the transgression. The on-board video has been very helpful for such prosecution.

Local riders, particularly the low-income job access commuters, often help the driver because they know the bus will be stopped until a supervisor or police officer arrives. They will use peer pressure to persuade the passenger to stop because they do not want to be late for work.

Given Breckenridge's status as the highest-rated North American ski resort for nightlife, the actual number of incidents is fairly low (45). Nonetheless, the agency believes its policies have proven to be effective and feel very fortunate to have the support of the local police department and municipal court.

Livability and Other Issues

The managers of Free Ride take pride in the contributions its system makes to improve the environment and livability of Breckenridge. Between 1997 and 2010, they calculate that Free Ride has eliminated more than 1,730,557 pounds of carbon emissions. They also reported that there has been transit-oriented development that includes low-income housing, which is critical to provide in a service-based economy where the average cost of housing is well above \$500,000.

The following excerpts are taken from a Livability Grant application submitted by Breckenridge in 2010 that demonstrates the town's awareness of the significance of its transit services to improved livability:

The Free Ride Transit System is a fixed route, year-round transit service that services many transit dependent seasonal workers, local residents, and visitors to the community within the Town limits. The Town of Breckenridge has 3,407 full time residents based upon the 2000 Census. Maximum peak population can swell to more than 50,000 people on any given day during the peak winter season in the Upper Blue Basin. Providing transit service to job access commuters, local residents, and visitors partaking in the recreational activities to reduce traffic congestion and maintain livability in our small Town is the goal for the Free Ride Transit System. The Town of Breckenridge has made significant investments in both current and future affordable housing projects, which are transit oriented by design.

The Free Ride provides transit and walk-ability access to recreation, medical, educational, shopping, dining, affordable housing, residential neighborhoods, Main Street, and Town Hall. A parking spot in Breckenridge is the new kind of gold and the Free Ride makes it possible to keep the cars parked all day and get people to wherever they need to go, both free—without fare—and with easy convenience.

The Town of Breckenridge Free Ride Transit System hit an all time yearly high for ridership in 2008. The Free Ride provided 688,461 passengers with a free ride, which was a 19.7% increase in ridership over 2007. The carbon emissions vs. if the same people had driven their own cars, resulted in 202,336 pounds of carbon dioxide that were saved from our environment in 2008 because they took a Free Ride.

System ridership in 2009 declined by 2.8%. We had a very strong start to the year, with January 2009 being our all-time record monthly high ridership total of 154,624 passengers in a single month, and then our ridership was impacted by having to reduce service levels from mid-April through mid-December for budgetary reasons due to the economic climate. Free Ride Transit service in 2009 saved another 196,671 pounds of carbon dioxide from the environment in our community.

Free Ride's manager sums up livability by noting that Breckenridge has a quality of life that is unsurpassed, with year-round recreational opportunities where people can live, work, and play in one of the most beautiful and natural places in the world. The community is committed to being green and sustainable on behalf of its residents, employees, and visitors and it understands the value of fare-free transit and livability to its own economic competitiveness.

Another interesting bit of information provided by the transit manager (and that was also noted by other fare-free transit communities in resort areas and university towns) was that homes with transit access might not have more value than homes without, but they tend to sell faster. Rental units with direct transit access also have fewer vacancies and rent more quickly than rental units without such access.

FARE-FREE PUBLIC TRANSIT IN A SMALL URBAN/RURAL COMMUNITY

Advance Transit, Upper Valley of New Hampshire and Vermont

Agency and Community Background

Advance Transit (AT) is a private nonprofit organization providing service to six towns in two states, Vermont and New Hampshire (Figure 5). The population of the service area is approximately 38,000. Hanover, New Hampshire, is the home of Dartmouth College. In 2010, the agency provided 850,000 free trips, including paratransit trips, with 30 vehicles. The political environment varies widely, with a mixture of conservative and progressive philosophies, although it was not a factor in the establishment of fare-free service. The area is also generally supportive of environmental goals. In 2007, CNN and *Money* magazine rated Hanover the second-best place to live in America (43).

In the middle of the 1980s, the town of Hanover started a shuttle funded jointly by the town, the Dartmouth Hitchcock Medical Center, and Dartmouth College. These park-and-ride shuttles were fare-free and designed to encourage people to avoid bringing their cars to the major traffic generators



FIGURE 5 Advance Transit, Upper Valley of New Hampshire and Vermont.

of the college and medical center, which were very close to each other at the time. In the early 1990s, the medical center moved approximately six miles south of the college. A new type of service was needed, and AT became the provider. AT had been a provider of fixed-route service that charged traditional fares since its inception in 1984. In 1994, a fare-free zone between Hanover and the Dartmouth Hitchcock Medical Center was established with some revenues from Dartmouth College and the medical center to support the cost of the service. Between September 2000 and January 2002, AT eliminated fares throughout its system in three phases; since January 2002, AT has been totally fare-free. A major goal of

the agency and community was to discourage automobile use and reduce carbon emissions. A complementary motivating factor for this initiative was to reduce parking demand and the eventual need for a major capital expenditure for parking facility construction. Through efforts initiated by AT's executive director, the agency was able to institute its fare-free system in part because there were sufficient revenues from other sources to cover its match requirements.

Funding Support for Fare-Free Service

Advance Transit's operations are funded through a diverse range of federal, state of New Hampshire, state of Vermont, and local funds, including contributions from municipalities and major community institutions as well as emerging philanthropies and broad-based community sponsorship. AT generates approximately \$40,000 annually through over a dozen sponsorship contracts. Among rural transit programs in the nation, Advance Transit has developed one of the most innovative and diversified funding packages to support its operations (10) (Table 20).

The amount of revenue AT had collected through the fare-box did not change much between 1984 and 2002, but shrank as a percentage of total revenue from 10% to about 3%. The initial commitment to operate fare-free was for a two-year trial period based on the major contributions made by the college and the medical center, with little analysis involved. Given its track record of creative partnerships, AT believed it would be able to replace the lost revenues with other contributions. Fare-free transit was also considered to be more attractive and effective than modest fares in order to encourage people to use their cars less.

TABLE 20
ADVANCE TRANSIT REVENUE SOURCES (JUNE 2008)

Source of Funds	Amount of Funds
Federal Section 5311 from State of New Hampshire	\$1,497,509
Federal Section 5311 from State of Vermont	180,688
State Funding from New Hampshire	34,000
State Funding from Vermont	135,403
Municipal Contributions	338,695
Institutional Contributions	762,381
Dartmouth Hanover Shuttles	359,608
Rideshare	82,920
RTAP	7,000
Philanthropy/Other	135,500
Total	\$3,352,705

AT's executive director reported that the funding environment is challenging, but the economic climate has traditionally been relatively healthy. Maintaining the fare-free policy has required study, continuous explanation, justification, and political support from advocates. Some officials question why municipalities are asked to contribute when passengers pay no fares. In the past four years, a new fundraising program has attracted a thousand new donors and sponsors generating more than \$100,000 annually.

Operations and Security Issues

Originally, a fare-free zone was established between the college, medical center, and downtown Hanover without a dramatic increase in ridership. Ridership began to increase as service planning improved, with more frequent and direct service, and then rose more sharply as the system-wide fare-free policy was implemented.

AT has a broad range of demographics among its riders. It has had a few incidents with teenagers or the homeless, but not so many that it has reconsidered changing its fare-free policy. The agency reports no more evidence of a lack of respect toward drivers or incidents of rowdiness than might be expected in a public transit system that charges fares.

The system bus operators and the administrative staff all appreciate the fare-free policy. Increased boarding activity slows the bus, but boarding time per passenger is reduced. Ridership has grown to the point that current schedules could not be met without this policy. However, the system cannot handle many more passengers within existing budgets and headways. The executive director notes that while passengers universally prefer riding free to paying a fare, some believe that paying a fare might increase the financial viability of the service and have indicated a willingness to pay. Many riders contribute to annual fundraising campaigns.

As a non-direct recipient of federal funds, AT did not provide complementary paratransit service prior to 2007. At that time, however, it was determined that the agency was required to implement it. By law, 100% of the demand for service by those that qualify must be met regardless of cost. Because a fare is not charged on fixed-route service, it cannot be charged on ADA paratransit service either. Fare-free paratransit is attractive but much more costly to provide. The large growth in fixed-route ridership has placed pressure on transit schedules and increased demand for improvements such as bus stop amenities. The increased volume of riders results in more cigarette butts and trash at bus stops, which has generated complaints from property owners, both public and private.

AT has added one administrative position and additional drivers for added ADA service. On the fixed-route side, it has three times as many riders as before the fare-free policy took effect with no additional administrative positions.

Livability and Other Issues

Passenger surveys indicate that in 2008 more than 50% of transit passengers had a car available for their trip. Ten years before that the figure was 25%. During that time frame ridership tripled, indicating that the agency has succeeded in persuading people to leave their cars at home and take the bus.

The fare-free policy has lessened the need for parking, although some businesses that offer free parking have occasionally complained about people parking their cars at their properties and taking the bus.

According to an impact study by Vital Communities completed in 2005, it was calculated that AT service contributed to an annual reduction in airborne pollutants of five tons based on ridership at the time (10). An updated air quality analysis is being conducted by the regional planning commission and will be completed in 2011. The net reduction in air borne pollutants is expected to be significantly greater owing to lower emissions buses and higher ridership.

Livability is considered a subjective term by many, but AT's executive director would consider the reductions in air pollutants a factor that improves livability. Another is the ease and affordability for low-income users and developmentally disabled users that find fare-free transit easier on their incomes and their ability to navigate the system. Despite the growth of choice transit riders, more than 100 individuals have reported reliance on transit service to commute to and from work. It cannot be quantified what that number might have been if fares were in effect.

AT reported that real estate listings and rental housing listings always mention if they are on the bus line. Very recently, a private developer with experience in transit-oriented development approached AT with a proposal to build a mixed-use development that would include a new transit hub, and community meetings are being conducted to receive input on the proposal.

In October 2008, CTAA completed a report entitled *An Analysis of the Impacts of Introducing a Fare for Riders of Advance Transit* (10). This analysis carefully considered the loss in ridership that could occur under different fare levels and the new expenses the agency would incur to collect and account for fares. It also identified other impacts on air pollution, access by low-income riders, traffic congestion around the major employers, and the need for more parking, but did not make a recommendation. The summary of the report's findings is provided here:

- AT ridership is currently at record high levels.
- Nationally transit ridership is also at record high levels.
- AT's fuel costs have escalated significantly, with budgeted fuel costs for 2009 double that of 2008.

- Public transit programs are not self-sustaining through fares.
- Removal of fares in 2000–2002 resulted in approximately 32% more riders.
- Introduction of a \$1 fare would reduce ridership by approximately 30% or by 62,400 riders annually.
- Introduction of a \$1 fare would generate \$145,600 in new revenue.
- Some transit services might continue to be fare-free.
- The annual operating cost of a fare system would be approximately \$53,350.
- The initial capital cost of a fare system would be approximately \$441,450.
- The public may recognize that higher fuel costs can justify imposition of a fare.
- The current economic climate is not conducive to increasing costs for public services.

It was decided to continue to operate fare-free after analyzing all the potential impacts. However, this position has to be defended every year before local city/town councils that contribute to AT. With increasing fuel and ADA costs, combined with stagnating or shrinking revenues from local, state, and federal governments, as well as soaring demand resulting from rising fuel prices, fares may become necessary. AT managers are exploring high-tech fare systems such as contactless card readers and other technologies that would minimize boarding times and provide maximum opportunity for third-party billings.

A COMMUNITY THAT DISCONTINUED ITS FARE-FREE PUBLIC TRANSIT SERVICE

Link Transit, Washington State

Agency and Community Background

Link Transit is located in central Washington State, serving Douglas and Chelan counties (Figure 6). It serves a rural population of 105,000 spread over an area of 3,500 square miles. The agency has an annual budget of \$11 million, sup-



FIGURE 6 Link Transit, Washington.

porting the operation of 55 buses and 22 paratransit vehicles, many of which are cutaways and minivans. Approximately 70% of its revenue is provided through a sales tax and 20% from grants. Only 6% of its total revenue is generated from the farebox. Given its very large service area, Link Transit provides a substantial route deviation service and some commuter express service. It is a relatively conservative area, with a few significant recreation resorts providing the most sizeable employment opportunities.

Funding Support for Fare-Free Transit

Link Transit was created as a Public Transportation Benefit Area in 1989. The champion for creating the agency was Mayor Tom Green, who also advocated for the establishment of a fare-free system. To pay for the system, a sales tax of 0.4% was proposed. This would be added to revenues that were collectable from the state motor vehicle excise tax. At that time, revenues from the tax excise were provided primarily to transit agencies throughout the state. However, because there was no transit agency at that time serving Douglas and Chelan counties, they did not take advantage of any revenues that their own citizens were paying when they purchased private vehicles. Link Transit's managers reported that the marketing strategy for passing the referendum to create Link Transit was, in essence, "Vote for transit—you're already paying for it." Perhaps the more accurate phrase would have been "you are already paying for most of it." To be able to provide a fare-free system, the additional 0.4% sales tax was included in the referendum. If passed, it would support a system that would help link the various small cities in this large rural area, giving people new mobility options and providing hospitality workers in particular a very affordable way to get to work. It would be pre-paid and anyone would be able to board without paying a fare or showing any ID. Voters approved the referendum creating the Public Transportation Benefit Area and the additional local sales tax by a relatively narrow margin of 53% to 47%.

The advocates for the system did not do a detailed cost-benefit analysis of establishing a fare-free system. They believed that revenues from the state excise tax, the local sales tax, and federal and state grants would be sufficient to operate the system without the need for farebox revenue. They were correct, and Link Transit operated as a fare-free system quite comfortably until 1999. In that year, citizens throughout the state voted to eliminate the motor vehicle excise tax. That vote hit every transit agency in the state very hard. In Link Transit's case, it resulted in a loss of 45% of its operating revenue. This loss of revenue resulted in a concomitant 45% reduction in service.

Operations and Security Issues

To deal with this devastating impact on its budget, the board of Link Transit saw charging fares as one of the few options available to them to help sustain as much service as possible. In the year 2000, the agency performed an analysis of

whether it would collect more in fares than it would spend on new equipment, facilities, personnel, and services associated with the fare collection function. It found it could absorb the hours required to count fares with existing staff. Link Transit chose to rotate employees assigned to this task from among extraboard operators, maintenance staff, and IT personnel. A variety of employees was used to prevent any one person from becoming so familiar with the process that he/she might devise ways to steal collected cash without being detected. A local bank gave the agency a coin roller to help ease the process of counting fares. A decision was made to purchase basic fare-boxes for the 50 buses at a cost of only \$1,600 apiece. By keeping costs associated with collecting and counting money very low, Link Transit was convinced that it would be economically beneficial to collect fares which, they started to do in 2001.

Many of the residents in the rural service area are quite conservative, and had never completely embraced offering fare-free transit. The margin of victory in the initial referendum was small, and given the need to generate revenue, most residents considered charging people for direct services completely appropriate.

Among passengers most affected by the new base fare of \$1 were Hispanic service workers who often traveled with children. Before the institution of a fare, the entire family could ride free. Once the fare was implemented, their cost of traveling was suddenly substantially higher. It also particularly affected seniors on fixed incomes and disabled passengers who had received free paratransit service, but now had to pay for each ride.

According to system managers, one of the few silver linings of this dramatic change was a decrease in complaints about “gang-like” and homeless passengers. Some individuals suspected there was drug trafficking on the buses, and although it might appear that those dealing in drugs could afford a \$1 fare, there is a general feeling that this sort of activity, as well as vandalism, has greatly diminished.

Passenger fares now account for almost \$650,000 of the \$11 million annual budget. Although that represents only 6% of the budget, and some relatively small expenses could be eliminated if the system was fare-free, there has been no champion to reinstitute a fare-free policy.

CONCLUSIONS

INTRODUCTION

This chapter summarizes key findings, presents conclusions from this synthesis project, and offers areas for future study. The literature review, surveys, and case studies all provided valuable information for a better understanding of the implementation and outcomes of fare-free public transportation. In short, fare-free transit has gone from being problematic in prior demonstrations to being a problem-solver in the right locations. The chapter is organized in four sections:

- Knowledge gained from past fare-free demonstrations and feasibility studies
- Conditions for implementing fare-free public transit and where it is most likely to succeed
- Outcomes of providing fare-free public transit
- Areas of future study.

KNOWLEDGE GAINED FROM PAST FARE-FREE DEMONSTRATIONS AND FEASIBILITY STUDIES

- Fare-free transit was implemented in the United States in the 1960s and early 1970s in a few small urban communities such as Commerce, California, and East Chicago, Indiana, where it has been popular and is still in place almost 50 years later. These communities proved to be the exception, as nearly all other public transit agencies charged fares.
- In the late 1970s, the Urban Mass Transit Administration funded demonstrations in the larger urban communities of Mercer County, New Jersey (Trenton area), and Denver, Colorado. These one-year demonstrations provided fare-free transit during off-peak hours and resulted in increases in ridership of between 25% and 48%. These demonstrations also produced overcrowded buses, less reliable schedule adherence, more disruptive passengers, and driver complaints. The demonstration projects were discontinued after a year, concluding that pricing strategies might achieve less substantial but still meaningful ridership increases without the negative consequences noted earlier.
- Shorter-term experiments in a variety of cities that were designed with the intent to market the public transit system also enjoyed ridership increases in the short term ranging from 13% in Salt Lake City to 86% in Topeka, Kansas. These marketing experiments were usually credited with helping build modest long-term gains in ridership

once the experiments were completed. The most recent short-term experiments were for 90 days in Asheville, North Carolina, in 2006 and for seven months in 2007 in Milton, Canada. Both enjoyed ridership increases of approximately 60%, although they also experienced reduced schedule reliability and some overcrowding. They accomplished the goal of marketing their service and retained modest increases in ridership once the experiment ended. Topeka, Asheville, and Milton are all communities with populations of less than 100,000.

- A 15-month totally fare-free demonstration in Austin, Texas, was conducted in 1989–1990. Ridership increased as much as 70%; however, the transit system was reported to have experienced significant issues with overcrowded buses, disruptive passengers, and unhappy bus operators. The demonstration dampened interest in fare-free transit for a number of years in large urban areas.
- Since 1999, a number of cities including Eugene, Oregon; San Francisco, California; Portland, Oregon; and Hamilton, Canada, have seriously reviewed the feasibility of implementing a fare-free policy. The previous demonstrations and experiments allowed them to realize the need to plan for more capacity, security, and maintenance. Quality of service and travel time savings have been shown to be more important to choice riders than a reduction in fares. However, the fundamental reason these systems could not implement fare-free service was the lack of a source of revenue to replace the substantial amount collected in fares. They have concluded that the amount of revenue that would be required to not only replace fares, but to also pay for the extra service, equipment, and facilities to meet increased demand, is an amount that exceeds the political will of their leaders or communities to accomplish.

CONDITIONS FOR IMPLEMENTING FARE-FREE PUBLIC TRANSIT AND WHERE IT IS MOST LIKELY TO SUCCEED

- Although transit systems in larger communities shied away from implementing fare-free transit after the Austin, Texas, experiment, the concept took hold in many smaller communities throughout the country shortly thereafter. Smaller systems tended to have smaller total fare revenues to replace, and in many cases the cost of collecting fares was often almost as great as, or greater than, the fares being collected.

- The 39 public transit systems identified in this report that currently offer fare-free service in the United States are all located in one of three categories of communities: (1) small urban and rural communities, (2) university-dominated communities, and (3) resort communities. The same holds true for fare-free systems in Europe and China.
- Smaller public transit systems often have relatively low ridership and available capacity. Increases in ridership of 100% or more can usually be accommodated with existing capacity. The reduction in the average time of boarding resulting from the elimination of the fare usually allows fare-free systems to maintain schedules even with substantial increases in ridership and boardings.
- The political philosophy (conservative, progressive, or mixed) prevalent in a community does not determine whether fare-free service will be provided. The major factors are the internal business case that can be made for eliminating the fare collection process and the external business case of providing a service that will help the local economy or improve the sustainability and livability of a community.
- Champions/initiators of fare-free transit include mayors, city councils, public transit general managers, community sustainability coalitions, transit advisory boards, Native American tribal councils, developers, and park managers. Sponsoring agencies have included city and county councils, regional transit authorities, Native American tribes, and nonprofit agencies.
- Some small transit systems can sometimes earn more revenue by eliminating fares, which increases ridership, which in turn increases state and federal funding they receive through formula programs that take ridership into account. Care needs to be taken to balance any additional revenues against the potential of additional costs if ridership increases so much that additional vehicles and operators are required.
- University communities want to use limited campus space for buildings and facilities other than parking garages and consequently are very open to offering fare-free transit and remote parking as an acceptable alternative to providing facilities for more automobiles on campus. It is also compatible with their sustainability goals and desire to improve safety on campus. Fare-free transit allows boarding through all doors, helping to speed the boarding process when there are crush loads of students.
- Resort communities experience enormous surges in population during high season and offer fare-free service to encourage people to park their cars and use transit for the majority of their trips. This helps to reduce the amount of traffic congestion and cruising that occurs on their roads. Fare-free transit allows crush-loads of skiers to board through both doors without the need for them to find change while wearing ski outfits.
- Even though at least 39 public transit agencies offer fare-free service in the United States, all of them are in

communities of less than 175,000 people. Chapel Hill Transit is the largest fare-free agency in the world, with 98 buses carrying 7.5 million passengers a year.

OUTCOMES OF PROVIDING FARE-FREE PUBLIC TRANSIT

- Synthesis results indicate that ridership has always increased significantly when fare-free transit is offered. Reported increases ranged from 21% in Boone, North Carolina, to more than 200% in Hawaii and Macomb, Illinois. Substantially higher increases of more than 1,000% have been experienced in Europe and China. Ridership has increased very quickly in many instances, with increases of as much as 60% within two months. The disproportionate increases in ridership beyond what typical elasticity formulas would predict might be attributable to the psychological barriers that are removed when fares are no longer required. Public transit agencies that consider offering fare-free service need to be prepared to respond quickly to increases in demand to avoid the degradation of the quality of service, negative media coverage, and the potential loss of long-time passengers.
- Although public subsidy and sometimes total cost may increase, the subsidy per passenger drops significantly. The effectiveness and productivity of the public investment in transit is enhanced.
- Public transit agencies with fare-free policies tend to experience a few more “problem passengers”; however, in the vast majority of cases, it is not a problem that seriously affects passenger satisfaction or community acceptance. Agencies can help minimize the problem with enforced codes of conduct, video surveillance, active supervision, cooperative relationships with local law enforcement and the court system, and passenger support.
- Fare-free systems have enjoyed a reduction in the expenses and administrative functions associated with fare collection. Charging even a nominal fare to avoid issues dealing with “problem passengers” could reduce ridership substantially and might not cover the costs of fare collection.
- As opposed to the earlier fare-free experiments in Trenton, Denver, and Austin, bus operators are reported to be very supportive of fare-free policies in almost all locations where they now exist. Although they might have to contend with a few more “problem passengers,” they regard that as a fair tradeoff for not having to deal with fares and fare disputes. Vehicle operators often serve as better ambassadors for the system and the community when they do not have to collect and enforce fares, and can spend more time answering passengers’ questions and focusing on safe bus operation.
- Fare-free policies generally result in more efficient operations because of the opportunity for passengers to board through all doors and the elimination of the fare collection process. These time savings are sometimes countered by the increased number of passengers boarding

and the more frequent stops buses need to make. However, many ski resort towns and universities carry crush loads and would find it impossible to keep current schedules if they were not fare-free.

- Resort communities in particular recognize the positive economic contributions fare-free transit makes in their communities. It helps make visitors' experiences more pleasant, reduces traffic/cruising/parking requirements, improves safety on the roads by offering an attractive option for people who like to party after skiing, and provides affordable transportation to a service workforce that often lives far from the resorts.
- Public transit agencies in small urban and rural communities cite the significant benefits fare-free service offers to students, seniors, and lower-income residents. In both small urban and rural communities, local property owners are able to promote their locations as "being on the free bus line." Transit managers reported that more people want to retire in communities with fare-free public transit. Universities have been able to minimize their investments in parking facilities when fare-free transit is offered, enabling them to build more teaching facilities and dormitories. University communities also noted that fare-free transit provides a measure of equity to nonstudent residents who are usually lower-income and would be the only ones needing to pay a fare when they board.
- Transit agencies offering fare-free service have expressed pride in their contributions to livability and environmental objectives no matter what type of community they serve. Many have documented the amount of carbon that has been eliminated and take credit for cleaner air, reduced traffic congestion, and less dependence on gasoline and autos.
- The elimination of fares essentially places transit in the same category of services as schools, libraries, and most community parks. Although these services are paid for with community taxes, people usually do not pay a service charge to use them. They are regarded as essential elements of what a community deems important and why it is worth living in. Removing the fare requirements of transit democratizes the service, making it equally available to everyone regardless of income, to use as often as they like. If properly funded and maintained, the image of the buses change from being the clunky transportation choice of last resort to the service that connects all elements of the community and provides equal opportunity to access all that a community offers.
- Fare-free transit has been a source of community bonding and pride that also has helped local communities earn positive recognition. A number of communities offering fare-free transit have received state and national awards as "best places to live." Fare-free service is reported to help bridge the divides that exist in "town and gown" communities.
- Although fare-free transit is very popular where it is provided, many managers of such systems are concerned that there will be pressure to consider implementing fares as the national economy continues to

sputter and revenues at the local level are more difficult to secure. They also note that fare-free ADA service must also be provided, putting additional pressure on their ability to stay within their budgets.

- Transit managers noted the importance of taking the time to educate their passengers, the community, the media, elected officials, and law enforcement officials (including judges) about the program. They also noted the importance of meeting with their own employees to discuss the program in depth and explain all the goals in an effort to get their insights and concerns, as well as their buy-in and support to help the program succeed.

AREAS OF FUTURE STUDY

Based on information collected for this report, the following items are offered for future study:

- Fare-free public transit is of particular benefit to lower-income passengers. However, most transit systems that charge fares cannot or will not identify alternative sources of funding to allow them to offer fare-free service. Absent the implementation of fare-free service, how can public transit be made more affordable to low-income individuals? What have any public transit agencies done to reduce the cost for the most financially needy in their communities?
- Totally fare-free systems are surprisingly rare in university-dominated communities. There are often separate transit agencies for the universities that operate fare-free and for the surrounding communities that do not. In the rare cases where there are single operating agencies that offer fare-free service to everyone in the community, there has been tremendous acceptance and success. These communities usually are judged among the most attractive and livable communities in the United States. Additional research on why consolidation of public transit service is not happening in more communities might increase efforts to provide fare-free service in more communities of this nature.
- One of the arguments advocates of fare-free public transit use is that it will introduce young people to public transit and make them more likely to use the service as adults. Long-term studies that follow the travel habits of young people who have used services available in communities where all public transit is fare-free could help determine just how valid that theory is and possibly provide another reason for communities to implement the policy.
- The Simpson-Curtin elasticity model does not apply when it comes to reducing fares to zero. Ridership increases of 200% and more have resulted when fare-free service is introduced. Given the experience gained from more than three dozen public transit agencies providing fare-free service, the rising cost of gasoline, and the possibility of higher unemployment and under-employment being the "new normal," it would

be beneficial to study the appropriate elasticity for fare-free public transit service.

- This report covers what a few public transit agencies have done to deal with “problem passengers” such as school truants, drug addicts, alcoholics, and the homeless. Since this issue affects all public transit agencies, not just fare-free systems, additional research on the most effective ways to deal with these kinds of passengers would be helpful to the entire industry.
- Agencies responding to this survey provided anecdotal information on the economic benefits of fare-free public transit. A more detailed study of the economic impacts of fare-free transit might help communities determine if it is a policy they would like to adopt. Similarly, a more in-depth study that quantifies the social benefits of fare-free public transit would be helpful to those who establish policy that effects transportation funding.
- Major public transit capital investments costing hundreds of millions, if not billions, of dollars are often proposed in communities to help increase ridership. This report has shown how implementing fare-free

transit has resulted in substantial increases in ridership at relatively low cost. A comparison of the costs and benefits of providing fare-free transit with minimal investments to the costs and benefits of a major transit investment would help demonstrate if fare-free transit should be considered as a legitimate alternative when local, state, and federal agencies are weighing major public transit investments, especially during times of reduced federal and state funding.

- As this report has documented, fare-free transit has the potential to attract many new riders. More in-depth case studies could examine what impact this increased transit ridership has on traffic congestion and safety. Additional research could also be conducted to quantify the environmental, health, and livability benefits of fare-free transit.
- Additional research could be done on specific case studies to examine the travel time impacts from faster boardings and reduced dwell times measured against the increased boardings and additional stops associated with fare-free transit service.

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APPENDIX A

Questionnaire/Survey Instrument

The following questionnaire was sent to 45 public transit agencies in the United States, two of which no longer provide fare-free transit and four of which were found to not meet the criteria of fare-free public transit.

QUESTIONNAIRE/INTERVIEW QUESTIONS— THE IMPLEMENTATION AND OUTCOMES OF FARE-FREE TRANSIT SYSTEMS— TCRP PROJECT SA-26

1. Why was a fare-free system considered or implemented versus one with fares?
2. Who was the major initiator of this policy (policy board, general manager, other elected officials, advisory board, community groups, etc.)?
3. Did you consider a nominal fare (e.g., \$.25 or \$.50) instead of charging no fare? If so, what were your reasons for not doing that?
4. What was the institutional structure of the transit agency (e.g., authority, county/city agency, PTBA), and how would you describe the policy-making environment of the community (e.g., conservative, progressive, environmentally oriented, etc.)? Was that environment significant in deciding to go fare-free?
5. Was there a major generator of riders from a single source in the community prior to establishing a fare-free service, such as a university or major employer, that might have made fare-free a logical choice based on their ridership or willingness to help pay for the service?
6. If fare-free policies were considered but not implemented, what were the reasons for not implementing?
7. If you had a fare prior to instituting fare-free service, what percentage of total agency revenue was generated by the fare box?
8. Was a cost-benefit analysis done, or a “pros and cons” analysis (e.g., comparing the cost savings of eliminating fare box repair and accounting for revenue versus the expense of lost revenue, additional operating and maintenance expenses to handle increased ridership, or additional security expenses to deal with potential issues with new riders if fare-free service was established)?
9. Did the agency make a fairly accurate estimate or projection of the impacts on total ridership and any new expenses that would be incurred?
10. Were there any technical or political (or any other) implementation issues to deal with?
11. Were there any issues with dealing with transfers to and from other transit agencies (did other systems lose revenue as a result of you going fare-free)?
12. What is/was the funding environment for transit in the community? What are the funding sources for the transit system and did those sources change with the institution of fare-free service?
13. If you never had a fare and have always been fare-free, do you have any estimate of what instituting a modest fare would do to your ridership?
14. What was the nature of the ridership before and after a fare-free system was established (age, income, racial composition, students, etc.)? What changes did you notice, if any?
15. What were the intended/expected and actual outcomes of offering fare-free service?
16. Did the implementation of fare-free service impact parking in any way, positive or negative (e.g., less parking facilities needed or unanticipated parking problems due to people parking in neighborhoods and then using free transit for the remainder of their trips)?
17. Did fare-free transit cause any increase in development or an influx of residents or employment or change in property values?
18. Can you attribute any advances in “livability” to the fare-free service?
19. Have you been able to quantify any of the benefits to your community due to fare-free service (e.g., reduced congestion, pollution, gas usage, etc.)?
20. What have been the benefits (intentional or unintended) of a fare-free system?
21. A typical concern with free-fare systems is that there might be rowdy teenagers or vagrants who use the buses to the discomfort of other riders. Have you had to put more resources into supervision or security as a result? Do you have policies that prohibit loitering or round-tripping? If so, what ordinances did you pass and can you share that ordinance?
22. Some people think that when no price is charged for a service, that the service has less value and treat it with less respect. Have you detected any evidence of that (increased vandalism, lack of respect to operators, rowdiness, etc.)?
23. Have you conducted surveys of your riders’ pre- and post fare-free service? Do you know your passengers’ opinions on fare-free service in terms of their satisfaction with the quality of the experience of using the free service?
24. Have your operators embraced the free-fare system, or do they note any difficulties?
25. Do you think that fare-free service has allowed your buses to stay on schedule more easily due to reduced dwell time, or does additional ridership cause the bus to operate more slowly?
26. What are the challenges (anticipated or unanticipated) associated with your free-fare transit system?
27. If ridership increased after the institution of fare-free service, have you done surveys of passengers that would help you determine if the increased ridership has been due to the same passengers riding more, or did the free fares attract truly new riders?
28. Did you have to lay off any employees as a result of going fare-free (such as fare box technicians or money counters), or were they reassigned to other positions?
29. What was the internal business case for operating fare-free?
30. What was the external business case for operating fare-free?
31. Assuming ridership increased, what types of changes did the transit agency or other entities make concurrently and post-fare elimination that might have also affected total ridership (e.g., reduced or higher-priced parking, new employment generators, increases in university enrollment, a sharp increase in gas prices, etc.)?
32. If the free-fare system was discontinued, why and how was it discontinued?
33. What evaluations were conducted (if any) after the fare-free system was implemented (or discontinued)? Can you provide a copy of any white papers or analyses that were written?

34. Have you ever had significant complaints from any element of the community that led to reconsideration of the fare-free system? For instance, some people say if the service is not important enough for the users to pay for, why should others pay?

Can you also provide some fundamental statistics about your agency and your community?

Population of the service area: _____

Number and type of buses in your system: _____

Annual ridership: _____

Average daily ridership: _____

Passengers per hour: _____

Passengers per mile: _____

Paratransit service provided (and is it also free?): _____

APPENDIX B

Contact Information for Public Transit Systems That Have Implemented Totally Fare-Free Policies

This synthesis represents the first comprehensive attempt to identify those transit systems that currently utilize, or at one time utilized, a fare-free policy. A report completed for the city of San Francisco in 2008 could identify only six public transit systems that operated on a fare-free basis (8). A few of the transit managers of fare-free systems indicated that they thought they were the only transit agency in the country providing fare-free service. It is hoped that this listing will help them communicate to their mutual benefit, and make it easier for others who are considering implementing fare-free service to contact them for more information on their experiences. Information for those systems identified in the course of preparing this report is provided below, in alphabetical order:

1. Advance Transit—Hanover, New Hampshire/Wilder, Vermont <http://www.advancetransit.com/index.htm>
2. ApplCART—Watauga County, Boone, North Carolina http://appalcart.com/contact_us.html
3. Asheville Transit System—North Carolina (experimented in 2006) http://ashevillenc.gov/residents/transportation/city_bus/default.aspx?id=19446
4. Aspen Shuttles—Aspen, Colorado <http://www.aspenpitkin.com/Departments/Transportation/Free-Aspen-Shuttles/>
5. Atomic City Transit—Los Alamos County, New Mexico <http://www.losalamosnm.us/transit/Pages/default.aspx>
6. Breckenridge Free Ride—Town of Breckenridge, Colorado <http://www.townofbreckenridge.com/index.aspx?page=943>
7. Cache Valley Transit District—Logan, Utah <http://www.cvtdbus.org/index.php>
8. Canby Area Transit—Canby, Oregon <http://www.ci.canby.or.us/transportation/CAThomepage.htm>
9. Chapel Hill Transit, North Carolina <http://www.ci.chapel-hill.nc.us/index.aspx?page=1175>
10. Citylink—Kootenai and Benewah Counties, Idaho <http://www.idahocitylink.com/contact.php>
11. Citylink Edmond, Oklahoma <http://edmondok.com/communitydev/citylink>
12. Clemson Area Transit, South Carolina <http://www.catbus.com/>
13. Commerce Transit <http://www.ci.commerce.ca.us/index.aspx?NID=90>
14. Community Transportation of Cape May County, New Jersey <http://www.capemaycountygov.net/Cit-e-Access/webpage.cfm?TID=5&TPID=8504>
15. Corvallis Transit System—Corvallis, Oregon http://www.ci.corvallis.or.us/index.php?option=com_content&task=view&id=469&Itemid=412
16. Deerfield Valley Transit Association <http://www.moover.com/index.php>
17. East Chicago Transit, Indiana http://www.eastchicago.com/departments/bus_transit/
18. Estes Park Shuttle—Estes, Colorado http://www.allrockymountain.com/transportation/shuttles_transit.php
19. Free Ride Glenwood Springs, Colorado <http://www.ci.glenwood-springs.co.us/transpo/1a.htm>
20. GoLine Transit—Indian River County, Florida <http://www.golineirt.com/>
21. Go West Transit—Macomb, Illinois http://www.wiu.edu/student_services/go_west/
22. Hele-On Bus—Hawai'i County Mass Transit Agency, Hawai'i County, Hawai'i <http://www.heleonbus.org/>
23. Island Transit—Whidbey Island, Washington info@islandtransit.org <http://islandtransit.org/>
24. Link Transit—Chelan—Douglas County, WA (formerly fare-free, now charges) <http://www.linktransit.com/>
25. Marion City Bus Transportation Department <http://marionindiana.us/transportation.cfm>
26. Mason Transit—Mason County, WA <http://www.masontransit.org/>
27. McCall Transit—McCall, Idaho <http://www.mccall.id.us/community/transit.html>
28. Mountain Express—Crested Butte, Colorado http://www.crestedbutte-co.gov/index.asp?Type=B_BASIC&SEC=%7B2C4811E8-15A0-4F0F-976C-E8236C6DAC57%7D
29. Mountain Rides—Ketchum, Idaho <http://www.mountainrides.org/>
30. Mountain Village Transportation, Colorado www.mountainvillage.co.us/index.aspx?nid=196
31. Niles Free Bus—Niles, Illinois <http://www.vniles.com/Content/templates/?a=76>
32. North Central Regional Transit District—parts of Rio Arriba, Taos, and Santa Fe counties, NM <http://www.ncrtd.org/>
33. Park City Transit, Utah <http://www.parkcity.org/index.aspx?page=422>
34. SPOT (Selkirk—Pend Oreille Transit), Idaho
35. Steamboat Springs, Colorado http://steamboatsprings.net/departments/transportation_services/bus_service
36. Streamline—Bozeman, Montana <http://www.streamline-bus.com/about-streamline-bus/>
37. Summit Stage—Summit County, Colorado <http://www.summitstage.com/>
38. Telluride Galloping Goose Transit—Town of Telluride, Colorado <http://www.telluride-co.gov/index.aspx?page=56>
39. Treasure Valley Transit—Nampa, Idaho <http://www.treasurevalleytransit.com/>
40. UMASS Transit—Amherst, Massachusetts <http://www.umass.edu/transit/buses.html>
41. Vail Transit Department, Colorado http://www.vailgov.com/subpage.asp?dept_id=46

APPENDIX C

Annotated Bibliography

The literature review in chapter two synthesized information from a great number of sources to provide information on the results of fare-free demonstrations or feasibility analyses conducted by public transit agencies. This appendix provides a summary of many of the reports that were used to produce the literature review. Many of these sources were developed specifically for particular transit agencies and would not be available through normal research channels. Project panel members and members of listservs were able to provide information that led to the identification of such reports.

This bibliography summarizes reports and articles that describe the results of:

- Fare-free demonstrations that were discontinued
- Studies analyzing the feasibility of instituting fare-free public transit
- Reports on transit agencies retaining totally fare-free policies
- Other pertinent research addressing fare-free public transit policies.

REPORTS ON FARE-FREE DEMONSTRATIONS THAT WERE DISCONTINUED

The literature search revealed that a number of public transit agencies other than those identified in this report as currently providing fare-free service have considered instituting a similar operational strategy, but discontinued after experimenting with, or analyzing the feasibility of, implementing such a fare policy. Provided here are separate summaries of reports of these various experiments since they also attempted to provide information on the implementation and outcomes of fare-free transit in their communities.

Mercer County, New Jersey

"The Fare-Free Transit Experiments," written in 1982 by A. H. Studenmund and D. Connor, chronicles the results of experiments that began in March 1978 (19). The Urban Mass Transportation Administration (UMTA) funded partial fare-free demonstrations for the cities of Denver, Colorado, and Mercer County (Trenton), New Jersey, to determine the effectiveness of removing fares for one year on a restricted basis. In the Mercer County demonstration, no fares were charged during the off-peak time period for one year (the off-peak fare was \$0.15). Peak period fares of \$0.30 remained unchanged. The off-peak time was selected due to unused capacity and low marginal costs of off-peak service. While the demonstration was conducted in both Denver and Mercer County, the Denver demonstration was confounded by several problems (e.g., lack of pre-demonstration data, a change in fare-free hours, and major route restructuring) and thus the results were not conclusive. However, it was noted that the results found were similar to the results in Mercer County.

The fare-free demonstration in Mercer County, with a service area population of approximately 300,000, led to a significant increase in ridership during the off-peak periods, with a 25% to 30% increase attributed to the removal of the fare. The demonstration attracted approximately 2,000 net new riders per day to public transit. A significant shift to public transit was experienced as 69% of the new trips were previously made by other modes. Of these trips, about

50% were previously made by automobile, and one-third previously walked. It was estimated that the fare-free off-peak public transit service demonstration reduced private vehicle-miles traveled (VMT) by 30,000 miles per week. The report noted that given that the typical VMT in Mercer County was 21 million miles per week, this reduction was not regarded as statistically significant in terms of reducing congestion.

The number of additional trips made by young people (less than 25 years of age) increased disproportionately to the demographic makeup of the ridership before the fare was removed. Other demographic groups were identified, but no other group had a disproportionate increase in ridership during the fare-free demonstration.

The total cost of the fare-free demonstration was \$339,000, including direct loss of fare box revenue, some of which was caused by ridership shifts from the shoulders of the peak to off-peak hours of service. Another cost associated with the removal of fares during the off-peak period was the need for more capacity, costing \$10,000. The amount of money saved from not needing to collect fares during the off-peak hours was estimated to be \$10,000. Other potential sources to partially replace the lost funding were identified, such as increased sales tax revenue owing to increased retail spending, but these sources were not quantified.

Aside from the loss of revenue, several issues were identified that resulted from removing fares during off-peak hours. First, between 5% and 15% of buses entering the downtown were found to be overcrowded during the off-peak hours. Second, because of the increased demand, the bus needed to stop more frequently and dwell longer at individual stops. This led to a decrease in on-time performance, with the number of late buses increasing from 25% to 45%. Third, the increased number of riders, particularly the younger riders, led to an increase in the number of situations where rowdy passengers were bothering other passengers. These issues increased the frustration level of the bus operators, 92% of whom reported that their job was less enjoyable. Fourth, the increase in young riders also led to increased complaints from downtown merchants about loitering and shoplifting. The report did not provide an estimate of what it might have cost to correct the problems with on-time performance, overcrowding, or controlling passenger behavior.

The authors concluded that continuing fare-free public transit in Mercer County (and Denver) would not be advisable. In spite of the dramatic increase in ridership, the authors believed that the level of fares did not seem to be the impeding factor for increased mobility. One recommendation of the report was to use fare-free public transit as a temporary promotional technique for increasing long-term public transit ridership. It was found that even after fares were increased back to normal levels, ridership remained somewhat higher than expected. The report suggested that by removing fares for a short duration, it is possible that new riders may be attracted who will continue to use the system.

Denver, Colorado

The report, *Evaluation of the Denver RTD Off-Peak Fare Free Demonstration* was produced by De Leuw Cather and Company in 1980 (46). The fare-free demonstration began on February 1, 1978,

and continued for 12 months, ending January 31, 1979. Denver, with a population of 1.5 million in 1980, was the largest city to have experimented with a fare-free policy. The off-peak fare of \$0.25 was eliminated, while the \$0.50 cent fare was retained during just two hours in the morning and two hours in the afternoon representing the peak commute hours. Ridership increased 49% system-wide and 52% during the off-peak, although additional service was added and many routes were restructured at the same time. The report found that the efficiency of the system, measured by cost per passenger, was substantially improved. The negative results included overcrowded buses, decreased schedule reliability, and obnoxious behavior from some passengers. The morale of drivers also declined. The principal conclusion of this evaluation is that free-fare public transit may be a more effective short-term marketing instrument than a desirable permanent element of transportation policy for major metropolitan areas. Reduced or low fare off-peak public transit might achieve many of the same beneficial objectives of no fares, but complete removal of the fare barriers in a major metropolitan area appeared to generate enough undesirable side effects to undermine its overall effectiveness.

Topeka, Kansas

A report entitled *No Pay May: Project Description, Analysis of Ridership Data, and Survey Results* was written in 1988 to provide information on a one-month fare-free experiment in Topeka, Kansas (18). This report describes the planning, implementation, and impacts of a marketing project undertaken by the Topeka Metropolitan Transit Authority, a small urban system. Oil overcharge funds were used to pay for a month of fare-free public transit service during May 1988. Ridership increased by 83% during this short-term promotion, and a permanent ridership increase of approximately 6% held when fares were reinstituted.

Austin, Texas

This project could not locate a definitive document that reported the results of the fare-free experiment conducted by the Capital Metro Transportation Authority between October 1989 and December 1990. The report *Final Report from the Free-Fare Telephone Survey* written by the NSI Research group was reviewed which attempted to document people's awareness and attitude regarding the fare-free program (34). As opposed to the demonstrations in Denver and Mercer County, the fare-free program in Austin, a rapidly growing city of 500,000 at the time, was available all hours of every day, not just during off-peak hours. There are conflicting interpretations of just how much ridership increased because of the fare policy.

In a phone interview on June 28, 2011, with the then general manager of Capitol Metro, it was indicated that the policy was put in place because it was a newly created agency that was looking to promote ridership. It was also in the favorable position of having more funds than the agency needed to operate based on revenues from a one-cent general sales tax, and the agency wanted to provide a benefit to the community for what they were paying. Not long before the fare-free program was instituted, Capital Metro began providing service to the University of Texas, which in turn began its universal pass program for students. Hence, it is difficult to know how much of the 70% increase in ridership was a result of the elimination of fares versus natural growth supplemented by university student use.

Ironically, in the telephone interviews conducted by NSI, it was discovered that the level of fares was not among the top five priorities of passengers. On-board safety, on-time performance, convenience of routes, cleanliness inside the buses, and frequency of

service were the most important factors for riding the bus for both the general public and fare-free riders. Interestingly, the cost of service (the fare) was the second to the last most important factor. The telephone survey found that 12% of riders had discontinued using the bus since the fare-free policy was established, while 29% indicated they were using it less. Very few of those survey respondents reported that they stopped using it because of the fare-free policy. Most said they were able to buy a car or had moved. However, this particular experiment received much negative press about rowdy behavior on the buses, and the belief that the program was contributing to school truancy. Bus drivers were not supportive of the fare-free program; 215 drivers petitioned for an end to the fare-free service. The former general manager stated that ridership could have been increased through many different means, and offering fare-free transit was an artificial way to increase ridership given that many of the new riders were high school students who preferred Capitol Metro's buses to school buses and ended up joyriding. However, he believed that the fare-free experiment might have contributed to a ridership gain that was sustained after the policy was ended.

Asheville, North Carolina

The Transit Staff Report, *Fare-Free Transit*, produced in February 2007, provides an overview of the benefits gained, costs, and lessons learned from a fare-free promotion in Asheville, North Carolina, a city of approximately 70,000 people (25). For 90 days from August to November in 2006, no fares were charged on any of their 19 buses. The goal of this promotion was to increase ridership on the existing bus service, particularly from those who would otherwise drive a private vehicle. Data on ridership, wear on the vehicles, crime and rowdy customers, and service reliability were collected, in addition to rider surveys undertaken before and during the promotion. A \$12,000 budget was provided for advertising the promotion to the public, and another \$12,000 was spent on increased security services.

The report indicated that ridership increased during the promotion by 58.5% over the same time frame from the year before. The efficiency of the bus system improved dramatically as the cost per trip declined by 14%. Ridership increased by 137,000 during the three months of the promotion over and above the total of 245,000 passengers that had been transported during the same three months of the previous year, with the vast majority of the increase resulting from the fare-free promotion. After the promotion was terminated, ridership continued to be about 17% higher than the same period of the previous year. Approximately 9% was attributed to the promotion. The increase appeared to be the result of lower-income individuals who were more sensitive to cost. The number of riders who owned a car remained the same both before and during the promotion. The number of riders making less than \$10,000 per year increased by 7.5%, while the number of riders making more than \$10,000 per year decreased by 7.5%.

In particular, the promotion was deemed very beneficial to evening service, where utilization increased after the promotion by 82%. Evening service carried nearly half as many trips per operating hour as daytime service, which was well beyond expectations.

The loss of fare box revenue during the 90-day promotion period was approximately \$97,000 for regular bus service and \$13,125 for paratransit service. Non-financial costs included increased travel times and a decrease in on-time performance. The major complaint of riders during the start of the fare-free promotion was poor reliability due to the increased passenger loads and required stops. Travel time was estimated to have increased by several minutes per hour owing to the increased number of stops and longer dwell times

associated with increased ridership. Situations involving rowdy customers also increased during this fare-free promotion. Complaints about such customers accounted for 21% of all complaints made during the first half of the fare-free promotion. These complaints decreased towards the end of the promotion, which the report attributes to passengers adjusting to the new riders.

Among public transit agency personnel, bus operators reported higher rates of verbal abuse, greater pressure to maintain schedule, difficulty with managing overcrowded buses, and safety concerns for disabled passengers. Maintenance personnel believed they were working beyond capacity just to keep the fleet running, and the buses were dirtier than normal.

This well-documented report concluded with several “lessons learned.” First, fare-free service affected on-time performance. During the demonstration, on-time performance fell to 89%, but rebounded to 97.7% within three months of the conclusion of the demonstration. Second, fare-free service added passengers who tended to be younger and noisier than previous passengers. It is likely that the more disruptive passengers discouraged those with other options to ride the bus. To discourage abuse of the system by disruptive individuals, it was recommended that a small fare (between \$0.15 and \$0.25) be charged in future promotions, rather than providing completely fare-free service. Third, they found the fare-free promotion most likely resulted in greater long-term ridership. It was noted that Topeka, Kansas, had similar results of long-term ridership increases of almost 6% after ridership increased 83% during a one-month fare-free experiment. Fourth, they concluded that there is a pent-up demand for mobility, particularly among low-income and younger people, especially students for whom mobility costs are a financial burden. Finally, despite the lack of any fare, many potential “choice” riders will still not ride the bus. For these people, service quality and reliability is a greater factor than the cost of a fare. The report provided no theory on why, but noted that demand for parking in the downtown area actually increased by 9.1% during the fare-free demonstration, higher than previous annual rate increases of 3.3%.

After the fare-free demonstration, cash fares were increased from the pre-demonstration fare of \$0.75 to \$1.00; however, monthly passes were reduced from \$30 to \$15. An Annual Unlimited pass was introduced for \$120, and made available for \$60 to seniors and people with disabilities.

Milton, Canada

The city of Milton, Canada, near Toronto, became the first municipality in Canada to provide fare-free service for an extended period of time. In 2007, public transit during the midday off-peak time (9:00 a.m. to 3:00 p.m.) was made free for all users for seven months. To compensate for the foregone fare box revenue, two corporate sponsors were found to fund the project (Mattamy Homes Ltd. and Fieldgate Developments).

In 2008, city staff prepared a white paper, *Fare-Free Transit Pilot Project—Final Report* (26). The focus of the empirical analysis was on ridership. In each month, ridership increased more than would have been expected year-to-year had the fares remained. Ridership increased an average of 63% over the seven months of the experiment. One interesting topic noted was the increase in ridership during the summer months, when it typically declines. This was attributed to the novelty of the project (which began in June) and students on summer break suddenly having a free mobility option. A further increase seen in the fall season was attributed to the change in secondary school schedules. The new end time for

school was 2:30 p.m., which falls at the tail end of the free-fare public transit service, although no further study to identify the impact of changing the school end time is provided in the report.

Staff reported that a potential benefit of the fare-free program was increased ridership after fares were reintroduced. During the fare-free promotion, on-board surveys were conducted to assess rider behavior. This report provides some insight into how riders were using the system during the demonstration, and how they planned to use the system after the reintroduction of fares. No distinction was made between new riders and riders who previously used public transit. Survey results indicated that of the 80% of riders who used the bus at least two times per week during the fare-free program, 86% would continue after fares were reintroduced. On the other hand, they found that while 67% of senior respondents were frequent users during the fare-free promotion, only 33% indicated they would continue to be so after fares were reintroduced. The report suggested that this implied that senior citizens are more sensitive to cost increases.

No information on lost fare box revenue or project costs were provided in the report. The city of Milton did not experience any loss in revenue from the project, due to corporate sponsorship.

There was some concern with potential disruptive behavior aboard the public transit vehicles during the fare-free program, particularly from secondary school students who had the opportunity to ride for free at the end of the midday off-peak period. To address the issue, new policies were created to allow bus drivers to restrict passengers for safety reasons. Customer satisfaction was rated very high during the fare-free program, based on on-board surveys distributed during the program showing that 99% of all respondents were either “satisfied” or “very satisfied” with the program.

Several “lessons learned” are provided in the report’s conclusion. First, eliminating fares should only be one aspect of any program to increase ridership. Other factors such as convenience, travel times, comfort, and other service elements should also be considered. Second, ridership growth and crowding should be anticipated from the beginning, particularly due to the costs of keeping up with demand. A proactive approach can help to avoid overcapacity buses and nuisance riders, although no specific methods for dealing with overcrowding and nuisance riders were provided in the report. Third, although the off-peak period of 9:00 a.m. to 3:00 p.m. was selected to promote ridership during under-utilized times, problems can arise when targeting specific segments of ridership. Some transit riders, specifically those who used transit only during peak periods, felt that it was unfair to not be included in the fare-free program. Finally, there was some negative perception of the corporate sponsorship of the fare-free program, regarding the motives of the corporations funding municipal services. However, without their sponsorship there would not have been sufficient funding to conduct the demonstration.

STUDIES ANALYZING THE FEASIBILITY OF INSTITUTING FARE-FREE PUBLIC TRANSIT

A number of transit agencies have explored the concept of instituting fare-free transit, but after careful reviews decided against going forward.

Lane Transit District, Eugene, Oregon

A white paper entitled *Fare-Free Service at Lane Transit District: An Overview of Financial and Operational Impacts*, prepared by the staff of Lane Transit District (LTD) in January 2008, developed

an estimation of the impacts that the District would experience if a fare-free policy was implemented (7). Lane Transit carries approximately 10 million passengers a year. It is located in Eugene, Oregon, which has a population of approximately 350,000 in its service area. Eugene is also the home of the University of Oregon. The report briefly notes the potential positive results of going fare-free, including increased ridership, decreased traffic congestion, filling “empty buses,” eliminating the costs associated with fare collection, cultivating a culture of transit use among young people, and the encouragement of urban development and redevelopment. The report cites previous research that identified the factors that contribute to positive results, such as the size of the community, the degree of commitment to a fare-free policy by the community and the transit agency personnel, and the need to prepare for likely consequences of overcrowding and rowdiness.

The staff report estimated that farebox cash, prepaid tokens and passes, and group pass contracts provided the agency with more than \$5 million in revenue per year. A \$5 million loss in revenue would be minimally offset by eliminating the cost of fare collection, estimated at \$100,000 to \$500,000 per year. LTD’s fairly simple fare collection system further reduced potential savings from going fare-free. No employees focus entirely on fare collection, rather they have several duties. Consequently, eliminating fares would not necessarily allow for the elimination of jobs. Generously assuming \$1 million might be saved in total administrative and marketing costs, the \$4 million net loss in revenue would require a reduction of 20% of bus service hours.

It was noted by staff that removing fares for the whole system could significantly increase the cost of required paratransit service owing to increased demand. This was not a consideration in the major fare-free experiments in Denver, Mercer County, or Austin, which were conducted prior to Americans with Disabilities Act (ADA) requirements. The maximum allowable price for a paratransit trip, per the ADA, is double the base cash fare. Removing fares could potentially increase the number of expensive paratransit trips per year that typically cost LTD \$23.50 for a one-way trip. This report estimates a cost of \$700,000 per year per 100 new riders. The potential increase in paratransit costs was not factored into the previous \$4 million per year cost for going fare-free.

Several potential consequences are identified when systems provide fare-free service based on larger-scale public transit systems that tried a fare-free approach. Increased vandalism, vagrancy, disruptive passengers, and overcrowding can adversely affect choice passenger ridership. Smaller systems will not necessarily run into these issues when going fare-free as Lane Transit discovered when discussing the fare-free policy with staff from Island Transit in Coupeville, Washington, who have not experienced these consequences. The report hypothesizes that this may be the result of less crowded buses, fewer homeless people in the community, and a stronger community culture that values public transit more highly.

LTD staff decided not to recommend removing fares from its buses, citing an already high use of their public transit system with current fares. LTD’s report stated that the overcrowding that it was experiencing and the difficulties it was having with making connections made implementing a fare-free service inappropriate, given that such a policy would increase demand (which it did not quantify). They concluded that removing fares would not attract enough additional riders to warrant the loss of revenue.

Portland, Oregon

The report, *Fareless Transit in the Portland Metropolitan Region* was completed in 1999 by the Fareless Transit System Research Work

Group to research the option of providing fare-free public transit in Portland (9). Portland’s Mayor Katz tasked the group, made up of eight local business and non-profit representatives, with studying the feasibility, benefits, costs, and challenges associated with fare-free transit. The report’s production was funded by Tri-Met, which also made its consultants available to conduct research.

Several factors that affect public transit ridership were identified and explored. These factors are ranked in order of impact, with fare costs ranked last after other factors such as reliability and safety. The typical elasticity for fare cost and ridership is provided (−0.3), with a few notes to keep in mind. First, surveys of riders generally rank fare cost lower than empirical studies of fare elasticities would suggest. Differences in off-peak and peak ridership were also briefly explored. Previous studies noted in *TCRP Report 95* indicated that off-peak public transit ridership is more sensitive to changes in fare than peak ridership (6% versus a 2% increase given a 10% decrease in fare). However, the report noted that a fixed percent shift in peak ridership will be larger in magnitude than the same percent shift in off-peak ridership.

Several case studies were identified in the report including those most frequently cited: Austin, Texas; Mercer County, New Jersey; and Denver, Colorado. Several take-away points were provided based on those demonstrations. First, all of the programs resulted in substantial ridership increases, with increases as high as 75% in Austin. Second, most of the ridership increases were experienced during off-peak hours. (Author’s note: It is to be expected that the increases occurred in the off-peak hours in Trenton and Denver because that was when fares were not required.) Third, the percentage of new trips that had been made from people changing from private vehicles was notable (30% or less), but not as large as agencies might have hoped for. Third, there were some passenger complaints of overcrowding, slower travel times, and reduced reliability. Lastly, bus operators did not respond favorably to the fare-free programs, citing concerns over rowdy customers and passenger complaints. The authors concluded that because of Portland’s well-developed public transit service, ridership gains and other effects would not be as great as those from previous case studies. However, the authors noted that many of the negative side effects would occur for any major increase in ridership and should be addressed before implementation. Fare-free public transit should not be considered as an isolated strategy, but as a part of a more comprehensive and balanced plan and set of actions to increase ridership.

Several implementation issues were identified and addressed in this report. From a hypothetical situation proposed by Tri-Met and reviewed by Parsons–Brinkerhoff, a fare-free system would increase ridership by 25% during peak hours and 60% to 65% during off-peak hours. The proposed plan would cost Tri-Met \$54 million, not including planned/required service improvements. One proposed plan to fund fare-free public transit, as suggested by Mayor Katz, was to implement a regional parking tax. The legal, institutional, and economic challenges are discussed in the report. Other possible options, rather than fare-free public transit, were also considered, such as a simplified fare structure that would do away with zone fares. Another option would be to expand Tri-Met’s pass programs to serve not just the private employers currently participating, but cities, counties, and other groups banded together in transportation management associations. Such programs would increase ridership while reducing costs to passengers and reducing dwell time at stops.

The authors of the report concluded that before eliminating fares, service should be expanded to improve capacity and service quality. Simply making public transit fare-free is not enough by itself to entice a significant number of people who use their private

vehicles. One method that the report concluded should be considered is a regional parking tax not only to fund public transit, but also to encourage drivers to understand the true cost of driving. The report noted that this strategy has some significant hurdles both legally and institutionally.

San Francisco, California

In January 2008, Sharon Greene and other subcontractors produced a detailed report entitled *Fare-Free Muni System Feasibility Analysis* in response to Mayor Newsom’s request to analyze the costs and benefits to San Francisco if fares were eliminated on the San Francisco Municipal Railway (the city’s public transit system known as Muni), which is the eighth largest transit system in the United States (8). The mayor charged the study team with determining how much ridership would increase, identifying key risk areas, what additional operational and maintenance costs would be required, what policy issues would need to be addressed. Three different scenarios were considered to develop a range of potential costs, based on ridership increases of 18%, 48%, and 78%. These scenarios were based on the results taken from the literature that was reviewed. A San Francisco Municipal Transportation Agency travel demand model was completed for the scenario in which all fares were reduced from \$1.50 to \$0.00. A ridership increase of 35% to 40% was projected from this modeling effort.

A review of the literature was included to identify the results and lessons learned from other U.S. public transit systems that have attempted fare-free service. From the literature, the authors reported that smaller agencies realized the best results from fare-free public transit. These smaller agencies tended to have more under-utilized capacity, minimizing the need for additional equipment and service hours to meet increased demand. Additionally, smaller systems that recover less than 10% of their operating costs from fare box revenue did not experience significant budget shortfalls in their operating budgets from the elimination of fares. The report noted that the cities that implemented fare-free public transit demonstrations showed ridership increases of from 13% to 75%.

The operational and capital impacts from the different estimates of projected increases in ridership attributable to fare-free transit were developed (see Table C1).

In addition, more facility capacity would be required to store and maintain these vehicles as all existing facilities were at or above capacity.

If no fares were charged on Muni services, there would be a savings of \$8.4 million in annual operations and maintenance

(O&M) costs and a reduction in staff of 91 full-time employees currently needed to collect and account for fares. However, the loss in fare revenue would be approximately \$111.9 million. In each of the three scenarios, the additional operations and maintenance costs resulting from additional operators, mechanics, and security to serve additional passengers would be far greater than the saved costs from the discontinuance of fare collection.

Paratransit costs would increase by \$1 million to \$4.6 million owing to increased demand for free service. In all, the net O&M cost for operating fare-free public transit (using the middle and most likely scenario of a 48% increase in ridership) would be \$184 million after accounting for the loss in fare revenue of \$111.9 million. This figure includes additional needed capacity, a new central control facility, new maintenance facilities, and the cost savings from not implementing what would be unnecessary projects (e.g., upgrading ticket vending machines).

In addition, the net *capital* costs to implement fare-free service while meeting a 48% increase in ridership demand was estimated to be \$519 million. Several policy issues were identified. First, while the San Francisco Municipal Transportation Agency (SFMTA) Board has the authority to eliminate fares, it was recommended that support from local and regional policy groups be confirmed. It was also noted that a public vote would be necessary because new sources of funding would be required. This study did not identify or evaluate potential supplemental revenue streams as this was a primary objective of the Mayor’s Blue Ribbon Revenue Panel. Second, SFMTA is a lead agency in universal regional smart cards (TransLink®). If fares were not required on Muni, it would be more difficult to justify promoting smart cards in the region, although the report suggested that the cards could be used to count passengers. Third, at the rate it was taking to acquire vehicles, procurement of the needed vehicles and facilities to meet projected ridership increases from fare-free public transit would take 5 to 10 years. (Author’s note: Given the structural deficits of the SFMTA and the weakened California economy, it would appear highly unlikely that the agency would be able to generate the type of revenues called for in this report.)

Hamilton, Canada

A report entitled *Free Transit, Deep Discount Fare Policy and Other Strategies Employed to Create a High Ridership Transit System* was prepared by Scott Steward, General Manager of the Hamilton Public Works Department in June 2008 (13). Hamilton is Canada’s ninth largest city with a population of approximately 500,000. This report details the results of a study to investigate the feasibility and impacts of providing fare-free public transit to all citizens of Hamilton. The report reviews both fare-free public transit and deep discount fare alternatives.

TABLE C1
PROJECTED COSTS ASSOCIATED WITH VARYING LEVELS OF INCREASES IN RIDERSHIP
AT MUNI

Percentage Ridership Increase	Required Additional Buses	Required Additional Street Cars	Required Additional Rail Vehicles	Required Additional Operators	Additional Annual Operating Expenses
18%	41	11	37	59	\$23 million
48%	157	20	90	234	\$69 million
78%	283	30	138	420	\$139 million

It was estimated that fare-free public transit in Hamilton would increase ridership by approximately 20% to 50%, based on the review of the results from experiments in the United States, as well as fare-free programs that have been retained such as in Chapel Hill, North Carolina. This would translate to an increase from 48 rides per capita to 55 to 70 rides per capita per year in Hamilton. Initially, most of the new ridership would be a result of existing riders traveling more, rather than a mode shift from private vehicles. Traffic congestion is not severe, nor is there a shortage of parking in the city. It was concluded that fare-free public transit provides the best opportunity to meet the city's Vision 2020 goal of 100 rides per capita. It was noted that free transit will likely attract riders from other modes (e.g. walking, biking, or taxi); however, with no Canadian system-wide experience, it was difficult to determine how much.

The public transit system in Hamilton provides 21.2 million annual trips, with revenue of \$28.2 million and an average fare of \$1.33. The costs to the city for public transit resulting from an increase in ridership of 20% and the loss of all farebox revenue would be approximately \$30.9 million, requiring an additional tax of \$161 per year per household.

This report noted that ridership alone cannot be the only metric for success. Other public policy goals include:

- Air quality improvement
- Energy conservation
- Congestion reduction
- Provision of mobility to the transportation-disadvantaged
- Access to jobs
- Promotion of economic development
- Promotion of livable communities.

The report also emphasizes that goals of higher ridership and higher revenues are somewhat contradictory, causing concern for public transit agencies expected to do both. The report also noted the large number of external factors out of public transit's control that make attracting riders from private vehicles difficult (e.g., low densities, high sprawl, low traffic congestion, high incomes, low parking costs, low population growth, etc.). Public transit agencies do not have unlimited funding available, which requires a balance between costs and improvements (i.e., ridership increases).

No empirical results are available from this report. Hamilton had not yet instituted fare-free public transit. One very brief case study from Chapel Hill, North Carolina, is provided in the report. Fare-free transit began in Chapel Hill in January 2002. Between January and September, there was an increase in yearly ridership of 43.12% between 2001 (before fare-free) and 2002 (during fare-free).

REPORTS ON PUBLIC TRANSIT AGENCIES RETAINING TOTALLY FARE-FREE POLICIES

East Chicago, Indiana

In 1976, the report *Small City Transit: East Chicago, Indiana: Free-Fare Transit in a High Density, Industrialized Area*, was prepared by J. Misner for the Urban Mass Transportation Administration (47). This report was not made available; however, TRB's electronic database provides the following description: "East Chicago, Indiana, is an illustration of a free-fare transit service operating in a high density area. The transit service was devised with a minimum of help from professional consultants, and without sophisticated routing, scheduling, or marketing plans. The background of the community is discussed along with a description of the implementation process and operational characteristics of the public transit

service. The process through which the community responds to the specific needs for public transit service within the local content is stressed." When employees of the agency were called for a copy of the report, they were unaware of its existence. They stated that in the early 1970s the mayor of East Chicago simply felt that it was important for people to have a fundamental means of mobility and he persuaded others to support a fare-free system. When interviewed for this TCRP project, they believed that they were the only public transit system in the country offering fare-free service.

Amherst, Massachusetts

A report entitled *Amherst, Massachusetts Fare-Free Bus Research and Demonstration Project*, produced by the University of Massachusetts in 1977, reviews the project background and scope, details its conduct and extensive data collection and analysis, presents findings and conclusions, and discusses the transferability of these findings and conclusions to other urban areas (48). The major objectives of the project were to determine to what extent at first providing a fare-free bus service, and later, increasing restrictions on intra-campus automobile use would have in a shift away from commuting by automobile in favor of commuting by bus. There was also concern as to how changes in transportation services would affect community attitudes toward public transportation. Significant findings were that: (1) introducing high-frequency, fare-free public transit services attracts high levels of ridership of low-income groups, while only slightly reducing automobile use and traffic congestion; (2) increased parking fees are not as effective a deterrent to automobile use as are reduced parking availability and strict parking regulation enforcement; (3) increases in parking fees that are perceived as relatively large will be met with strong opposition from lower-income workers for whom the automobile is the only available mode; and (4) fare-free public transit will have a significant positive impact on the demand for multi-family housing and sales volumes of retail establishments, depending on their relative proximity to transit bus stops.

State of Washington

The Washington State Transportation Center produced a report in 1994 entitled *Fare-Free Policy: Costs, Impacts on Transit Service, and Attainment of Transit System Goals* (5). This study sought to understand the potential and problems associated with fare-free public transit policy. At the time the report was written, Washington State had a number of such systems that were fully fare-free (there are now only two providing such service owing to a dramatic decrease in operating support previously provided by the state).

This paper reported on the potential benefits and costs of fare-free service based on research of the public transit agencies that had implemented a fare-free policy in the United States, and particularly the state of Washington. Twenty different agencies are identified, although more than half of those listed provided fare-free service only in restricted areas such as downtowns or university campuses or were short-term experiments. The report attempted to answer three questions:

1. What is the net cost of fare-free transit?
2. What are the ridership and quality of service impacts of fare-free public transit?
3. How will fare-free public transit affect the agency's goals (i.e., efficiency of the system, mobility, environmental quality, land use, public perception of public transit)?

The report explores the net cost or income of fare-free public transit, noting that by eliminating fares the revenues collected are reduced

to zero, but that the costs related to fare collection (i.e., equipment and personnel) can also be eliminated, potentially cancelling out the loss of revenue. The Seattle bus tunnel and Island County Transit are provided as examples. In both cases the costs of fare collection were greater than or equal to the revenues collected, meaning there was no net income from collecting fares. The proportion of total operating costs made up of fare collection varies based on the size of the public transit agency. The cost of collecting fares is generally between 1% and 3% of a public transit agency's total operating expenses, although an informal survey the authors conducted indicated that for smaller systems those costs were between 5% and 7%. Based on 1990 operating statistics for Washington state systems, the gross fare box recovery ratio of most public transit systems was less than 10%, with only three having a recovery ratio higher than 20%. The major point the authors make is that in the case of small public transit systems, the costs of collecting fares might be very close to the revenue those fares produce, producing net annual revenues of less than \$30,000. Eliminating fares would allow agencies to focus on other aspects of their service and result in benefits to their communities. For instance, the LINK system in Chelan and Douglas counties was lauded for its substantial ridership growth and its importance to the elderly and others who lacked transportation options. The system was recognized by the downtown business community for increasing business and was voted the best new "business" in the area for 1991–1992.

The two types of impacts studied in this paper are increases in ridership resulting from a reduction of fares (to zero) and the change in quality of service due to the same reduction of fares. Several short-term fare-free experiments had a range of ridership increases from 13% in Salt Lake City in 1979, to 83% in Topeka, Kansas, in 1988. However, the most successful fare-free systems began as fare-free so that a before-and-after comparison is not possible. This paper concludes that ridership can be expected to increase by at least 25% and likely closer to 50%, with new systems having the largest increase compared with otherwise expected ridership.

Four different types of ridership increases are identified: (1) choice public transit riders switching from auto, (2) public transit riders who otherwise could not make the trip, (3) public transit riders switching from alternative modes (i.e., walk, bike, carpool), and (4) joy-riders. The goal of any public transit agency is to increase the first two groups. The report noted that in Topeka, 36% of riders during the fare-free month were choice riders.

One segment of the population that causes debate among those discussing fare-free service is young riders. In some cases (e.g., Austin, Texas) such riders were viewed as a negative result of fare-free policies because of joyriding, rowdiness, and overcrowding. In other cases (e.g., Logan, Utah; Island Transit, Washington; and LINK Transit serving Douglas and Chelan counties, Washington) serving youth riders was seen as a priority since it relieved parents of the need to transport their children and increased access to community resources for young residents. The report also noted that other segments of the population, such as drunks and transients, can be more likely to use fare-free public transit. Both Seattle and Austin reported problems with these groups and with increased amounts of vandalism; however, other fare-free public transit agencies (e.g., Cache Valley Transit District in Logan, Utah, and Island Transit in Washington) had few of these problem riders and did not regard them as major obstacles to providing fare-free service. The agencies that did not have serious issues with problem riders were smaller communities with more aggressive policies and practices including education and bus suspensions.

This paper found that fare-free policies can either improve or detract from the quality of service provided, based on several fac-

tors such as the size of the community or the degree of commitment from management and the agency. As noted previously, problem riders can negatively impact the image of public transit and the perceived quality of the service in the eyes of other passengers. Crowding and possible rowdiness can be an issue for drivers to deal with; however, operators find that this aggravation can be offset by the reduction of conflicts between passengers and drivers at the farebox. Average boarding times per passenger should decrease by as much as 18%; however, with an increase in the number of boardings and stops these time savings might be cancelled.

Experiences with fare-free policies in the state of Washington were reported to be overwhelmingly positive, a result the authors found consistent with other completely fare-free systems in the United States as identified in their research. The paper recommends that all small- and medium-sized transit agencies in Washington State consider a fare-free public transit policy. Additionally, all new systems should consider a fare-free policy from the start.

The authors believed that their positive review of fare-free policy conflicts with common thinking of the policy within the public transit industry. They concluded that much of the negative interpretation of the policy was based on a very limited set of experiments with the policy at larger systems, such as in Denver, Colorado, and Austin, Texas. Their research points out why these earlier experiments should not be used to dismiss the policy and why the policy's potential success is largely dependent on community values and agency management and how well they prepare for predictable strains on operations and maintenance that will result from significantly increased ridership.

Furthermore, they present a conceptual overview of why the removal of the fare box results in substantial ridership increases above the levels predicted using standard fare elasticity relationships. They note that a fare-free policy not only reduces the cost of using public transit, but it also completely removes the psychological barrier of the fare box, which usually requires exact change and often confuses people who do not know what the fare is.

Upper Valley of New Hampshire and Vermont

In 2008, CTAA produced a report entitled *An Analysis of the Impacts of Introducing a Fare for Riders of Advance Transit* to assist that agency in determining whether it should charge a fare after operating fare free since 2002 (10). The report identified the various sources of revenue that support Advance Transit, including federal grants (FTA Section 5311 Program), state funds (from both New Hampshire and Vermont), municipal funds, and local sponsorship including Dartmouth College and Dartmouth Hitchcock Medical Center.

The analysis showed that if fares were reintroduced on Advance Transit buses, there would be significant costs associated with purchasing fareboxes and operational costs such as daily tallying of receipts and depositing money. The median cost to outfit all of the 33 buses with fareboxes would be \$407,550, with a life cycle of between 15 and 25 years. The estimated costs for fare collection per year were \$53,354. Estimated one-time costs associated with policy creation and public hearings would be \$3,900. Marketing and education of users was estimated to cost \$30,000. Total first year costs associated with implementing fares were estimated to be \$441,450, with a yearly cost of \$53,354 thereafter.

These costs would be offset by the new fare revenue generated. The amount of money generated would depend on the fare established and the number of retained riders (also a function of fare

cost). A \$0.50 fare was estimated to generate annual revenue of \$90,688. A \$1.00 fare was estimated to return annual revenue of \$145,600, whereas a \$2.00 fare would generate \$175,550.

For the eight years prior to the study, including the six when all fares were removed, ridership steadily increased for Advance Transit. Between 2000 and 2002, when fares were removed, ridership increased by 32%. It was expected that reintroducing the fare would decrease ridership. The proposed fare increase would not apply to all riders. It was estimated that of the 400,000 annual riders, 208,000 would pay a fare. This report assumed an average ridership reduction rate of 30%. Three fare increase scenarios are assumed. For a \$0.50 fare, ridership would decrease by 26,625. With a \$1.00 fare, ridership would decrease by 62,400. With a \$2.00 fare, ridership would decrease by 120,225.

The report identifies several other potential impacts that reintroducing fares to Advance Transit might have. First, given a cost per mile for auto travel (\$0.585), the diversion of 62,400 trips (based on a \$1.00 fare) at 5.4 miles per trip would cost previous riders \$197,122. Additionally, these estimated new auto trips would generate 7.8 tons of emissions and consume 13,478 gallons of gas. Second, Dartmouth College and the Dartmouth Hitchcock Medical Center (two of the main sponsors of fare-free public transit) would likely need to spend millions on new parking facilities. Third, reintroduction of fares after so many years without them would lead to passenger confusion and slower boarding times, affecting bus schedules. Finally, even with decreased ridership associated with fares, it was not expected that Advance Transit would be able to reduce service hours or frequency.

OTHER PERTINENT RESEARCH ADDRESSING FARE-FREE PUBLIC TRANSIT POLICIES

Impact of "Free" Public Transport on Travel Behaviour: A Case Study, produced in 2006, provides an analysis of how free public transport impacts mobility, including extra trips made, temporal shifts, route choice, and mode split (49). The paper does not detail the benefits of fare-free public transit at a system level, but instead gives more detail on behaviors of individual riders.

In Brussels, Belgium, free public transit was provided to Dutch-speaking students but not French-speaking students. This allowed for a comparison between two groups, with the major difference being the public transit subsidy. A survey was conducted of students from both Dutch-speaking universities and French-speaking universities.

The only direct cost for the fare-free program was a government subsidy of 1,446,293 Euros to refund the public transit pass costs of 8,077 students. The Brussels Public Transport Network Managing Company, which provides the transit service, did not have any additional costs due to the free-fare program for students. The capacity of the service remained the same.

Several benefits are identified such as the increased consumer surplus (savings from transport costs). Additionally, it is suspected that these free passes would be habit forming and the students would be more likely to ride public transit later in life. The consumer surplus was estimated to be approximately 706,737 Euros. Providing fare-free public transit also caused some mode shift from private auto to transit. It is estimated that students who had cars available drove 47.64 fewer kilometers during the peak period and 28.62 fewer kilometers during the off-peak period per week. This translates to 3,196.82 total kilometers per year removed from the roadways. After accounting for the monetized value of pollution,

accident, noise, and congestion reduction, the total cost savings were estimated at 1,927,939 Euros per year. When considered along with the consumer surplus of +706,737 Euros and the subsidy cost of -1,446,293 Euros, there is a net benefit of 1,188,383 Euros. The authors do note that in a dense urban environment such as Brussels, the reduced demand from students on the roadway will be filled by increased demand from other segments of the population, thereby reducing some of the benefits.

During the first year in which free passes were made available, 47% of students had used the free pass. The report notes, however, that French-speaking students who did not have free passes rode public transit more often than Dutch-speaking students. This is likely owing to other factors that influence public transit ridership, such as housing locations and perceptions of the city. Just 36% of Dutch-speaking students live in the city, whereas 81% of French-speaking students live in the city. These Dutch-speaking students are more likely to commute to class and leave the city afterwards.

Fare, Free, or Something in Between?

This paper, produced by the National Center for Transit Research in 2003, is a synthesis of several fare-free public transit agencies' experiences and reviews the costs and benefits of these programs (20). The paper identifies several potential disadvantages of fare-free public transit, including costs, vandalism, problem-riders, and overcrowding.

Cost disadvantages include the loss of farebox revenue and the expenses of required additional capacity in terms of equipment, personnel, and repairs. The loss in fare revenue may not be great for smaller agencies where fare box revenues typically account for less than 10% of the operating cost of the agency. However, for a large system such as Miami-Dade Transit, which had discussed the possibility of providing fare-free service, a significant amount of revenue to operate the system is gained through fares (\$70 million was collected annually to help pay for the total operating expense of \$210 million in 2001). Replacing that amount of money with another source would be difficult without significant community support.

This paper reviewed a considerable number of articles that described the fare-free experiment in Austin, Texas, conducted by Capitol Metro between October 1989 and December 1990. Ridership was reported to have increased by 75%, although expanded service, the institution of the University of Texas universal access program, and adjustments for normal growth complicated anyone's capability to determine just how much of the increase was due to fare-free policies alone. Nonetheless, the experiment was regarded as successful in attracting ridership, but problematic in that it attracted undesirable riders who drove away quality ridership. Seventy-five percent of all bus drivers petitioned the authority policy board to end the fare-free program due to these problem riders and the stress they were causing.

A study conducted during the spring of 1990 for Capital Metro of riders and the general public during the fare-free demonstration found that the five most important factors in determining whether or not to ride the bus were:

1. On-board safety
2. On-time performance
3. Convenience of routes
4. Cleanliness of the bus
5. Frequency of service

Almost ironically, the three least important factors were cost (fares), outside appearance of the bus, and driver courtesy.

The authors opined that when there is no cost associated with using public transit, riders are likely to not have the same respect for the service that negatively impacts the image of the bus system, and this causes problems for drivers. In Austin, public transit officials noted a substantial increase in truants, vagrants, and other “dubious categories” of riders. These problem riders required additional security, and maintenance personnel to handle the repairs necessary on the buses.

Lastly, the paper notes that there are two types of riders who can overwhelm the system and drive away “quality” riders. These include riders who would have used other modes for short trips (walk or bike) and those riders who use the system for negative and criminal purposes. The increased ridership from these types of riders will lead to higher aggregate boarding times and more frequent stops. None of the experiments referenced in the report found that fare-free public transit led to a significant shift from private automobile to public transit.

The paper concludes that fare-free service may work better in smaller transit systems where the cost of fare collection may cancel out revenues and where “problem riders” may be easier to deal with because of the size of the community. For large cities, pre-paid fares may be more reasonable in that the revenue stream does not end, but the farebox is still removed from the front of the bus, possibly increasing efficiency.

Externalities by Automobiles and Fare-Free Transit in Germany—A Paradigm Shift?

The case study used in this paper is of Templin, Germany (22). The city has a population of 14,000 and serves as a health resort town 60 miles northeast of Berlin. The bus system consisted of two main lines and two auxiliary lines. The service was made fare-free in December 1997. The purpose of the fare-free policy was to reduce automobile usage, noise, pollution, and accidents.

The article discusses whether or not fare-free public transit is able to induce mode shift from private auto to transit. Several issues associated with fare-free service are noted. First, public transit is not just a substitute mode for cars, but also for walking and biking. Second, free public transit will likely induce more travel from current users. Third, previous empirical studies found that the potential for attracting automobile users to public transit is small, with most new ridership coming from induced travel, pedestrians, and shifts between peak and off-peak times.

In the first year of the fare-free program, ridership increased quite spectacularly from 41,460 to 350,000 passengers per year. In two more years, ridership exceeded 512,000 passengers per year. A previous study found that the majority of new riders were adolescents. It is noted that other fare-free programs ran into similar issues of youth making up a large portion of new riders, leading to increased cases of vandalism. Most of the passengers indicated that they previously walked (35% to 50%) and bicycled (30% to 40%). Approximately 10% to 20% would have shifted from auto use. The potential for mode shift was greatest for work and school trips.

Cost savings from fare collection was considered negligible for such a small system, although removing the need for ticket checking saved approximately 5,000 to 10,000 Euros. While the marginal cost per passenger during off-peak times can be considered zero, it is significant during peak periods. An above-average increase in peak riders will lead to substantial costs, estimated at 20,000 Euros. Perhaps this paper’s greatest contribution to thinking about fare-

free public transit in a new way was that it applied cost values to several car-related externalities. The reduction in pollution from a reduction in auto travel was valued at 5,000 Euros. From a road safety perspective, fare-free public transit attracted a substantial number of pedestrians and bicyclists, which in turn reduced injuries and fatalities from accidents.

A cost reduction of between 43,000 Euros and 120,000 Euros is approximated. The overall benefits of fare-free public transit are estimated to be between 33,000 Euros and 115,000 Euros depending on how environmental and safety costs are priced. The lost fare revenue was estimated to total 90,000 Euros. Therefore, there is a positive or negative net effect depending on the monetary values placed on environmental and safety factors. However, the article questions the propriety of accomplishing most ridership increases by people changing from non-motorized modes to a motorized mode (the bus).

TCRP Report 95: Traveler Response to Transportation Systems Changes: Chapter 12—Transit Pricing and Fares

The goal of this report is to provide insight into how public transit ridership responds to changes in fares, including changes to fare-free service (14). Changes in fare are categorized as increased fare to increase revenue to account for increased operating costs, decreased fare to stimulate ridership, or changed fares to increase equity among users. This report provides empirical data to identify fare elasticities for various fare change situations (both increases and decreases). In addition to changes in costs, different fare structures are analyzed (i.e., discounted prepaid fares, peak and off-peak fares, and fare discounts for certain demographics). Finally, fare elasticities are compared across travel demographics and trip characteristics, such as trip purpose, income, and age of the traveler.

The report notes that there were several demonstrations of fare-free public transit funded by the federal government in the 1970s. The fare elasticities for several fare-free demonstrations are provided, based on hours restrictions (off-peak or all hours) and service restriction (central business district [CBD] only, senior citizens, students, and no restrictions). The average fare elasticity for demonstrations with “no restrictions” is -0.28 for off-peak and -0.36 for all hours. The highest fare elasticities were found in CBD areas, where walking is the primary mode. The average fare elasticities for CBD areas were -0.61 during off-peak hours and -0.52 for all hours. A summary of 20 fare-free public transit programs is provided. In general, it was concluded that fare-free public transit programs significantly increased transit ridership, even more so than would be expected by the Simpson–Curtin rule, which would indicate a 30% increase in ridership with a 100% decrease in fare.

A case study is provided for the fare-free zones within the CBD areas of Seattle, Washington, and Portland, Oregon. In both cities, a substantial portion of trips within the CBD were carried using public transit. Fare-free zones were designated in the downtown areas, which were both later expanded. The reasoning behind instituting these fare-free zones was to improve passenger boarding times and increase ridership. Surveys were conducted in Seattle in July 1973, May, 1974, and 1977. Surveys were conducted in Portland in May 1975 and November 1977. In Seattle, ridership increased from 4,100 trips per day to 12,250 trips per day within the CBD, mostly during the midday lunch period (11:00 a.m. to 2:00 p.m.). Of these trips, 25% would not have otherwise been taken, 31% would have been from walking, 19% would have been by the replaced Dime Shuttle, 15% by other buses, and 10% from other modes. Similar success was seen in Portland, with ridership increasing from 900 to 8,200 trips per day 34 months later. Most of these trips were made

at midday (65%), between 9:00 a.m. and 4:00 p.m., and 22% during the evening peak between 4:00 p.m. and 7:00 p.m. It is noted in this report that several major changes were made in Portland during the evaluation of fare-free public transit. In the 1980s, there was some consideration of removing the fare-free areas in Seattle due to a lack of support from the business community. However, studies indicated that Seattle saved more money in operational costs from not collecting fares than they lost in revenue, although the specifics for these operational costs are not provided. Similarly, in Portland, there was some talk of removing the fare-less square, but this did not happen owing to public outcry.

“Free Public Transport”

Written in 1973, this paper reviews the benefits and costs of fare-free public transit, especially for German agencies (12). The price elasticities for several public transit agencies were estimated based on fare changes in cities including Hanover, Germany; The Hague and Utrecht, Netherlands; and Boston, Massachusetts. The elasticities experienced indicate that the Simpson–Curtin rule of thumb of -0.3 elasticity is reasonable, although it will vary based on trip purpose. Fare-free policies will have negligible impact on business, journey to work trips, and social trips (i.e., recreation and entertainment), but may have significant impacts on lunch trips or shopping trips (e.g., more trips to the city center rather than the suburbs). The paper adds that joyriding trips should be expected from young riders.

When analyzing the effects of fare-free public transit, the reduction in fare cost should be compared with four other factors: (1) the influence of travel time (in and out of vehicle travel time, frequency, reliability); (2) quantity-related (convenience and safety); (3) route-related (length of lines and transfers); and (4) status/image.

The most important factor from several opinion studies that were synthesized was speed, followed by fares, reliability, frequency, comfort, punctuality, seating, no transfers, and accessibility. Thus, convincing private vehicle users to switch to public transit should not be done with just a reduction in fares, but by improving all aspects of public transit service.

The projected costs of fare-free public transit for several German towns are provided, ranging from 22 million DM in Kassel to 350 million DM in Hamburg. These estimates take into account lost fare box revenue, remaining advertising revenue, increased capacity required during peak periods, savings from the elimination of fare collection, savings from greater productivity of buses as travel times decrease owing to reduced congestion, and savings from overhead costs derived from eliminating money collection. These costs are seen as a substantial burden to municipalities, and the authors are doubtful that the German government would be willing to completely finance public transit.

Finally, the authors provided some insight into the relationship between fare-free public transit and redistribution of income. One noted argument for free public transit is to improve conditions for the poor, elderly, very young, and disabled, as well as to equalize the distribution of incomes. The authors noted that in 1958, the amount spent on commuting to work averaged 3% to 5% of a household's income. A study in Hamburg found that over time, private vehicles were becoming more affordable to lower-income households. Additionally, higher-income travelers may choose to ride public transit to avoid congestion and parking, or for other reasons such as health and age. As to the question of the redistribution of income, the authors concluded that the increased tax required to subsidize free public transit would not be sufficiently effective and that other methods are better suited.

APPENDIX D

Local Ordinance Governing Rider Behavior on a Fare-Free System

Provided here is the local ordinance adopted by the Cache Valley Transit District that governs passenger behavior and provides authority for the transit agency to deal with disruptive passengers. [Note that the words “he” and “his” are used throughout this Policy without regard to the actual gender of the person.]

CACHE VALLEY TRANSIT DISTRICT

Conduct Policy on CVTD Property

The Cache Valley Transit District, henceforth referred to as the “CVTD,” is dedicated to providing quality public transit services to all members of the community and visitors regardless of age, sex, race, or national origin. The Cache Valley Transit District is also committed to providing a pleasant and safe atmosphere for all of its patrons, and expects that all of its patrons will abide by generally accepted social norms of behavior. This policy applies to all passengers and employees of the Cache Valley Transit District.

1. “CVTD property”: structures, vehicles, bus stops, or public or private rights-of-way used primarily by the CVTD for public transit operations.
2. “Minor”: a person who is 17 years of age or younger.
3. “Terminal”: bus stop, transit center, or bus garage.

Prohibited Conduct

1. Youth under the age of 10 are not permitted to ride CVTD services without being accompanied by an individual 10 years of age or older. Individuals who are between the ages of 10 years and 18 years of age may escort children under 10 years of age.
2. Alcohol and tobacco. No person shall possess an open container of alcoholic beverage on a transit vehicle or within a transit facility. No person shall ingest intoxicating liquor, or smoke tobacco or other products in or upon any transit vehicle or transit facility. Any person reasonably believed to be unlawfully under the influence of alcohol may be refused admittance to any transit facility or transit vehicle.
3. No person shall bring or carry on CVTD property a live animal other than a service animal, except the operator or transit public safety officer. Authorized representatives may give permission for a non-service animal to be brought in or on CVTD property as long as such animal remains in an enclosed carry-on, does not obstruct the free movement of passengers within any transit vehicle or transit facility, and does not create a nuisance to the operator or passengers.
4. No person shall fail to vacate seats reserved on a transit vehicle for a senior or disabled person when requested to do so by a CVTD representative. If all such seats are held by senior or disabled persons, the representative may designate additional seating as reserved.
5. No person shall place their feet on the seats of any CVTD property.
6. No consumption of food or beverage is allowed on a transit vehicle. No person shall bring food or beverage aboard a transit vehicle that is not kept in an enclosed container. This

restriction does not preclude groceries being transported from a grocery store.

7. No person shall falsely hold themselves out to be an employee or a transit public safety officer.
8. No property, rubbish, trash, or debris may be discarded, deposited, or abandoned in or upon a transit vehicle or facility other than in a proper trash receptacle provided for that purpose.
9. No person shall loiter in or about a transit facility in a manner and under circumstances manifesting the purpose to engage in acts of misconduct including, but not limited to, exhibitionism, solicitation, malicious mischief, or acts of indecent exposure.
10. No person shall bring or carry aboard a transit vehicle any package or article of a size that will block any aisle or stairway on the vehicle.
11. No unauthorized person shall place, permit, or cause to be placed any notice or advertisement upon any transit vehicle or transit facility.
12. No person shall deface, destroy, litter, or otherwise misuse the restroom facilities located at any transit facility.
13. No person furnished transportation on a CVTD system bus shall be permitted to distribute any form of literature if such distribution causes a nuisance, disagreement, or discomfort for the other passengers on the bus. Distribution of literature shall be permitted if such distribution is done in a safe, polite, and non-offensive manner. A person distributing literature shall cease to do so upon the request of the bus driver or other authorized CVTD employee.
14. No person shall be permitted to engage in conversation that is unwelcome or if a person has requested the conversation to end. If an authorized CVTD employee requests the person to cease conversations with others because a complaint has been filed, then that person will cease the conversation.
15. No person shall be allowed to create a public nuisance as defined by Utah’s Criminal Code, Section 76-10-801 and 76-10-803. If such a nuisance is caused the person will be asked to stop the behavior that is causing the nuisance; if the behavior is not stopped then the person will be asked to leave the premise.
16. No person shall threaten to breach or breach the peace on any transit vehicle or facility.
17. No person may create a hazardous or offensive condition on any vehicle or facility including:
 - A: Brandishing or discharging a firearm;
 - B: Threatening with or assaulting any person with any weapon;
 - C: Threatening with or igniting any flammable substance;
 - D: Spitting, defecating, urinating, or discarding any offensive substance in or on a transit vehicle, facility, or any person;
 - E: Initiating or circulating a report, knowing it to be false, concerning an alleged or impending fire, explosion, bomb, crime, catastrophe, or other emergency;
 - F: Activating the “emergency stop” device of a transit vehicle in the absence of an emergency; and
 - G: Subjecting any other person to offensive physical contact, extortion, harassment, or intimidation; or engaging in lewd or obscene behavior.

18. No person shall, with the intent of causing public inconvenience, annoyance, or alarm within any transit vehicle or facility;
 - A: Engage in fighting, or violent or threatening behavior;
 - B: Make excessive and unnecessary noise;
 - C: Use abusive, obscene, profane, or vulgar language, or make obscene gestures; and
 - D: Interfere with the duties of any operator, public safety officer, or authorized representative.
19. No person shall fail to obey a reasonable request or lawful directive of an operator, representative, public safety officer, or other person in charge or control of a transit vehicle or facility.
20. No person shall extend any portion of his body through any door or window of a transit vehicle while it is in motion.
21. No person shall hang onto or attach himself to an exterior part of a transit vehicle.
22. No person shall park a private vehicle on transit facility boarding zone or safety zone.
23. No person shall ride a skateboard, roller skates, or roller blades on any transit vehicle or facility.
24. No person shall seize or exercise control, by force or violence, of any transit vehicle or facility.
25. No person shall be permitted on CVTD property that has a contagious or infectious disease.
26. No passenger may "Refuse to leave a Cache Valley Transit District bus, terminal, or shelter after having been ordered to do so by the operator or other designated agent of the Cache Valley Transit District." In the event that a person has been ordered to leave a CVTD bus or CVTD property by a designated agent of the CVTD, he will not be allowed on CVTD property until such time that his riding privileges are formally restored. If he is found to be present on CVTD property before his riding privileges are formally restored, the CVTD will summon the police to have him arrested for trespassing.
27. In order for a person's riding privileges to be restored, he must personally meet with the general manager or his designated representative; if a minor, his parent or designated guardian must be present. At this meeting, a determination will be made as to the validity of the purported conduct upon which access to CVTD service or property was suspended.
28. If a determination is made by the general manager or his designated representative that the behavior was indeed inappropriate, the person's riding privileges will be suspended according to the Sanction Schedule detailed below. If the general manager or designee determines that extenuating circumstances led to the revocation of the person's riding privileges, his riding privileges will be immediately restored.
29. If a person's riding privileges are suspended, and he wishes to regain his privileges, he will be required to sign a "contract" (see Attachment A) indicating:
 - a. He understands that the behavior cited was inappropriate;
 - b. He understands the ordinances and policies governing his behavior; and
 - c. He understands that similar prohibited conduct will lead to further sanctions.

The general manager will take a picture of the person, which will be posted in the operations facility; this picture cannot be used for any other purpose than to inform CVTD representatives that the person's riding privileges have been restored.
30. Sanction Schedule: as indicated, if the general manager or designee determines that a person's riding privileges are indeed suspended, he may not have access to CVTD service or property for the following periods:
 - a. First infraction: the person's riding privileges will be suspended for two calendar weeks from the date of the meeting with the general manager or designee.
 - b. Second infraction: the person's riding privileges will be suspended for two months from the date of the meeting with the general manager or designee.
 - c. Third infraction: the person's riding privileges will be suspended for one calendar year or more from the date of the meeting with the general manager or designee.

These actions to suspend may be in addition to those fines, actions, or sanctions applied through the civil or criminal ordinance/statutes of the state of Utah, or the federal government.
31. In the event that a person causes intentional damage to CVTD property, the police will be summoned to arrest the offender and criminal charges filed in accordance with established local, state, and federal statutes. In addition, restitution for all costs will be sought from the offender (or parents/guardians in the case of a minor). Until such time that full restitution is paid, the person's riding privileges will be suspended at least as long as the sanctions identified above.
32. In the event that an article is thrown at or from CVTD property, the police may be summoned to arrest the offender and criminal charges filed in accordance with established local, state, and federal statutes.

Name

Street Address

Phone Number**CVTD AGREEMENT FOR REINSTATEMENT OF TRANSIT RIDE PRIVILEGES**

I, _____ agree, in return for my Cache Valley Transit District ride privileges, to abide by the rules, regulations, and policies of the Cache Valley Transit District in accordance with CVTD Policy Conduct Ordinance, and Utah State Law, which indicate a variety of conduct that are prohibited/precluded on transit vehicles and on transit property. I have a received a copy of the CVTD Conduct Policy.

I understand that the bus driver and any other transit official have the authority to ask me to leave the bus and/or transit property if, by my conduct, I disturb other passengers and/or interfere with the safe operation of the transit service.

I understand that if I refuse to leave, the police will be summoned to eject me, and that appropriate charges may be leveled against me.

Citizen's Signature

Date

Parent/Guardian (where appropriate)

Date

General Manager or designee

Date

Project Manager or designee

Date

APPENDIX E

Summary of Survey Results

IMPLEMENTATION AND OUTCOMES OF FARE-FREE TRANSIT SYSTEMS

1. Why was a fare-free system considered or implemented versus one with fares?

Public Transit Agency Respondents in Rural and Small Urban Communities

- The concept of fare-free or pre-paid fare was considered in the original Mason Transit Comprehensive Plan following a study conducted in the 1980s. The University of Washington conducted the study based on assumptions that: fare collection costs consume most of the revenue collected, local residents pay for transit service in sales tax so a fare is seen as unfair, fare collection procedure can result in distractions for drivers, safety concerns related to robbery particularly in remote rural areas, enhanced marketing strategies—“take the bus—you are already paying for it.” Mason Transit initiated system-wide fare-free service in December 1992 with very limited revenue and fare collection was seen as adding to costs with very minimal revenue collected to offset basic operational costs. “Fares can always be added but would be very hard to remove once started.” Fares were adopted on out-of-county trips in 2000.
- The Local Option Tax provided the funds to allow the transit system be fare-free.
- To reduce traffic congestion, get more people to use the transit service, and to reduce commuting costs for our residents. Our service area is more than 4,000 square miles in size, and it is not uncommon for people to travel 20–80 miles one way for employment, school, and shopping purposes.
- To encourage reductions in automobile use.
- A fare-free system was implemented primarily because the cost of collecting the fare was anticipated to exceed farebox revenue.
- There are several other reasons for not implementing a fare in our area. These include relatively low county operating subsidies (due to the availability of Federal 5307 operating assistance); administrative difficulty (hiring and training personnel, establishing accounting procedures, enforcing safe cash handling, establishing and administering discount fare policies, etc); operational issues (system delays caused by fare collection, crime problems, farebox maintenance requirements); and policy considerations (equity, incentivizing transit vs. single occupant auto travel, etc.).
- Free fares were implemented due to the passage of the district’s gross receipts tax, as well as safety concerns for the driver.
- In 1972 when the system first opened its doors, there was never a fare implemented because the mayor felt it was important to provide this service in a city with many low-income residents. Since then, no one has implemented one due to the cost associated with fare collection and the city’s willingness to provide funds.
- The system started in December of 1987 and at that time, the seven members of the Board of Directors decided to give the concept of fare-free transit a demonstration. Originally, the service was going to be fare-free for six

months, with the option of continuing with the fare-free concept determined through an evaluation of the ridership. The service was tremendously successful from the start. The state Department of Transportation (DOT) did a preliminary study prior to implementation of the service and estimated that our demonstration would be very successful if the system carried a total of 500 riders per day on the four original routes after providing five years of service. Our system carried 161 riders its first day of service, December 1, 1987. By our 14th week of service, we were carrying over 500 riders per day and by the end of 1998, the system had carried 247,422 riders. Today, the system carries approximately 1.3 million riders per year and travels approximately 3.3 million miles per year.

- The system has been fare-free since inception in 1996. The major employer in the service area makes a substantial contribution to support public transit, as do area hotels and condominiums to a lesser extent. Fare-free was initially instituted for these reasons as well as to encourage ridership.
- The service area’s population contained many students, seniors, and low-income people who needed mobility. Any fares collected would be considered as match that would have diminished the federal funding we could receive.
- We wanted to be a competitive service to the automobile and provide a fast service. Fare-free policies allowed our buses to travel faster.
- To encourage more ridership, and it cost more to collect than they would generate.

Public Transit Agency Respondents in University-Dominated Communities

- We operate a fixed-route bus system in a university town. People with university ID cards used them as their boarding passes. Everyone else paid a 50 cent fare. With 85–90% of our bus riders university-related, we only emptied fare boxes once a month. With new auditors saying we could have no more than \$250 out in fare boxes without needing to deposit them we were having to empty fare boxes more than once a week which cost us more than the money we took in.
- Our Board has tasked us with the following: offer innovative services that reduce dependency on the automobile. We believe that operating fare-free is one way to achieve this objective. Additionally we study the fare-free issue in our short-range transit plan every five years. In the last plan completed in 2006 it was suggested that we could lose up to 50% of our ridership if a fare was charged at a level to cover costs to impose the fare. In that study a phone survey was also conducted and found that the main reason people aren’t using our services is because of inconvenience. As we have studied the fare issue we believe that imposing a fare would make things even more inconvenient. We would have to increase our headways for fare collection, determine fare zones, create transfers, and the list goes on and on. We believe the increased headways are the greatest inconvenience to our customers. These reasons are the primary reasons why we remain fare-free.
- Because we did not wish to compete for the student’s money. By prepaying through student fees and parking

fees we could carry large volumes of passengers and not worry about fares. Also, the cost of fare collection, counting, auditing, etc., was a deterrent.

- It just made sense. We knew that the fares would be paid primarily by students, and load and dwell times would make the system unwieldy with fares.
- We chose a fare-free system because our funding was such that we didn't want to jeopardize our early efforts to get a system in place. Grants were made available from the State Human Resources Development Council.
- Our system charged a fare prior to January 2002. A fare-free system was considered for multiple reasons. Primarily the university believed that a fare-free system would be easier to administer from the university's standpoint. In addition, both the university and the town believed that a fare-free system would stimulate ridership increases.
- A grass-roots citizen's Sustainability Coalition group proposed the fareless system to the city council to encourage increased ridership, reduce air and water pollution and greenhouse gas production, and increase the availability and ease of the service to seniors, youth, and low-income community members. The funding source is a small monthly fee charged to utility customers and this fee accomplishes three things: replaces fare revenue; replaces the local General Fund (property tax) revenue to the transit fund; and adds a small amount for system expansion. The council supported the change for sustainability reasons, but also to reduce the competition for General Fund dollars used for other critical city services including police, fire, library, and parks and recreation.
- The financial considerations of the costs of fare collection being more than the revenue collected, and the many benefits to the public.

Public Transit Agency Respondents in Resort Communities

- When the County Commissioners (BOCC) took over the system from the resort operators in 1990 it had been free and it was felt by the BOCC that it should remain so. The levy campaign for our sales tax was also based around the system remaining free.
- Many of our trips are in short proximity. The likelihood that someone would actually pay the amount required for the fare-cost recovery threshold would be very unlikely for the type of trip we provide to guests visiting the ski area. Our fare-free transit system is considered essential in the winter to manage our increase in population.
- The town's decision to provide fare-free services was to support our local retail and lodging establishments while at the same time addressing our vehicle traffic issues. The overall intent is to support the local economy and reduce vehicle congestion in the downtown area.
- Our transit system was the only one in the resort region that did not have a free rider system. It was determined that a fare-free system would give us competitive equality in resort transportation.
- The initial program was a NGO/government partnership in the political and economic environment (gas crises) of the 1970s. Fare-free bus service began in 1973.
- Mostly for passenger convenience. We are a resort area and anything to make it easier for the visitor is taken into account.
- The gondola is free to riders by written agreement as a condition of a historic PUD approval process.
- Parking and traffic are big issues in our small town and we wanted to encourage as many as possible to ride pub-

lic transportation instead of renting cars. Crowds of skiers would cause a significant delay in boarding and alighting fumbling with money and ski equipment and only having one entry and exit available. This would make it necessary to provide more buses for the same level of service.

- The city council wanted to increase ridership.
- To stay economically competitive in a resort ski area.

2. Who was the major initiator of this policy (policy board, general manager, other elected officials, advisory board, community groups, etc.)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- The primary support in consideration of a fare-free policy came from community groups that eventually formed into the Transit Advisory Board. This group made the recommendation to the Transit Board that consisted of elected officials from county and city government.
- Public Transit was a priority the businesses were looking for in supporting the Local Option Tax.
- The mayor and transit agency.
- The executive director of the transit agency.
- The transit system operator, in conjunction with the MPO and Board of County Commissioners.
- This was brought up to the Board of Directors by staff.
- The mayor.
- The original executive director introduced this fare-free concept to the Board of Directors. He had an idea that for our size system, collecting a fare would generate little or no usable revenue for service delivery because of the costs associated with the administration of the fare system.
- A consultant.
- The Tribal Council.
- City council guided by staff who had worked at fare-free systems in Colorado.

Public Transit Agency Respondents in University-Dominated Communities

- The transit system general manager suggested to the town council that if they would pay the estimated fares for the year we could make the buses fare-free for everyone. Once the town council agreed to do this, the transit agency board adopted the new fare policy beginning in July 2005.
- The board originally initiated the fare-free philosophy. Originally it was to be fare-free for the first year, but it has remained so for 19 years. Currently, it is the general manager and staff that hold the board to their end goals that keeps it fare-free. Unless the end goals change we anticipate staying fare-free. However, we will be studying the fare-free philosophy again this year in our short-range transit plan. We want to make sure our current thoughts hold true. If we are presented information that would indicate something different we would present it to the board for discussion.
- It was actually the premise of the demonstration grant that started the system. "If parking fees were elevated and a fare-free system was put in place would the result be less traffic, hitch hiking, and cars being brought on campus."
- The general manager.
- The Advisory Board of the Human Resources Development Council.
- The major initiator of the policy was the university; however, there were three players in the discussion: the university and the two surrounding towns. The discussion started at the policy level.

- In 2008, the Sustainability Coalition, a group of organizations and citizens, held a series of town hall meetings where more than 500 citizens attended to gather public input on how to make the city an even more sustainable community. The result was the Community Sustainability Action Plan, containing more than 300 action items in 12 topic areas. Eventually, five items were presented to the city council. One of those items was fareless transit, which is currently funded by the Transit Operations Fee that appears on monthly city services bills. Fare-free transit began February 1, 2011.
- Consultants had recommended two different systems serving the community and the university, but the general manager recommended creating just one, and it was unanimously accepted by the city of Clemson and the university.

Public Transit Agency Respondents in Resort Communities

- The major initiator was the Board of County Commissioners.
- Town council.
- The National Park Director approached our local town board of trustees to address the possibility of a joint shuttle system between the national park and the town.
- City council.
- Elected officials.
- Elected officials and volunteers.
- The elected officials decided this.
- County commissioners and the project developer.
- The transit director and city council were the primary initiators.
- City council.

3. Did you consider a nominal fare (e.g., \$0.25 or \$0.50) instead of charging no fare? If so, what were your reasons for not doing that?

Public Transit Agency Respondents in Rural and Small Urban Communities

- The system considered various levels for “out-of-county” fares based on criteria derived from local surveys and research. Primary concern was fare elasticity and local social economic considerations.
- The administrative costs associated with the fares would be prohibitive for the nominal amount of funding the fares would bring in this small rural community.
- No. We wanted to have a system that allowed bus riders to travel at no cost.
- The cost of collecting a fare is probably in the range of \$0.25–\$0.50 per ride and it is not as attractive to riders as free.
- No. At a nominal rate, the cost of collecting the fare will in all likelihood substantially exceed system revenue from the fare.
- A nominal fee was not considered for several reasons: cost of installing fareboxes on approximately 45 vehicles, driver taking time to monitor what is being deposited in the fare-box, longer lines to board as customers must deposit fare into box, overhead cost in pulling fare boxes, counting money, and depositing to bank. Also many residents feel that the fare is paid through the Gross Receipts Tax.
- None was considered.
- The board of directors hired a consultant to draft a fare structure option that included fare zones and recommended fare structures. The board decided not to embrace a fare structure at that time because they thought that it

would be good to offer the service fare-free to gain interest in the service. It proved so successful, that each year during evaluation of the service ridership and growing approval of the concept behind fare-free delivery of services, the board determined to keep the service fare-free, or pre-paid, service.

- Our system is funded by a voter approved local sales tax. In 1987, the voter approved sales tax was $\frac{3}{10}$ of 1%. In 1999, during a major initiative-based tax revolt in Washington State, our voters went against the grain and increased the sales tax to support the system by an additional $\frac{3}{10}$ of 1%, for a total of $\frac{6}{10}$ of 1% sales tax. In 2009, and despite the downturn in our national and local economy, the voters elected to again increase the sales tax by an additional $\frac{3}{10}$ of 1%, for a total of $\frac{9}{10}$ of 1%, the maximum allowable under the laws governing public transportation in our state.
- Never.
- No, the Tribal Council and housing authority provided the match to federal funds, so no fares were needed.
- We considered it, but our goals were for a fast, competitive service, and we had access to $\frac{1}{8}$ th Gross Receipts Tax revenue, and realized that it would be counted as income, which would reduce federal dollars.
- A fare had been charged before, and they were not drawing many passengers.

Public Transit Agency Respondents in University-Dominated Communities

- We had nominal fares prior to going fare-free.
- No, if we charged a fare we would at least charge enough to cover all fully allocated costs of collecting a fare. We wouldn't want to charge a fare that would be a drain on resources, but rather provide additional revenue.
- Yes, and the decision was it costs \$0.15 to collect a \$0.25 fare and collecting a fare would decrease the efficiency of the system. We use both front and rear doors to load and unload.
- We were forced for a year to charge a fare (\$0.50) outside the campus. It generated less than \$10,000 a year. No one complained, but ridership was clearly affected. We eliminated it a year later when the governor made senior citizens exempt from fares. The only people left that were paying fares (we had already exempted school kids and disabled) were the poorest people. That made no fiscal or socially responsible sense.
- We chose free because of the additional expense of collecting fares and the reduction of federal match money if we did charge a fare.
- A nominal fare was not considered. There was a system with fares in place and the discussions focused solely on becoming fare-free to ease administration and increase ridership.
- There was consideration of lowering the transit fee to the level where only the General Fund component was being covered, but it was ultimately decided to include the foregone revenue and small expansion components to provide more service than what the citizens were already paying for in their property taxes.
- No. A study done in 1996 by consultants was reviewed by the local committee. They analyzed the capital costs, operating costs, required management reports, dwell time, etc. They noted that students would not pay a fare at the fare box since they were prepaid, meaning 70% of the passengers would ride “free” and only 30% would pay fares, mostly seniors who would be paying half-fare.

Public Transit Agency Respondents in Resort Communities

- No fare was ever considered. There have been discussions of late regarding possibly making the system fee-based. The recent recession has management and the board questioning how much longer a fare-free system may be indeed sustainable.
 - A nominal fare was considered; however, survey data and cost-recovery projections did not support it. Our consultant estimated we would need to charge a minimum of a \$1.00 fare in order to break even for the equipment capitalization (fare boxes) and for the on-going administration (collections, counting, and accounting). Surveys demonstrated that people would more likely move their car more often than have to pay a fare for the multiple short trips. Plus skiers often do not carry change or cash, which would pose a problem.
 - Again, charging fees was discussed during the planning stages and because of the opportunity presented to us by the national park it was decided not to charge a fee.
 - Our fare had been \$0.50. Anything less and the costs would have exceeded the revenues. With fares, there is the cost of the fare collection system; supervisors to collect, count, and deposit the monies; the room to do this work; security; plus the extra buses or lowered service area needed to account for the time per stop/passenger to collect the fare and load the bus.
 - Yes, a nominal fare has been discussed from time to time. The costs associated with collection, as well as potential ridership impacts, have been the factors that have eliminated fares as an option to date.
 - No. The original program (a senior citizen shopping service), saw the volunteers and riders "chip in" for fuel until the county government took over the program and provided both vehicle and fuel from county supplies.
 - We have always been a free system. We have considered charging a fee when the sales tax revenues have decreased.
 - No, but we will in 2027 when the term of the agreement with the developer expires.
 - Yes, but due to the problems associated with additional dwell time and inconvenience to skiers in particular, they didn't do it.
 - No, the city council wanted to implement TDM measures (traffic mitigation) and encourage the public to ride the bus.
 - Yes, it was considered but not seriously, and no real analysis was done.
4. What was the institutional structure of the transit agency (e.g., authority, county/city agency, PTBA), and how would you describe the policy making environment of the community (e.g., conservative, progressive, environmentally oriented, etc.)? Was that environment significant in deciding to go fare-free?

Public Transit Agency Respondents in Rural and Small Urban Communities

- The Public Transportation Benefit structure of the system is strongly influenced by policy recommendations from community groups. Although the area can be described as conservative, it is influenced by factors that existed when the fare-free policy was adopted such as a very depressed local economy, the need to commute to jobs in adjacent urbanized areas, and a strong concern about the environment.
- Our agency is a private nonprofit transportation system that serves rural communities. In order for the hotels to

advocate the Local Option Tax there had to be a benefit to them directly. The fare-free system was the benefit they were looking for.

- We are a county agency. Our local government has always been progressive in being environmentally friendly.
- Our agency is a private nonprofit organization providing service to six towns in two states. The political environment varies widely within the service area and was not a factor in deciding to go fare-free. It may in time be a factor if fare-free is eliminated.
- The provider is a private not-for-profit organization, the Senior Resource Association. The planning agency is the county MPO and the designated recipient of federal funds is the county.
- The board of directors is made up of elected officials from each of the member counties/cities/tribes. The policy-making environment is quite mixed with conservative, progressive, and environmentally concerned. There are many varied opinions in dealing with cities, counties, and tribal entities. The general opinion of the public was for free fares, especially with the passage of the gross receipts tax.
- The agency is a city department and our city is a transit dependant/low-income area.
- Our agency serves one county consisting of two islands. The service started on one island in 1987, after two failures at the polls to provide public transit in the county. The boundary lines were redrawn based on the precincts that voted "yes" to fund the service, and after this was done the voters voted in favor of the service. A lawsuit was filed against the transit system that based their case on people "gerrymandering" the boundaries to obtain the approval by the voters. After almost five years in the legal system, the State Supreme Court upheld the process of adjusting the precincts because those people within the precincts voted in favor of the service.

In 1992, voters in the north part of the county requested that they receive service and in 1992, by a 73% positive vote at the polls to fund transit (by $\frac{3}{10}$ of 1%), that area was annexed into the service area. In 1995, the other island in the county requested service, and in 1995, by a 74% positive vote to fund transit by the $\frac{3}{10}$ of 1% sales tax, that second island was annexed into the service area. (Additional sales tax increases were on the ballot in 1999 and 2009. These measures were on the ballot countywide and both were successful votes.) It is of interest to note that our two islands are 3 hours round trip apart from one another, crossing over two other counties to reach one another.

Most of our two islands are very conservative, though the southern half of one island is very liberal. Up until two years ago, our board of directors was made up of very conservative elected officials. It is important to note that in 1992 the board of directors voted to reduce the size of the board from seven to five members because they felt that a smaller board would be more manageable and, therefore, more beneficial for the effective delivery of services. (I had one board member who wanted to get on the transit board because he wanted to eliminate Island Transit, or at a minimum, get rid of the fare-free policy. After working with him for several years, he actually started to educate people that he knew about how and why fare-free works. I recall trying everything I could on him: is there a farebox at the door of the library, the farebox isn't an enforcement tool, etc. I finally hit on the one he absorbed completely, which is the bus can't be convenient for everyone, but everyone benefits by having the bus system because every rider on

that bus takes a car off the road, which lessens the congestion for those who drive. That one hit pay dirt with him. He was a bit concerned with his very conservative constituency who elected him into office, as they wanted him to get rid of us, but he was well-known and respected, so he actually started educating folks about the benefits of fare-free transit.)

- Yes, there are diehard conservatives who'd love to see the system go away. (They are without a doubt a minority, as proven by the successful votes for increasing transit sales tax.)
- Our county is also federally designated as a sole source aquifer region. As such, protecting our delicate eco-system is paramount. In the more progressive portion of our service area, the voter approval for transit is definitely geared toward protecting our environment. This sentiment has been growing steadily in our county over the years, especially now with the focus on sustainable and livable communities.
- Our system has been very proactive in terms of environmental issues. We were the first system in our state to install a water recycling unit (March 1994) and we use biodegradable products for washing our buses. For example, we use 100% ground cherry pits to clean the grease off of our wheel wells. We wash 35 buses, six days a week, and in one year we use the water equivalent to a family of four. We installed a waste oil burner (January 1995) to heat our facility and eliminate our waste oil. Based on a study conducted by EPA at that time, burning waste oil was the preferred method of eliminating waste oil. (Actually, eliminating the use of oil is the preferred method in my book. We're getting there. Just not fast enough.)
- Before we installed the waste oil that heats our facility, our electric bills ran to \$1,700 a month in the winter. After installing the waste oil burner, our electric bills are approximately \$300 in the winter months.
- We are a private, nonprofit public transit provider. Our state is typically liberal in nature.
- The Tribal Council is the governing authority and has a contract with the county to serve certain areas not on the reservation.
- Our agency is a city service located in public works.
- City agency.

Public Transit Agency Respondents in University-Dominated Communities

- We are a county-wide public transportation authority with eight members appointed by the county commission. Our largest jurisdiction wanted to promote transit use and was willing to pay the annual fares to make it happen.
- Originally our agency was a department of a city with an advisory board to the city council and a private contractor providing the employees. In 2007 we created a transit authority that served the county, which has 11 different cities, and this created a governing board. We actually live in one of the most conservative areas of the country. Our board, made up of 19 members, has governed by setting end goals for management and then letting management determine best how to achieve those end goals. This allows our board's diversity to be a strength for creating discussion, but then setting end goals that are broad and are supported by conservatives, liberals, etc.
- We are presently a contract operator in a larger authority service area. That larger service area has 23 member communities of which we service 8. We are an environmentally progressive area. However, the decision to go fare-free was committed to early on before the existence

of the larger authority. It was the university's decision to move its students as quickly, efficiently, and as low cost as possible.

- Our system was operated by the university, and overseen by the city, which is the designated recipient of federal grants. I would say when we started the city didn't have the vaguest idea what to do with us. As time went on, they got more involved and eventually became champions of transit.
- Our transit agency is a small, private not-for-profit agency. The city is rather progressive, but that had no bearing on our decision to go fare-free.
- Our transit agency operates as a department of the town. However it is also a multi-jurisdictional agency that provides transit service not only to the town, but also the university and the other prominent town in our area. Our agency has an inter-governmental agreement with the university and the other town that establishes the budgeting and funding processes. We also have a Public Transit Committee comprised of policy level staff, the people from each of the jurisdictions providing policy oversight.
- The policy-making environment in this community is progressive, environmentally oriented, and transit-oriented. The community has viewed the transit system as a key player in the overall development of the community. They understand that by encouraging more transit use they will reduce the need for street projects. The strong community support of alternative transportation and the university's motivation to hold down administrative costs were significant factors in deciding to go fare-free.
- Our transit system is owned and operated by the city. The policy-making environment of the community is progressive. That environment was a significant issue in deciding to go fare-free. Our community, home to a major university, has always been very supportive of public transportation and environmental and social initiatives.
- Our agency started out as a joint city-university entity and wound up being a city department that was recommended by the GM since the city was the designated recipient of federal funds. Some students had been providing mobility service through unmarked vans. Our community is generally a conservative area with high sensitivity to the environment and economic development.

Public Transit Agency Respondents in Resort Communities

- Our system is owned and operated as a unit of county government. The community is very environmentally oriented, but that did not drive the decision to be fare-free. The residents of the county voted to fund the system via a sales tax and their feeling is the sales tax pays for the service and paying a fare would constitute "double dipping." Also, since we are a resort community, most of our sales tax is paid by visitors. Additionally, the fact that we are fare-free is used as an incentive to tourism (although 67% of our riders are local residents going to work).
- We are town-operated and environmentally oriented. The benefits of transit are necessary when we go from a year-round population of 3,200 residents, to a high of more than 50,000 on any given peak day in the winter season. The system provides relief for traffic congestion. We get people to park their car and leave it the entire day. Our system enhances the guest experience, which in turn can make the difference if people make the choice to return to Breckenridge for another visit.
- The national park implemented a system and allowed our organization to participate at a nominal cost (labor and

fuel only), while the national park covered the expenses of maintenance and lease/purchase costs of the rolling stock. The policy making of the community related to funding is conservative and yes it played a role in the decision making.

- Our system is a division of the city and is overseen by the city council. The environment was a split between a desire to be more environmentally oriented with more people riding the bus and business-oriented with the desire to be competitive as a destination resort.
- We are a city agency and we contract with the regional transit authority to operate our eight-route system.
- A progressive freeholder board saw the “marketing opportunity” in providing the most likely voters with a service that was, at the time, an inexpensive way to fulfill an unmet need.
- Our agency is part of two towns, one being progressive and the other being a little more conservative. Both communities are environmentally oriented and yes providing a free service was aimed at getting people out of their cars and off the roads to reduce the amount of emissions that were being generated by those cars.
- Our agency is governed by municipal government. The political climate is progressive and environmentally oriented. Our service takes a significant number of vehicles off the roads and has been a huge benefit to keeping air pollutants from vehicle exhaust and PM-10 particles from being ground up into the air by a greatly increased level of vehicle traffic if the system was not operated or operated at a fare rate that diminished use.
- We were originally governed by one county, but it is now partnered with a second county. Both counties are progressive and environmentally conscious communities, but traffic and parking issues as well as the need to speed the boarding process for skiers in particular were the primary reasons to go fare-free.
- We are a city agency in a community that is environmentally oriented, but the primary goal was to increase ridership versus serve environmental goals.
- Our transit agency is a partnership of cities and counties as an agency that deals with all transportation demand management issues.

5. Was there a major generator of riders from a single source in the community prior to establishing a fare-free service, such as a university or major employer, that might have made fare-free a logical choice based on their ridership or willingness to help pay for the service?

Public Transit Agency Respondents in Rural and Small Urban Communities

- A very large program serving persons with disabilities was a staunch supporter of fare-free transportation for clients.
- Our agency had a partnership with a major resort that allowed their employees access to work. The resort provided the local match for the grant funds until the resort went into bankruptcy.
- No. (Five transit agencies provided this response.)
- Yes. The two biggest employers in the region were the prime underwriters of fare-free. Those employers are the medical center and college.
- A major aircraft manufacturer was clearly a major employer and still is, but was not a major factor in the decision to establish fare-free service.
- Yes, a successful resort is the major employer in the service area, especially during the winter months, and has supported public transit with annual contributions since inception.

- There is a casino, and a lot of workers are transported there, and it had provided fare-free service prior to the establishment of our public transit service.
- The university is in town, but is not the dominant presence or reason for establishing a fare-free policy.

Public Transit Agency Respondents in University-Dominated Communities

- The local university was the major source of local funds and riders for the transit system.
- We do have a university that does generate approximately 45% of the ridership; however, the initial fare-free philosophy was instituted because the board at the time did not think the conservative community would ride the bus, so they thought this would help expose people to the services.
- This is and always has been a university-dominated system. Through the demonstration grant high-density areas were identified off campus where students were housed. These were the first targets of off-campus bus service. Dormitories and peripheral parking areas on campus are also serviced. That is why student and parking fees are the major revenue to operate the system.
- At first, 93% of our ridership was students. But as time went on, the community became more involved, and the system targeted them more. This bred trust with the city as they saw us as less self-interested. Now the ridership breakdown is closer to 80/20. That students were the generator of ridership clearly led to the fare-free service.
- The local state university is our largest ride generator. They provide approximately \$150,000 of funding each year. Faculty and administrative staff from this university of 10,000 are also using the system, as well as other people in the community for work and shopping.
- The major traffic generator that was an impetus for the fare-free system was the university, which has a population of students and staff, including their hospitals, of about 45,000. The populations of two towns are about 52,000 and 17,000.
- State university students make up 43% of overall ridership. Faculty and staff account for another 4% of ridership. Both of these groups were already riding “fareless,” since there was a group-pass program for both. The students were paying a small amount (\$2.76 per student per term) via their quarterly student fees for transit, and the university provided \$20,000 per year for faculty and staff. The monthly transit fee replaced both of these programs.
- Yes, the university. Today we operate in three counties, five cities, and four universities.

Public Transit Agency Respondents in Resort Communities

- The service area is home to four world-class ski resorts. These are the major employers 8 months of the year.
- Our system is a complementary system to the one that is operated by the major ski resort. Our mission is to move the low-income job access commuters to and from work, to get the guests parked so that we can eliminate all-day gridlock, and to move the overnight ski guests into town for the restaurants and nightlife. Everything we do is feeding the economic engine.
- No. (Two agencies provided this answer.)
- Our major trip generator is the tourist industry focused on the ski area. This not only includes the visitors to the ski

area but all associated workers, night life, and other visitor amenities. Carrying exact change or bus passes was something that made travel more burdensome and also created difficulties for persons wanting to do linear trips with a lot of stops/destinations.

- Ridership generators on the transit system include employers, recreation (ski) areas, large events, and tourism.
- Not specifically. The major generators were rural geography and an aging population.
- The major employer in the county is the ski area resort. Our system is based on the seasonal flow of visitors to the area. The resort donates funds to help with any extra service that they request.
- This is a resort community. Our service connects two towns and is used by residents, employees, and resort guests. The large number of resort guests visiting the region is probably the largest user group, and the free service makes sense in that the service becomes an attraction in and of itself.
- Three ski resorts drive much of the economy. The visitors and employees of the resorts are why they have fare-free transit.
- Major generator is ski resort, primarily for employees, but visitors, too.

6. If fare-free policies were considered but not implemented, what were the reasons for not implementing?

Public Transit Agency Respondents in Rural and Small Urban Communities

- When major state transit funding was lost in 2000, the system had to reconsider fare-free. The primary reason for changing the policy to a fare on out-of-county trips was to address public concerns that the system participants needed to pay before they would support an increase in local sales tax for transit.
- Not applicable. (Eight public transit agencies provided this response.)
- Free-fare resolutions were passed and renewed each time presented to the board.
- We felt that the fare collected would pay for the administration of the fare structure with virtually no usable revenue for service and that the fare structure itself would reduce ridership (Simpson–Curtin Rule on elasticity).

Public Transit Agency Respondents in University-Dominated Communities

- Not applicable. (All eight university-dominated public transit agencies provided this answer.)

Public Transit Agency Respondents in Resort Communities

- Our system is in its 20th year and we have always been fare-free within the county. We recently began offering commuter services to a county 30 miles away and these services are fare-based.
- Not applicable. (Seven public transit agencies provided this response.)
- Financial. O&M costs are \$3.5 million per year and a huge financial burden on the resident taxpayers.

7. If you had a fare prior to instituting fare-free service, what percentage of total agency revenue was generated by the fare box?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Not applicable. (Eight public transit agencies provided this response.)
- 35%. The money collected was \$800,000.
- A free zone was first implemented and evolved over several years into all free. Total fare receipts did not change much over these years, but shrunk as a percentage of revenue from about 10% to about 3%.
- Less than 1%.
- They collected \$22,000 when fares were charged, less than 3% of total agency revenue.

Public Transit Agency Respondents in University-Dominated Communities

- Not applicable. (Three public transit agencies provided this response.)
- About 2%.
- It was less than 1%. A ridiculous figure.
- About 8% of the agency revenue was generated through the fare box.
- Cash fares, coupons, individual bus passes, and group pass programs accounted for approximately 14% of total agency revenue.
- Though they didn't have a fare, around the state fare box recovery was 20%.

Public Transit Agency Respondents in Resort Communities

- Not applicable. (Seven public transit agencies provided this response.)
- At the time, 25%–35% of the overall transit budget was made up by fare revenue or pass sales. Minimal other sources of revenue generation were derived from advertising.
- Not applicable, but with 2.2 million riders in 2010, a fare of \$2 per ride would offset the O&M costs.
- Around 21%.

8. Was a cost-benefit analysis done, or a “pros and cons” analysis (e.g., comparing the cost savings of eliminating fare box repair and accounting for revenue versus the expense of lost revenue, additional operating and maintenance expenses to handle increased ridership, or additional security expenses to deal with potential issues with new riders if fare-free service was established)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- The analysis primarily consisted of local meetings and public hearings between members of the public, advisory committee, staff, and board.
- Yes.
- Additional operating costs were expected, as well as security issues with the projected influx of new riders.
- The initial commitment was for a two-year trial period with little analysis involved. More thought and analysis has been required in order to justify maintaining fare-free and a study was completed by the Community Transportation Association of America.
- An informal analysis was done when the service began. Recently, a fare analysis was done in the event that Federal Section 5307 operating subsidies are eliminated. General

assumptions were made regarding loss of ridership (fare elasticity of demand) and costs of collection.

- A pros and cons analysis was presented to the board accounting for the cost to cover the installation, staff collection and counting, preparation to deposit at bank, versus the amount collected. The ongoing cost left minimal cost recovery. Also, an analysis was done on driver distractions in collecting a fare, as well as the passenger wait time as passengers board. Increased ridership and security were not and have not been an issue.
- The mayor was in office over 37 years and he did not want to burden the community with additional fees for a ride.
- Yes, we've done several "pros and cons" analyses, and cost-benefit analyses have also been done over the years, especially during the ballot measures for sales tax increases.
- Our entire service pulses off the Washington State Ferry System's Clinton/Mukilteo service route. Our system literally makes changes in our service structure that will save us 15 seconds, as an example, in one route or another at certain points. We have studied and calculated the capital costs, installation, maintenance, vehicle depreciation costs, administration costs associated with the fare structure (be it electronic, "smart-card" systems, or old, manual 25 cent boxes), impacts to our service delivery, and reduction in ridership, if we were to charge a fare. We estimated annual maintenance support, capital costs, and additional time required in our route structures because of the additional time necessary for passengers boarding the bus. We conservatively calculated that we would have to increase our buses on the road/service hours in order to meet our schedule due to time constraints that the fare box would impose by an additional 34,000 service hours annually.
- A cost analysis has been done in numerous national studies, most of which indicated a negative impact on ridership.
- We estimated it would cost one full-time equivalent position to account for the revenues and determined it just wasn't worth it for what we collected.
- Yes, and the staff analyst had worked in fare-free systems before, including Glenwood Springs, which had gone from a \$0.50 fare to fare-free. We preferred no fare, plus new revenues from a new tax source were available.
- Yes, they would lose \$22,000 in revenues, but also lose the cost of counting fares and came out ahead with a fare-free policy.

Public Transit Agency Respondents in University-Dominated Communities

- No cost-benefit analysis was done, but it was obvious collecting fares for such a small portion of our ridership was not cost-effective. We expected a 10% increase in ridership and realized a 21% increase.
- There was not an initial cost-benefit analysis done, but this is one of the items that will be done in detail with the current short-range transit plan in 2011.
- In the early 80s a doctoral student did an extensive analysis of the system and payment methods. The conclusion was to stay fare-free for multiple reasons.
- Extensively. We studied other systems. I remember doing a 30-minute presentation about cost/benefit.
- We looked at the cost of fare collection, and also realized the majority of people boarding would be university students and personnel and thought it wouldn't make sense.
- There was not a formal cost-benefit analysis completed. The fare-free system evolved through a series of discussions between the university and the towns. The university was experiencing ever-increasing administrative costs to administer a fair subsidy program for their employees and

students. As a result, they believed if they went fare-free they could save significant costs in program administration and generate substantial increases in ridership. With limited parking and no parking growth on campus, it was in the university's best interest to shift its focus to encouraging persons to use park-and-ride on the edge of town and be shuttled on to campus. In a prepared analysis, it appears that when the university revenues were removed from consideration there was only about \$250,000 in farebox revenues that the town collected that was not directly related to persons travelling to the university. Understanding that revenues were relatively small, the town decided they could forego that amount of revenue to see a ridership increase. There were no additional security expenses to deal with the issues of new riders.

- These issues were discussed, but no definitive cost-benefit analysis was completed.
- Already answered in previous questions.

Public Transit Agency Respondents in Resort Communities

- Not at the start of service. Recent cost-benefit analyses have been undertaken to determine the feasibility of implementing a fare-based system. These have basically focused on the infrastructure costs of implementing the fare collection system and when we could expect to realize revenues after purchase and implementation. We estimate that it would cost \$1 million to purchase fareboxes, money counters, and make retrofits to facilities to count and store money. If they charged a dollar fare, it would take two years just to make up those costs. The ongoing costs would be approximately four FTEs to do fare box maintenance, count money, and provide security, which would cost about \$225,000, or about 16% of the \$1.4 million brought in annually. We have also studied what impacts going fare-based would have on overall ridership. At this time, we have made no decisions on whether or not we will implement fares.
- Not applicable. (Four public transit agencies provided this, or "No" as their response.)
- No analysis was done because there were a lot of models that showed what impact a fare reduction or increase would have, but there were no models showing either the elimination of a fare or the institution of a fare for a previously free system. Also the list of variables that could enter in as the reason for a ridership increase could not be calculated.
- A fare implementation study was done in 2009–10 as part of a Transit Development Plan study.
- No, but the analysis was performed as to what O&M costs would be borne by the taxpayers before the free service was implemented.
- Yes, when the cost of fuel went up a couple of years ago. But the loss of ridership and costs of collecting canceled out the revenue and was found to not be worthwhile.
- No real analysis, seemed pretty evident that revenues would be minor and there was a need to be competitive, along with convenience for skiers.

9. Did the agency make a fairly accurate estimate or projection of the impacts on total ridership and any new expenses that would be incurred?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No. (Five public transit agencies provided this as their response.)

- Yes. (Two agencies provided this as their response.)
- Yes. About 425,000 trips in 2005, to our current level of 1,300,000.
- We did not attempt to make detailed estimates on projections except to determine that fare box revenues lost would be replaced by other contributions in lieu of fares.
- It was determined that the benefits of the fare-free system generally outweigh the costs.
- We estimated the increase in ridership and saw it to be positive. New expenditures were not incurred as this coincided with the establishment of the district.
- Ridership has tripled, so it definitely went up higher than expected.

Public Transit Agency Respondents in University-Dominated Communities

- We probably underestimated the expenses associated with increased demand.
- Not applicable.
- Total ridership exceeded expectations and additional buses were added. System grew quickly as we put four other colleges in the area in the system as well as some neighborhood routes.
- We had no new expenses. We knew ridership would grow. We had no idea it would grow this much. It's a good problem to have.
- Our agency did not attempt to project the impact of ridership on the system.
- We anticipated an increase in ridership in the range of 20–50%. We also anticipated issues with overuse of the system by the homeless (the buses becoming a rolling homeless shelter) and individuals presenting behavioral challenges. We have seen ridership increases of over 24% the first month and 43% the second month and no new issues with members of our homeless community or increased behavioral issues.
- Consultants predicted 10,000 to 20,000 pass permits. By the end of the first year, there were 30,000 permits per month, so our experience was 50% more than predicted. Now ridership is at two million per year. We started out with 26 buses and are still there, as they have gradually increased service area.

Public Transit Agency Respondents in Resort Communities

- Not in regard to the fare-free system. We did project that we would likely lose up to 36% of our ridership once fares were implemented and that it would likely take up to 5 years to regain that ridership.
- Yes.
- Yes. As ridership increases the cost-benefit goes down; as of now our per rider expense is approximately \$6.00 per person.
- We knew ridership would go up but we had no way of calculating how much. We were able to flatline our expenses for a few years because of efficiencies gained by not dealing with fares (load both doors, no doorway delays by looking for fares, etc.)
- No. (Three agencies provided this response.)
- No. The original program could not have foreseen the expansion of government legislation and continuing development of rural areas.
- We've been operating the system since 1996 and the original cost estimates were low.
- No, but ridership grew 125% in just a few months.

10. Were there any technical or political (or any other) implementation issues to deal with?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Political pressure to charge system-wide fares continues but is less intense owing to a shift in public interest in using transit due to high fuel costs.
- There are always more requests than the available dollars and it is a very competitive process.
- No. (Five agencies provided this response.)
- No. The political issues happen over time. Some question why municipalities are asked to contribute when fares are not charged.
- Just political.
- Yes, there was active public dialogue during the sales tax increase measures due to the concept of our fare-free policy. However, the majority of our citizens have become educated about the costs associated with the fare box collection and they support the community atmosphere that exists on the buses. Each bus is a community unto its own, and life-long friendships have developed. People have become neighbors on the bus even though their houses are 30 miles apart. We have a high level of disabled and elderly ridership and lots of route deviation service. Our able-bodied, young, disabled, and elderly citizens are watching out for one another on our buses. This caring relationship carries over to their home lives as well.
- Capital costs.
- We were the first, and possibly only, transit agency to be a partnership between a Native American tribe and a county government to receive federal grants for a transit authority.

Public Transit Agency Respondents in University-Dominated Communities

- The buses were stopping at more stops with more passengers.
- Our system is funded by a local option sales tax that was passed by the voters. There is a vocal minority of non-riders that state that a fare should be charged to make sure the riders are paying their fare share. This same group of people, however, does not believe that roads should be tolled.
- The primary political issue was when our university system joined the regional system and the perception of the lower valley was that the upper valley was getting free bus service and they were not. It was resolved by education.
- It's not easy to start a public transit system in a small town. The roads aren't made for it. They had never seen a city bus before. We had to work hard on that.
- Some people argue about free fares, but the agency has responded that facilities like libraries, parks, roads, and sidewalks are free to use.
- It doesn't appear, at least in the early stage of our investigation, that there were any technical or political implementation issues.
- Individuals were provided the opportunity to obtain a refund for previously purchased bus passes, coupons, and day passes. There were a few letters to the local newspaper objecting to the new fees (three were implemented—transit, sidewalk maintenance, and street tree maintenance) as new fees with no/little personal value. The implementing vote at the city council was 5 to 4.
- Cities pay for gross hourly costs for service they received, allowing costs to be covered in new communities we extended service to. The state distributes 5311 funds partially based on formulas taking into account ridership.

Public Transit Agency Respondents in Resort Communities

- No. (Five agencies provided this as their response.)
- No. Transit is perceived to provide real value in our community.
- Actually, the main issue was that when there was a fare or pass, several properties were not interested in transit and the costs associated with outfitting their guests for the service. Once the service was “free” they felt that they should get equal service because they were paying equally in taxes.
- Not then because the developer who agreed to the Planned Unit Development provision requiring free transportation connecting the two towns had not yet sold any of the lots. Today, a number of the town residents who pay for the system disagree with the agreement, but I suppose they could have or should have performed their due diligence before purchasing the property.
- There are always political and technical issues to implementing any transit system. Some common issues are funding, where the routes run, and what kind of fuel powers the buses.

11. Were there any issues with dealing with transfers to and from other transit agencies (did other systems lose revenue as a result of you going fare-free)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No known issues except reports that other systems that charge fares are pressured by public to reduce or remove fares.
- No. (Six agencies provided this response.)
- No, we are the only public transit provider on the island.
- There are no transfers between IRT and other operators.
- There were no issues, it was agreed that the fare for other agencies would stand.
- No, not really. Some of the other systems get sick of hearing how great our service is and how friendly the bus operators are. Our fare-free structure has not interfered with any other system negatively. The decision on fare or no fare is a local decision. (People certainly prefer to ride our buses!)
- Our transit neighbor to the northeast started service in 1993. I visited the county during the community dialogue about whether or not to start a public transit system. Because of our direct involvement and discussions about the issues the fare box imposes, they started their system as a fare-free system. We developed a reciprocal service in 1999 where we would operate a round trip route to a destination in our neighbor’s county, which is 35 miles north, while they would operate a round trip route into Oak Harbor. There was no fare in either system, so it was an easy partnership. When the tax revolt in 1999 happened, our neighbor’s board was pressured by their voters to start to charge a fare, or they wouldn’t vote for future, additional sales tax to support the system. They started a fare structure in 2000 and lost 60% of their ridership. They are now paying for their second fare system, and they still haven’t recouped their losses from purchasing their first fare collection system.
- No. We connect with public transit services in a town that has a fare system. We limit the locations that we pick up riders there so as not to take fares away from that system.
- Not really. We do private service for the casino and switch drivers when we do.

Public Transit Agency Respondents in University-Dominated Communities

- No. (Two agencies provided this response.)
- Initially we did not connect with other systems and there was no direct impact; however, there was political pressure on systems nearby that charged a fare to justify why they charged a fare when we did not. This at times caused some political pressure on both systems. In 2006 we started providing service across the state border that did enter into another transit system. We contracted with them to provide the service in this area for them because they could not cross state lines. Recently they started providing service during midday to our transit center. Because the morning and evening service we provide for them is fare-free, they elected to provide the midday service fare-free. So they have seen lost revenues for this service. This has been their choice.
- The taxi got beat up pretty good, but it was mismanaged anyway. Another taxi service has since come and been very successful. We work well with them.
- The regional transit agency provides service connecting our service to other jurisdictions in the region. There were no issues in dealing with transfers to the other system. The riders from our system simply had to pay a fare to board the regional buses and of course there were no issues for persons boarding our fare-free system coming from the regional system.
- A portion of our system connecting to a neighboring town had free two-way transfers and used the same fare structure as we did when we had a fare. The neighboring town’s system did not go fare-free, so although the transfer from their system to ours is still free, riders transferring from our system to theirs must pay their fare. The only other complication is that the fare for our paratransit is also \$0.00. So our contractor had to set up the billing system to no-charge for those rides as opposed to other rides provided to seniors and persons with disabilities, including paratransit rides in the neighboring service area.
- Yes. Our system transfers with another neighboring transit system. We decided to pay any transfer expenses out of pocket. The neighboring system agreed to allow any students to ride fare-free. Drivers of our system give tickets to passengers who board the neighboring system, and our system reimburses the neighboring system when we receive the tickets.

Public Transit Agency Respondents in Resort Communities

- We do not interact with any other system in the region at this time. There is a small circulator system in the neighboring town that is also free so there are no issues.
- No. Our coordinating systems are also fare-free.
- No. (Four agencies provided this response.)
- We are the only system in town. There was the perception that we would severely impact the taxi services, but we found that although they still charged a fare, people were very willing to pay for the flexibility that a taxi offered over the fixed-route “free” bus.
- The limited number of “other” area transportation options would make impact minimal.
- They are currently disconnected from any other system, but are considering connecting to the largest system in the state, and it is an issue that is being discussed.
- Yes, but they worked them out with the regional provider.

12. What is/was the funding environment for transit in the community? What are the funding sources for the transit

system and did those sources change with the institution of fare-free service?

Public Transit Agency Respondents in Rural and Small Urban Communities

- When the system started, primary funding was from a 0.2% sales tax that was matched by our state. In 2000, the state stopped the match and the local sales tax was increased to 0.6% through a public vote. We found that a fare needed to be added to obtain public support for a tax increase. A compromise was proposed to only charge on out-of-county travel. The justification for that fare included that persons traveling out of county tend to make purchases there that don't benefit the local sales tax.
- The system is funded through the 5311 grant program and matched by the cities and counties served as well as the tourist tax. As costs continue to increase and local funding remains flat there is the potential for implementing a fare structure.
- County general fund, weight tax funds (a half-cent tax on each pound of automobiles brought on the island). This is a car registration fee. We get a half cent per pound of all cars that are registered in the county. We began receiving it about a year before we went fare-free. These sources did not change. We also charge \$1 for carry-ons over 16 in. × 22 in. that raises \$30,000 a year. Carry-ons include all bags, such as luggage, bicycles, and large back packs.
- The funding environment is challenging, but the economic climate has traditionally been relatively healthy. The fare-free policy has required study, continuous explanation, justification, and political support from advocates in order to maintain it. For about four years now a new fund raising program has attracted 1,000 new donors and sponsors totaling about \$100,000 annually.
- Our system derives approximately 50% of its operating revenue from Federal Section 5307 Grant Funding through the Governor's Apportionment. 25% of its funding comes through state operating subsidies and 25% comes from the county's general fund. Lately, advertising revenue from vehicles and donations has been encouraged to supplement local operating revenue.
- The passage of the gross receipts tax for sustainable funding for the district supported the free fares. The gross receipts tax is a tax on businesses in the state. It is different in each city and county. Our agency had to go for a vote on a general ballot to the people. We passed it for one-eighth of one percent and receive it for 15 years from the state's revenue department on a quarterly basis. We also receive Federal 5311 and 5316 funds.
- Federal 5307 80%; Public Mass Transit Fund from the state and local is 50/50 of non-federal.
- We receive annual contributions from the area resort, area hotels and condominium associations, stop and advertising donations from area businesses, and annual contributions from area school districts where we provide tripper service.
- Variety of sources: Feds—\$850,000 in 5311 and JARC, some 5307 through the county, but county and cities are not putting any match up. Tribe puts up \$1 million.
- \$2.5 million operating budget. Federal grants, city general fund, and 1/8th GRT.
- General fund from the city for match.

Public Transit Agency Respondents in University-Dominated Communities

- We had a substantial increase from the town to pay for foregone fares.

- Our local funding is 0.003% of local option sales tax. We then get 5311, 5307, and 5309 funds. We do some advertising on our vehicles that generates additional funds. Initially the sales tax was passed by only the voters in one city and the transit district was created as a department of that city. In 2000 the voters in nine other cities and the county were allowed to vote on creating a transit district and passing the sales tax. This vote created the Transit District. From 2000 to 2007 the Transit District contracted to have services provided by the city's transit department. In 2007 we separated from the city and brought everything under the Transit District, which is a specialized service district or authority. So in the process of doing all of this we kept the system fare-free and we asked the voters to pass the necessary sales tax in each community that we serve. We have made choices to grow the system as revenues allow but we are looking to ask the voters for a second tier sales tax in the next few years so that we can expand the system and meet the growing need.
- Our funding is very good. Generally, we have the student fees, state, and federal assistance. There is less than 100K of other local money (ARC, county tax, area on aging grant).
- Our paratransit operates on a voluntary donation of \$2.00 per ride. Most of our customers are fine with the voluntary contributions. We earn about \$17,000 a year from these contributions. Our paratransit folks can always take the fixed-route if they wish. The student association is a greater contributor to the system than the university general fund. The university gave us some money a couple of years ago with a couple of strings attached. They fund most of our Saturday service and the Livingston run. The city contributes to our paratransit service so we can use that money to leverage federal dollars. The city has also promised us about \$70,000 in general fund money for this year. Our total annual budget for 2012 should be in the area of \$1,143,000.
- We receive local funding from the university and the two towns in our service area. At the time the fare-free system was implemented, the funding allocation formula was modified. So, while the same partners were contributing local funds, the contribution by the university went up substantially as they shifted their emphasis to operating a park-and-ride system.
- Our small urban system used revenues from 5307 and JARC 5316 through a state grant, fares (including group-pass programs), a direct contribution from the university, local property taxes (the general fund share), rental of space on the buses for advertising and revenue from the State Business Energy Tax Credit program. The transit fee has replaced revenues from fares and the General Fund contribution. The per-student per-term fee is no longer paid, nor is the faculty and staff annual fee. It is presumed that students, faculty, and staff will pay the fee through the utility bill like other residents; \$2.75 per single family household. Because the fee is based on trips generated, the fee is more for businesses (7-Eleven, McDonald's, etc). \$2.75 is the lowest monthly fee and \$1,978.00 per month is the highest monthly fee.
- Governments at all levels have been good for our system, especially the feds. 5311 can be used for capital or operating, while 5307 is used for capital. The state provides funds through a 0.25% sales tax. So, feds—30% with 5311, University—30% (\$67 per student per year), and local partners 40%.

Public Transit Agency Respondents in Resort Communities

- The initial levy in 1990 was a 0.5% sales tax for public transit service between 6 a.m. and 10 p.m. In 2001 voters

approved an increase to 0.75% to extend service to 2 a.m. (given the amount of partying that goes on in town). Our system is funded by a 0.75% countywide sales tax and a small amount of Section 5311 operating funds. This has always been the case.

- We are funded out of the town's general fund, which is comprised of sales tax, accommodations tax, and real estate transfer taxes. There is also a \$2 surcharge on parking within municipal limits that are directed to transit. The parking fee structure was designed to "recoup" some of the transit cost. It is only \$2 out of \$12 for a day parking permit—but the methodology was to have the parker support paying for their transit trips, which in this case is from the town parking lot to the ski resort most of the time. In 2010, about \$78,000 was the amount generated by the extra \$2 added to the parking fee. Again, not earth-shattering dollars, but every little bit helps. Our budget at one point was \$2.8 million, but with the economic downturns we have slowly ratcheted back over the past 3 years—particularly with our summer schedule, and this year we are budgeted at \$2,078,361. We are currently exploring alternative tax options with a partial dedication to support transit to take to the electorate at a future date.
- There was no pre-existing funding source for the shuttle system. It is funded with general fund dollars from the town's budget.
- Our transit agency is part of the general fund of the city. At the outset, city revenues were growing dramatically and so the absorption of the difference between collecting fares and "free" service was not seen as problematic when opposed with the increased business generated by the competitive improvement that the system would have when compared to other resorts. As the budget has grown over the years, we have come to rely more on federal grants for capital expenses as well as some assistance with operating costs. Our budget at the time was about \$1 million. The fares accounted for about 25% of that budget. It has been proven over the long haul that the city made a mistake in the way that they implemented the system. At the exact time that the city made the transition, the dollars were there to run the system. However, as things changed, we were part of the general fund and were therefore at the whim of economics, politics, and the desires of different organizations. When we discovered that there may need to be a funding mechanism put in place, those that had contributed via pass sales were no longer interested in paying for the service and those who did not receive direct service did not want to pay unless they got great service. Without shouting too much, GET A FUNDING MECHANISM IN PLACE PRIOR TO BEGINNING "FREE" SERVICE. I would suggest this funding mechanism needs to be tied to a wide base of sources with automatic triggers based on ridership, demand, and inflation. However, the best way to do it is to establish a target, put forth the background for this target, then get out of the way and let the players come up with what works for them. Needless to say, we are not even going to work through a ballot initiative, so services will still be based on general fund, funding.
- Sales tax, use tax, and parking fees.
- Initially completely locally funded, the program has since taken advantage of federal funding sources and casino revenue funds. However, both of these are becoming an endangered species threatening continued service.
- Our system receives a dedicated 1% sales tax collected in the town. We also receive a 1% admissions tax from the town.
- RETA—Real Estate Transfer Taxes with a provision requiring Master Homeowners Association special assessments if a shortfall exists (hasn't happened yet).

- We receive 5311 federal funds and a 0.25% sales tax.
- Sales tax remained the same before as after the fare-free program.
- Federal grants and revenue from a local option resort tax. No parking revenues are received. There is no charge for parking in the community, and we wish there was.

13. If you never had a fare and have always been fare-free, do you have any estimate of what instituting a modest fare would do to your ridership?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Yes, ridership would decrease. When we were researching a fare on out-of-county service we utilized a formula that used socioeconomic factors such as the local poverty rate. I believe the loss based on a \$1.00 per ride fare was over 40%.
- Our agency serves the rural communities and there is a high level of poverty and low income so there would be an impact to ridership if the passenger was to pay a monthly pass of \$40 to \$50. We would have to add the administrative cost to the fare structure.
- We previously had a bus fare.
- N/A. (Three agencies provided this response.)
- We estimate ridership would drop by about one-third. We have no formal analysis to support this conclusion, but this is the approximate percentage of our ridership that has access to an automobile. We have run a series of sensitivity analyses assessing the fiscal impacts of different (25%, 33%, and 50%) losses in ridership as a result of collecting fares.
- The ridership would decrease. We have not done a study to determine percentage of decline; however, the public has established a voice as to their disappointment if fares were implemented, as to being taxed twice.
- Yes, we would lose most of the riders, therefore dropping in ridership and 5307 monies would drop causing PMTF to drop. The local share would need to increase and that is not feasible for the city and all this would cause the department to close.
- Our neighboring system lost 60% of its ridership when it established a fare after being fare-free for 10 years.
- We believe we could easily expect a decrease of 20 to 30%.
- Based on recent ridership increases after we eliminated the fare, a fare would probably reduce it by 50%+.

Public Transit Agency Respondents in University-Dominated Communities

- Depending on what size fare we would charge, we estimate a decrease in ridership ranging from 48 to 54%.
- We estimate instituting a fare would initially cut our ridership by 50%.
- Well, we know that. For that year we did charge non-students; the city ridership was flat. Since, it is up 300%.
- Don't know. (Three agencies provided this response.)
- We estimate a 50% reduction in ridership, and a substantial reduction in service frequency.

Public Transit Agency Respondents in Resort Communities

- Models we have produced indicate a drop in ridership of between 20% and 36%. The choice riders would probably quit using it. There was a service between our service area and another that was a 25-mile treacherous one-way trip

offered for free and had good ridership, which was paid for with a JARC grant. Once that ran out they charged \$2 and ridership went to zero! We would probably consider instituting an all-day pass if a cash fare was established. We have privatized the maintenance shop and are seriously considering privatizing operations.

- Yes, our survey data indicated that we would see a significant plummet in ridership that would be estimated to be anywhere from 35 to 45%. This would cause an increase in traffic congestion outside of ingress and egress.
- No, but it probably would reduce ridership and increase operational costs.
- N/A. (Two agencies provided this response.)
- A third-party transit planning firm has provided us with an analysis which shows a fairly significant drop in ridership, from 26 to 33%.
- A study is in process. Two competing schools of thought: senior citizens and low-income riders may not be able to afford a fare, lowering ridership. On the other hand, ridership may actually increase due to a change in the perception of who should use the service.
- We would expect ridership to drop; to what extent, we don't know.
- Decrease the total ridership by up to 25% (won't really know until it happens).
- We estimate a probable 25 to 42% drop in ridership.
- A fare would generate \$100,000, but we would lose 25% of ridership.

14. What was the nature of the ridership before and after a fare-free system was established (age, income, racial composition, students, etc.)? What changes did you notice, if any?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Ridership on out-of-county service has increased significantly due to higher fuel costs. We have several discount-pass programs for low income, student, elderly, and disabled.
- N/A. (Four agencies provided this response.)
- No change in the nature of ridership—just a lot more.
- Passenger surveys indicate that in 2008 over 50% of transit passengers had a car available for their trip. Ten years before that the figure was 25%. During that time frame ridership tripled. This indicates the intended policy to provide an incentive to people to leave their cars at home and take the bus has worked.
- Ridership dramatically increased in all areas when free fares were implemented.
- It has stayed the same.
- Always been fare-free. 10% students under 18, 20% students going to college, 10% are seniors. The rest are primarily commuters to work or to community services. Number of Native Americans is pretty small. 70% of passengers go nowhere near the casino.
- Not sure of the nature, but ridership tripled with elimination of fares. They are expecting total ridership of 180,000 by the second year of free fares.

Public Transit Agency Respondents in University-Dominated Communities

- Summer ridership included more homeless people.
- N/A. (Two agencies provided this response.)
- Ridership has always been about 85% student, 13% faculty and staff, and 2% general population.
- We are surprised that our system does not serve any one

socioeconomic stratum any more than another. As time has gone on, we carry as much of one as another.

- Much of the ridership has been oriented toward the university both as an employer and a location for students. More than half of the students live throughout the two towns in our service area. When the system went fare-free and the park-and-ride system began to expand, we noticed a substantial increase in the trips going to the university, both students and employees.
- The city has not yet conducted post-change surveys to determine this information.

Public Transit Agency Respondents in Resort Communities

- Our ridership is mostly low-income service workers and some tourists interspersed with some moderate- to high-income choice riders. We feel that we would lose the choice riders and tourists if a fare was instituted. We also project some loss of the workers.
- No changes, as we have always been fare-free. We do have a significant amount of "choice riders."
- We saw an increase of 24% the first year and 23% on top of that the second year. Because our ridership is largely made up of guests, there was no change in ridership demographics. Our demographics mirror the demographics of the overall community. The only change that we saw was the increase in short trips (less than 0.5 mile). I think one of the issues is defining a "local." In our area many people consider themselves a local as soon as they move here to recreate or work through the winter. We are currently in "mud season" where there are no tourists here at all. Our ridership is 100% local and we are carrying about 1,000 riders a day. In the summer tourist season, our ridership will increase to 2,500 but the local population will stay at about 1,000. In the winter, we estimate our "local" population doubles to 2,000. We count trips, not people, so one person that gets on six times is counted the same as six people that get on once. I would say that a majority of the "locals" may only use the bus for two trips a day (ski and home, work and home), while the tourist will make trips to recreate, dine, shop, etc. With the "free" service, they are more apt to split up their trips into segments (out for breakfast, then to ski, restaurant for lunch, back to ski, après ski, home, restaurant, night club, home).
- N/A. (Four agencies provided this response.)
- Ridership demographics have merely changed with the requirements of government programs.
- Always been fare-free, but riders are 60% local and 40% visitors.

15. What were the intended/expected and actual outcomes of offering fare-free service?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Expected: More revenue for operations, high ridership, and fewer hassles between driver and passengers; Actual: High ridership on out-of-county trips provided more revenue. System also could charge government agency for employee trips. We have a contract with the Navy and it is tied to what we charge the public. Fares under this agreement = \$200,000 a year. If the system was fully fare-free it would not be able to receive this revenue. Drivers seem to have more hassles with problem passengers in fare-free area.

- The fare-free system is well received in the small communities we serve. The local option tax is supported by the hotels and they actively promote the transit system to their guests.
- Less traffic congestion, additional riders, and additional service to accommodate the increased ridership. All were expected and came to be.
- Passenger surveys indicate that in 2008 over 50% of transit passengers had a car available for their trip. Ten years before that was 25%. During that time frame ridership tripled. This indicates the intended policy to convince people to leave their cars at home and take the bus has worked.
- The fare-free service is a major contributor to high ridership. Our fixed-route transit ridership and boardings per capita are substantially higher than that of comparable counties.
- The anticipated outcome of free fares was primarily increased ridership.
- Providing an alternative to the automobile; reducing congestion/pollution; reducing the consumption of and dependence on oil; creating a comfortable and relaxing environment/experience on the buses; promoting and encouraging public transit use; educating our youth and others that there are ways of going about daily activities besides driving a car; appreciating and protecting our lovely island ecosystems; creating a more sustainable and livable community and bringing community members together; educating that public transit is a bi-partisan issue; creating a platform for Democrats and Republicans in local government to discuss a bi-partisan subject, thus assisting in the establishment of more cooperative relationships and dialogue, thus appreciating and respecting one another.
- To promote ridership, which has proven to be successful.
- They expected people to value the service, but they have become “victims of their own success”; getting tons of requests for services.

Public Transit Agency Respondents in University-Dominated Communities

- We expected an increase in ridership and that we would have more demand for service, and that is what happened.
- Increased student mobility and ridership surpassed our expectations.
- In essence, the fare-free system has created a dependency on the system from the most financially challenged sector of the community. That, in turn, has created political support in the community.
- It was anticipated that going fare-free would relieve significant administrative costs for the university, which it did, and it would stimulate ridership growth, which also happened.
- The intended/expected outcomes included increased ridership and this has been borne out in each of the first two full months after implementation of fare-free service. Other negative expected outcomes have not yet been observed.
- We expected about 15,000 monthly passes would be requested and issued 30,000, so demand was 100% higher than predicted.

Public Transit Agency Respondents in Resort Communities

- The intended outcome was a high ridership system, which we have. Our service area has a population of approximately 28,000 and ridership is 1.7 million annually. Prior to the recession, ridership was over 2.1 million.

- We have been very successful in mitigating traffic congestion, reducing pollution, and meeting our Transit Mission.
- To provide a convenient method of conveyance for our visitors.
- Tongue in cheek—by the initial promises made, we were going to end world hunger and cure all ills. In reality, the reasonable prognostication was from no change in use to a 50% increase in ridership. We did see a 50% ridership increase over 2 years, and have doubled our ridership over the long term. We have also increased our service area, the frequency of buses, the quality of service as well as equipment, and changed our overall system to promote the development of transit dependent (or choice) riders as well as the guest population. I think that it is the marriage of improved service as well as “free” service that has created the increase in ridership. It is our belief that if we can get someone to try the bus, we can probably create a long-term customer and the elimination of the fare cut down one significant barrier. We did not do any increase in service. We were at the tipping point that we would have to increase service if we did not do something to free up some time in the respective routes. We have increased service over the ten years, but this was done either by adding additional buses to an existing route as demand increased or adding small feeder routes (more political than productive) that have not accounted for much ridership. It is still the same core routes that are carrying the majority of the passengers. We have also polished our summer service to focus on the areas of greatest demand with the highest frequency rather than having all buses serve all areas at a lower frequency.
- Our service is provided fare-free with the ultimate goal of capping traffic at 1993 levels in perpetuity. This goal has been achieved. In addition, the system carries over 1 million passengers annually.
- Human services transportation as an outgrowth of local, state, and federal programs and support for local government officials.
- Before my time, don’t know.
- To get cars off the roads and to provide a pedestrian transportation system linking the two towns; it has been hugely successful!
- We wanted to reduce congestion and parking issues as already mentioned. This has been accomplished. What we didn’t anticipate were the marketing and public relations benefits. The system is a very visible presence in the community that allows people to see their tax money at work for the good of all. Very much like the fire and police departments.

16. Did the implementation of fare-free service impact parking in any way, positive or negative (e.g., less parking facilities needed or unanticipated parking problems due to people parking in neighborhoods and then using free transit for the remainder of their trips)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Inadequate park-and-ride facilities are causing parking issues. Antiquated building codes require transit to construct off-street parking to offset on-street parking lost due to development of a transit center in downtown. We need park & ride lots for out-of-county and local service that is designed to limit the number of vehicles in the downtown.
- No. (Three agencies provided this response.)
- Fare-free has had a positive impact on parking and has lessened the need for parking supply compared to what it would have been without fare-free transit service. In some

areas that offer free parking there have been occasional complaints about park-and-ride use.

- There are typically no complaints about park-and-ride users.
- There was no impact in this area. As a rural entity in four counties, major park-and-ride lots were not required. We have a lot of connectivity with other systems and modes.
- The two negatives associated with fare-free transit delivery are that there are never enough buses and there are not enough parking areas. As we provide service in rural areas, we allow “flag stops.” We have had problems with people parking where others don’t want them to park, but we literally address each situation one on one and get things figured out in everyone’s best interest. It just takes that extra time and care. That communication alone promotes public transit. We have earned, and enjoy, a fantastic reputation in our community, something that would not be what it is today if we were a fare-charging system. We are an integral part of our communities.
- We approached the state legislature and requested specific funding so that we could construct our own park-and-ride lots. We were successful. We call our P&R lots “Transit Parks.” We have more landscaping than parking areas. We work with community members in each area we’re going to build a Transit Park. The Transit Parks are their parks; they work together on the vision, plants, and landscaping and we work with them on building those parks. This project has also been wonderfully successful! We have one transit park that was built alongside a protected stream and natural habitat, with herons and bald eagles living right nearby. We brought our environmental folks and native plant folks and other members of the community together. We did not have one negative issue. It is a large Transit Park, mostly a park with walking trails and interpretive signs. We had a shelter design contest and the citizens chose the shelter design they preferred. Our shelters were made by a local artist and they are wonderful works of art. The community raves about their Transit Park, which includes landscape clearing, weed pulling, and total care of the park. They all volunteer their time for these activities. We have an agency employee take the Master Gardeners program and she assists with the work and ensures there is hot apple cider in the colder times of the year. The project has been more successful than I could have dreamed!
- Providing fare-free service between hotels and condominium complex to the major resort keeps a lot of cars off the road and out of the resort parking lots. Each end of our routes has the capacity for parking and no major impact was expected.
- Not in a significant way, though the casino needs less parking for workers.

Public Transit Agency Respondents in University-Dominated Communities

- We did notice a greater use of unofficial park-and-ride lots by our riders. Ultimately this became a problem at a major shopping mall, where we had to abandon service this year.
- No major impact in cities but this has helped reduce the required parking at the university. The university has been able to eliminate existing parking lots and put in buildings.
- Student parking on campus decreased and congestion improved greatly. There are many informal park-and-ride areas that have developed. The adjacent town initiated a neighborhood parking permit system to discourage parking in residential areas near the university.
- No effect on parking other than cars staying in their spots. There has, however, been a one-third drop in the purchase of parking tags.

- Our system has freed up parking in the downtown area and on campus.
- The fare-free system did impact parking.
 1. Part of the reason for the fare-free system was to respond to the need to relocate parking from the center of campus to the edge of the city. As a result, there has been a growth of satellite parking around our towns. Because of this, the university has been able to expand facilities on campus without the need to expand parking.
 2. There have been some unanticipated parking problems related to “stealth park and ride.” Persons will park near and around park-and-ride lots or along high-density routes to take advantage of the system.
- The intended/expected outcomes included increased ridership and this has been borne out in each of the first two full months after implementation of fareless. Other negative expected outcomes such as carrying more homeless passengers or rowdy teenagers have not yet been observed.
- Very positive impact. The university had six parking garages in their master plan and they have never had to build even one.

Public Transit Agency Respondents in Resort Communities

- Parking has always been an issue here. Free transit has no real bearing on that. Land is at a premium here—the median single family home price is just under \$500,000, and an acre of prime land goes for at least that or more.
- We generally have a parking shortage for some peak days. What we did do was add some dollars for transit as part of the parking fee for our town pay parking lots. The ski area charges \$10—the town lot is \$12. We are funded out of the General Fund, which is comprised of sales tax, accommodations tax, and real estate transfer taxes. There is also a \$2 surcharge on town pay parking within municipal limits that is designed to recoup some of the transit cost. We are currently exploring alternative tax options with a partial dedication to support transit to take to the electorate at a future date. What we have seen is that we are more successful in getting people out of the car and having it parked for the entire day. In the past, we had issues with daily gridlock because people would move their car around a lot.
- No, we added an additional 300 spaces in conjunction with the implementation of the shuttle plan.
- A push was made at the same time as the “free” service was implemented to build a remote parking lot and promote the use of satellite parking. This has resulted in a slow adoption of this idea. Whether or not we have a parking problem is dependent on who is asked. Some perceive a parking problem; others see a walking problem (those who are upset when they cannot park directly in front of the business). Because one can typically find a parking spot within two blocks of their intended business and bus stops are placed every two blocks, there is currently no advantage to bus usage for those that don’t want to walk. We have seen a dramatic increase in ridership for special events when parking is at a premium and transit can get people close to their intended target.
- Is there any evidence that the city saved money on the cost of providing parking because of the service? No. We haven’t added any significant parking, but I can’t say that this is a direct result of our free transit system, although I believe it to be true.
- N/A.
- Parking is an issue because it is limited. On busy days the overflow parking does impact the residential neighborhoods, but not often enough to restrict or require a parking permit within the city limits.

- Staff is not aware of either positive or negative impact on parking and no survey has been done.
- The free service encourages people to park their cars and ride. We also operate a free dial-a-ride taxi service that further encourages residents to leave their cars at home and ride. We recently started to charge for parking to help offset some of the significant expenses associated with operating and maintaining parking facilities, which further encouraged people to use the free transportation services. As a result we observed a drop off of parking lot usage.
- We built a parking structure near our transit center and historic Main Street for ease of parking and riding the buses around town and that takes cars off the road. Also, cars can park at the ski resort parking lots or at the high school and ride the buses to their ultimate destinations.
- No.
- There is no paid parking in the entire area.

17. Did fare-free transit cause any increase in development or an influx of residents or employment or change in property values?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No way to tell.
- N/A. (Two agencies provided this answer.)
- No. (Two agencies provided this answer.)
- Real estate listings and rental housing listings always mention if they are on the bus line.
- Not that can be identified. (Two agencies provided this answer.)
- I recall keeping my eye on the local newspaper when we first started service, and when I saw that first house listed in the rentals section that stated “on the public bus line” I absolutely knew we were here to stay. We have more and more people moving here because they’ve heard of our system. Lots of folks want to get away from their cars and create more livable and sustainable communities.
- While fare-free transit may not be the cause of development or change in property values in our service area, it is a value-added element of the major resort and as such does have an impact.

Public Transit Agency Respondents in University-Dominated Communities

- We have noticed a lot of infill developments on our bus routes.
- Hasn’t been determined.
- Home sales and rentals always advertise they are on the bus route.
- Property values have always remained on the high side. TOD is still a struggle to be realized.
- No.
- Not that we have tracked.
- Our area is a pro transit community and much of the development that has historically been planned has a strong transit component. In the development review process, the town places a focus on identifying ways that the development can support transit. I don’t know that we can document significant changes in property values. There was an increase in demand for apartments and homes along the transit routes, primarily because many of the people that live in the neighborhoods are either students or employees of the university and they can’t park on campus.
- Staff is not aware of any.

- Free or not, transit helps all these things. The Berkshire Group, a development firm out of Boston, said they would invest \$25 million if the community provided transit to their development (or they would build elsewhere). This company also built shelters and amenities.
- Increases property values and sales.

Public Transit Agency Respondents in Resort Communities

- No. The exclusive nature of the area is what causes property values to be so high.
- Transit has not increased property values, but it is seen as an attractive feature when people try to sell their home. Homes with transit access do sell quicker than ones without. But the property values are comparable. Same is true for rental properties. The rental turnover is more frequent and steady when transit is within walking distance.
- No. (Three agencies provided this response.)
- It is impossible, and unlikely, that a direct link can be made between the “free” bus and development. Many projects have been built since the fare went away, but this can be tied more to the influx of development at a resort community during the late 1990s and early 2000s. However, many developments used their proximity to the “free” bus system in their marketing efforts and in their analysis of management overhead.
- The bus system is a valuable service in both towns. Numerous ads for real estate note the property is on the “bus route.”
- There is likely a cause and effect relationship with these factors but I do not have enough information to speak to what these might be. Many property owners attest to the positive reinforcement to their property values the free Dial-A-Ride and transit system represent, but I cannot put any figures to these concepts.
- It has influenced new development with a “transit oriented” mindset. It also influences where employees and residents look for housing; thus, property values increase with proximity to bus stops and routes.
- Maybe.

18. Can you attribute any advances in “livability” to the fare-free service?

Public Transit Agency Respondents in Rural and Small Urban Communities

- We are told by residents that bus service has greatly improved livability and that fare-free is working to increase people’s choice to use transit.
- Public transit in general is an advance to livability and fare-free makes it even better.
- Having fare-free service allowed us to improve the quality of life for our residents by providing a free public transit service to accommodate their commuting needs.
- This is highly subjective, but the fact that apartments are advertised as being on the bus line is one such indication. Another is the ease and affordability for low-income users and others such as developmentally disabled users that find fare-free easier. Despite the growth of “choice” transit riders, there are over 100 individuals that have reported reliance on transit service to commute to and from work. It cannot be quantified what that number might have been if fares were in effect.
- The convenience and quality of the fare-free transit service is regularly acknowledged in the local press and is widely

perceived as a key component of livability. The system is, for fixed-income persons and seniors, a lifeline to a better quality of life. Interestingly, our fare-free bus service is regularly acknowledged by the international yachting community as a key local amenity and is called “the best service of its kind anywhere.”

- There are advances to livability due to mobility owing to fare-free service.
- No.
- Yes, absolutely without question. I believe that you would be surprised as to how much we have influenced more livable and sustainable communities. We’re not just a bus system. We’re an integral component of our island life style.
- For seniors, low-income, and youth riders there are no barriers to using our system.
- Not in the trendy sense of the word, but people getting to work and school service is important.

Public Transit Agency Respondents in University-Dominated Communities

- I think going fare-free has made it a more livable community for many.
- We have been able to do more high-density housing plans. We just went through a visioning and planning process a year ago, which was county-wide, that deals with better land use planning, TOD planning, etc.
- Yes. All the realtors advertise that houses and apartments are on “The Free Bus Route.” The town often gets mentioned in national magazines that due to the colleges and transportation system it is a top place to live and retire. These are just a couple of examples.
- Economically, it is easier for people to get to jobs and shopping. I would also say that parents of students like the multi-modality of Amtrak to bus, which makes their trips seamless from Chicago.
- We work closely with several senior housing areas and with the mental health center to make sure we serve their customers.
- It is too early to determine this. Anecdotally, we have received comments that riders appreciate the fare-free system and see it as a community livability factor, and others have commented that they see the positive impact this change has made in the contribution to making our city even more livable.
- Yes, it helps with congestion, and transit helps everyone whether they use it or not.

Public Transit Agency Respondents in Resort Communities

- There has been some impact. As more development occurs, we are seeing more transit-oriented development and communities designing developments around transit and “walkability.” However, much of this is due to the very high cost of land (at least \$500,000 an acre) and the relatively small amount of land to work with given the terrain.
- Yes, very much so. In terms of livability here are some excerpts from the Livability Grant we submitted:

“Maximum peak population can swell to more than 50,000 people on any given day during the peak winter season. Providing fare-free transit service to job access commuters, local residents, and visitors partaking in the recreational activities to reduce traffic congestion and maintain

livability in our small town is the goal. The town has made significant investments in both current and future affordable housing projects, which are transit oriented by design. The fare-free system provides transit and walkability access to recreation, medical, educational, shopping, dining, affordable housing, residential neighborhoods, Main Street, and town hall. A parking spot in our town is the new kind of gold, and fare-free transit makes it possible to keep the cars parked all day and get people to wherever they need to go, both free—without fare—and with easy convenience. Our transit system provided 688,461 passengers with a free ride, which was a 19.7% increase in ridership over 2007. The carbon emissions vs. if the same people had driven their own cars, resulted in 202,336 pounds of carbon dioxide that were saved from our environment in 2008 because they took fare-free transit.”

- I sum up livability in that we have a quality of life that is unsurpassed with our year-round recreational opportunities; we can live, work, and play in one of the most beautiful and natural places in the world. The fact that our community is committed to being green and sustainable is also a plus. How many communities provide free transit as a strategy for mitigating congestion, pollution, and in a way, even marketing? That guest experience is a huge part of marketing when you think about it. We have the transit and walkability access available to everything. It is part of why our community is such a nice place to live and visit. And it’s free! The investment our town council makes in transit, well, that says a lot about our community.
- No. (Two agencies provided this response.)
- We have seen a dramatic increase in our transit-dependent/choice ridership. We also do see an increase in ridership during the economic downturn as well as the increase in fuel costs. Our population is a little over 12,000, but we have an annual ridership over 1,000,000. Anecdotally, most real estate and rental ads mention their proximity to transit, when they can, as one of the main selling points.
- Walkability and multi-modality (we have a car share program that links to our free system and a bike share program is in the works)—car free living—community vitality—tourist experience.
- Yes. Expansion of community transportation services and enhanced quality of life.
- It’s a great asset to the community for both residents and visitors.
- Sure, fare-free is a positive thing on an individual basis but in reality there is no such thing as really free because someone is paying for the services through taxes and assessments.
- Less traffic congestion, pollution, and more walkability are just a few.

19. Have you been able to quantify any of the benefits to your community due to fare-free service (e.g., reduced congestion, pollution, gas usage, etc.)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Only from comments provided from riders.
- Not in an officially documented manner. The ridership numbers show the benefit to the community.
- Yes.
- Yes. Based on ridership at the time it was calculated that our transit service contributed to an annual reduction in airborne pollutants of five tons. The net reduction in air

borne pollutants is expected to be significantly greater in the 2011 study due to cleaner emissions buses and higher ridership.

- The MPO performed an externalities analysis as part of the 2030 Comprehensive Plan Evaluation Appraisal Report.
- Being a rural service we have not conducted sophisticated studies to determine the effects on the communities involved. Our favorable public feedback has been our only guideline.
- As the increase of gas prices happen, increases in ridership have occurred.
- Absolutely, in so many ways; as an excellent example: we calculated that if our transit system were not here today, the ferry run would have to operate 11 more trips on a daily basis. The costs for the ferry system to have to operate that many additional ferry runs would be not only staggering, but the funding to do so is not there. We have benefited the community by reducing pollution, congestion, gas usage, etc. If we were not here today, the ferry lines and wait times would be intolerable and unacceptable. One of our islands also has only one bridge to go to the mainland. Without our transit system, the roadways would be impossible.
- Mitigation of traffic at a problem intersection in town; jobs access for many towns.
- N/A.

Public Transit Agency Respondents in University-Dominated Communities

- We have recorded increased ridership almost every year since going fare-free.
- We have not performed any exhaustive tests. We are currently having the university perform emissions testing on all of our vehicles as well as the university's CNG buses to determine pollution levels.
- Yes, although present demands have overwhelmed the system somewhat and there is no additional funding to meet demand.
- No.
- We estimate a net savings of 929,043 vehicle-miles traveled with a CO₂ savings of 1,041,642 pounds during the first ten months of 2009.
- The town Sustainability Department has quantified some benefits of the fare-free system. We know that in five years the ridership grew from 2.5 to 7.5 million rides per year. Sustainability has done calculations on how this has affected the town's carbon footprint.
- We have not done this analysis, but the ridership increase is presumed to have had a positive effect on all of these areas.

Public Transit Agency Respondents in Resort Communities

- Since we have always been free we have never done any studies to determine this.
- Between 1997 and 2010 we have eliminated over 1,730,557 pounds of carbon from our atmosphere versus if our passengers had used their own car for the same trips.
- No. It is a relatively new system and we do not have that data.
- We have not been able to do any concrete quantification due to the high number of variables. However, our doubling of ridership suggests that a high community benefit has been reached. We also were a community that was charged with lowering the level of particulates in the air. Transit was identified as one solution to this problem and the city has attained the required particulate level.

- Traffic remains at 1993 levels. Also, largely due to aggressive TDM strategies, our city proudly became a PM-10 attainment area in 2004 after 17 years of non-attainment status.
- Unknown.
- Every full bus that is going to or from our town is taking at least 10 to 15 cars off the road.
- Yes. Reduced congestion, pollution, and gas usage.
- We can't quantify them, but we feel that the system is vital and important to our community.
- No studies we are aware of.

20. What have been the benefits (intentional or unintended) of a fare-free system?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Provided more trips to residents. There is more revenue for local residents to spend locally.
- The administrative costs for a fare-free system are significantly reduced.
- Having fare-free service allowed us to improve the quality of life for our residents by providing a free public transit service to accommodate their commuting needs.
- Prior to 2007 our system did not provide complementary paratransit service and was required to implement it in 2007. By law, 100% of the demand for service by those that qualify must be met regardless of cost. Because a fare is not charged on fixed-route service, it cannot be charged on ADA paratransit service. Fare-free paratransit is attractive and MUCH more costly to provide. The large growth in ridership has placed pressure on transit schedules and increased demand for improvements such as bus stop amenities. Increased volumes of riders result in more cigarette butts and trash at bus stops, which has generated complaints from property owners both public and private.
- Our small urban system experiences a transit modal split of over 2% on several major arterials and 7% on one major collector. System-wide, our system carries several times as many passengers per capita as peer group properties charging a fare. It is the opinion of the county that the fare-free transit policy is instrumental in attracting choice riders to transit, since these riders must be offered either a time or money incentive to abandon the convenience of their automobile.
- Satisfied customers and increased ridership.
- Due to the downfall in the economy, people are looking for ways to cut their own expenses. Gas prices are not making it any easier for people to get around and they are leaving their vehicles at home and taking the bus.
- Community bonding and cooperation; relationship building, social opportunities; building social skills and respect for personal space and individual property with our youth; nurturing the value and importance of respecting the space of others; merging our elderly, disabled, and able-bodied community members; reduced waiting times for the ferries.
- Because of the relationships we have developed on the buses and in our communities, we have been able to work with parents when their children are truant from school. We have the child and parent/guardian meet with our system's personnel and we work with the child and let them know that between the hours of X and X that they will not be picked up by the transit system. We take their picture with the approval of the adult and child, and we place the picture in each operator trip bag. Our folks are very well informed in these matters. When the child first starts to try

and board the bus, they are turned away. That only happens one time. It's a very successful program.

- Ease of operation and strong ridership.
- Providing affordable mobility for students, employees, seniors, etc.

Public Transit Agency Respondents in University-Dominated Communities

- To the user it is a much easier system to negotiate. As long as they are at the stop on time and are civil they ride to where they want to go without needing to show an ID card or produce a fare. This has made boarding quicker. It has also reduced driver complaints.
- Mobility for students to commute to class and work; increased social mobility on nights and weekends without students having to have cars; students are able to take classes at any of the five colleges in the service area.
- Greater penetration of riders, bus system is not a luxury.
- Our projected ridership was 198 rides a day and we have had days that have produced 1,200 rides in a day.
- Benefits: increased ridership, increased state and federal funding as a result of the higher ridership, a much higher degree of local citizen support and interest in the transit system since it is now community-wide fare-free.
- Increased ridership and reduced run times. The fare-free system has reduced boarding times.
- People come to retire to the community partially because of the transit service. Once a month we have representatives of other universities visit to learn what has happened here. We also now have a sun-powered facility.

Public Transit Agency Respondents in Resort Communities

- Reductions in peak season congestion and fewer impaired drivers on our roads. These were the intended benefits.
- Between 1997 and 2010, we have eliminated over 1,730,557 pounds of carbon from our atmosphere versus if our passengers had used their own car for the same trips.
- Lodging, businesses, workers, and visitors use the system more and more. We anticipate increased use as we market this system.
- The primary operational benefit has been in a reduction of costs for the transit system and the community. For the transit system, we have needed to increase our equipment level at a lower rate because of our ability to load and discharge passengers quickly. This corresponds to a lower level of staffing in all areas including operators, maintenance, and administrative levels. We are able to service a larger area and higher number of stops. As a community, as infill occurred around the ski area base, transit was called upon to provide more service as parking diminished. Some management companies have reduced their level of shuttle transportation because of what our fare-free system provides. Finally, we provide over a million passenger trips a year so an estimated 300,000–500,000 vehicle trips were removed from local streets. We have also seen an increase in the use of transit by younger passengers, youth groups, and day cares. Without a fare, use of the bus is made easy and the need for carpools, multiple-errand trips, and single-occupant trips is reduced.
- Reduced pollution, reduced vehicle trips, increased multi-modality, improved “small town character.”
- The expanded system (from the original single bus) has given a greater number of riders of varying demographics significant options not served by other transportation.

Our so-called secondary customers have benefited directly through increases in clientele and employee base.

- It benefits everyone, passengers and drivers alike. It makes it so much easier when money is not involved.
- Reduced congestion, pollution, and gas usage. (Three agencies provided this response.)
- We believe it enhances our economic competitiveness.

21. A typical concern with free-fare systems is that there might be rowdy teenagers or vagrants who utilize the buses to the discomfort of other riders. Have you had to put more resources into supervision or security as a result? Do you have policies that prohibit loitering or round-tripping? If so, what ordinances did you pass and can you share that ordinance?

Public Transit Agency Respondents in Rural and Small Urban Communities

- We enforce RCW 9.91.025 Unlawful Bus Conduct by suspending violators. We have a staff position dedicated to assuring customer satisfaction while riding and waiting at bus stops. That position's primary focus is on mentoring teens. We have riders conduct policies listed on our website.
- We have not seen any problems of this nature.
- We have had some issues. Video surveillance has been installed in all buses.
- We have a broad range of demographics among our riders. The main problem is as described above with trash and cigarette butts at bus stops. We have not had to change rider policies due to fare-free.
- Instances of rowdy passengers and vandalism are relatively rare. These issues appear to be no more frequent or noticeable than on peer systems charging a fare.
- We have not had to pass ordinances, as dealing with cities/counties/tribes it is very difficult to deal with a unified ordinance. We have taken time to train drivers in these areas, and installed cameras, and reserved the right to refuse service to disruptive customers. Being regional we do not encounter this problem very much.
- Not at all. Our entire fleet has surveillance systems.
- We do not tolerate swearing and obnoxious behavior on the buses. Interestingly, often times, because of the cooperative community atmosphere that has been developed on our buses, adult passengers will step in and work with the operator to get the kids to calm down and be respectful of others. It has been quite interesting to see the benefits of this all the way around. The kids learn that they won't be allowed to “get away with it” from not just the bus operator, but from other passengers as well. Youth and parents can choose whatever school they wish to attend based on curriculum. Our transit system is their form of transportation. It gets easy, with the bus and bus community, to know our riders by name, even though we carry an average of 4,600 riders per day.
- There are certain individuals that just don't seem to want to cooperate by continuing to be disruptive. We issue what we call a “blue slip,” where the individual is told that they will not be picked up by a bus and that they must call the office to meet with transit personnel about their unacceptable activities and lack of respect to others on the bus. We have denied rides for periods of time depending on the offense and circumstances. When the individual contacts the office, we meet with them and explain how and why their behavior on the bus is disrupting to the passengers and to the safe operation of the vehicles. They provide

permission to take their picture, and we distribute that picture among our bus operators. Much more often, we are very successful with the individual. Sometimes, it takes more time working with an individual. Our goal is to succeed and educate our riders as to the importance of respectful interactions while riding our buses.

- We do not allow loitering. We are careful in distinguishing loitering; we get to know our youth by name.
- Our system has a rider policy that is clearly posted on each bus. A student rider policy is distributed to the area high school each fall. No problems.
- We have not experienced any real problems with our passengers.
- This isn't an issue for us. The drivers ask "What's your destination?" to remind people it is not intended to be a way to pass the day. Police ride occasionally.

Public Transit Agency Respondents in University-Dominated Communities

- We have security cameras on all of the vehicles and facilities. This was done because we want to provide security for our customers, not because of the youth specifically. We have several people that will just ride the buses. We allow that as long as they are not causing problems; however, after one round trip we specifically ask where they are going and put them on the appropriate bus or we make them switch to another route if they are just riding around. We have a specific policy that deals with inappropriate behavior and that is how we deal with all passengers. A few years ago we had to suspend an elderly woman's riding privileges because she violated this policy and this made international news. She took us to court on the issue that we were violating her rights and the court sided with us. We re-instated her riding privileges as soon as she agreed to abide by the policy. It may be something that we will add in the future. Honestly, we don't have a huge problem. We are vigilant in making sure the behavior is what we monitor and base decisions on; therefore, if someone is riding around but not causing problems we will let them. We do ask them to move to a different bus after a round trip and they comply. We don't have a lot of this, but even some of the elderly like to just get on and ride around to see the sights or visit with people, which we don't mind. We view this as a quality of life issue and if this helps someone's quality of life and they are being respectful then what's the harm?
- Yes, we post the picture if we have one for the drivers to see so that they know to keep the individual off. In reality we are talking about 2% of our riders that we deal with at this level and most of the drivers already know the violators. Also, the individuals know that if they try riding when they are suspended the punishment will be much higher than if they follow the process and meet with us. We maintain a tight handle on this so that the problem is dealt with quickly. The word spreads quickly about how we deal with individuals, both when they follow the process and it's a good experience and when they don't and it's a bad one. Before an individual can have their privileges restored they must have a legal guardian or themselves, depending on their age, come and meet with our staff. We explain the proper behavior for riding the bus and they must sign a contract that they will abide by before getting back on. This meeting resolves most issues. We also have a police substation inside our transit center and it has the sheriff's logo and the local police department's logo on there. We have put all the necessary equipment in there so that an officer can file his reports. We also contract

with the sheriff's department to provide us with a deputy at our transit center for four hours each day during peak time. The deputy has our radio frequency so that drivers can make direct contact with him if necessary. He spends most of his time at the transit center, but he can jump on the buses if there is a problem or go to stops in his car. This has been a great partnership and helps maintain control.

- So we have trained all of our supervisors and the sheriff's department that we want to warn passengers at least a couple of times about how to change behavior before we start down the road of discipline because we want people riding the bus. Once someone has been warned sufficiently then a supervisor has offices at the transit center that they pull the individual into to discuss their behavior. We leave it up to the supervisors to make the determination of whether the individual's riding privileges are revoked or not. Once revoked they are given a ticket and a card of the member of management that they need to meet with to get reinstated. The supervisor then fills out an incident report and makes a recommendation of how long this person's privileges should be revoked for. The member of management meets the individual and their guardian if necessary. If the individual is humble and wants to work with us we will usually give them a minimum punishment; if they want to be difficult, we will follow policy as outlined. We have only had to keep someone off the bus for more than a month a couple of times. 99% of the individuals value their ability to be transported and will work with us.
- The drivers also have the ability to ask passengers to get off their bus and we let them make the initial determination for how long. They can kick them off for one trip or one day. If they want to kick them off for longer, they give the individual a card of a management member and tell them that they must talk with them before riding. Like I said the drivers know the ones that cause problems and are pretty successful about keeping them off. This system has worked very effectively for us. Let me make this very clear; we don't want to kick people off and those that are we want to get them back on as quickly as possible. I believe because we treat all individuals with respect is why we don't have larger problems.
- We have a policy that states you may do one round trip and then the driver has the option of asking you to get off the bus. If the passenger refuses he/she may be escorted off by police. In extreme cases a disruptive passenger may be "trespassed" and not permitted to ride. With the installation of cameras on the buses rowdiness has decreased immensely. In the past we had some graffiti and rowdy issues with junior high and high school students. Since we have cameras on the buses and a liaison through the town police department to the schools the problem has practically been eliminated.
- Ah yes! We recently did just add our security on the school route. It immediately squelched the problems.
- We do not mind round tripping. If it gets to be a problem, we suspend riders. If they want to ride all day, fine with us.
- We have a no loitering or round-tripping rule posted in all of our buses and that has been enough to solve the problem.
- We have not had a significant problem with rowdy teenagers on the bus; however, we have had a problem with vagrants. As a result we have implemented a strict policy on misbehavior on the bus and of what we call backtracking on the system. Passengers, mostly "vagrants" who continue to violate policies, get trespassed from the buses permanently.
- To date, there has been no increase in rowdy behavior, so no additional supervision or security has been required. The staff and our Citizen's Advisory Commission have

discussed putting a policy in place that would require the trip to be destination-based if this becomes a problem.

- Students will be rowdy whether you charge a fare or not. We get our share of inebriated students, but drivers are not complaining. We have cameras, but no special ordinances.

Public Transit Agency Respondents in Resort Communities

- We have issues with vagrants, teens, and intoxicated persons and they have cost us some ridership. They usually go to the back of the bus and try not to be noticed. We have extra supervision and have installed video surveillance equipment to help with these issues. We do not have any policies that prohibit loitering or round tripping and with the current climate in local government (extremely liberal), I do not anticipate that we will ever implement any policies or ordinances to such effect. There is a surprising number of homeless in the area, and board members simply feel sympathy for them and don't want to limit their mobility. We have a good radio system and relationship with the local police who usually respond within 5 minutes. They have jailed a few. Three violations in one year and they are suspended from riding for one year.
- Our Transit Use Policies and Guideline document prohibits loitering and riding without a destination. We also have on-board video surveillance technology. Through a zero-tolerance policy, we effectively eject anyone who is not complying with our use policy. Our transit operators are empowered as the captain of their own ship to boot someone off at the next bus stop for violating our system policies. All they have to do is radio and tell the supervisor where they left the person. Our supervisors also have the driver's back. Our supervisors have the difficult conversations with the stinky passengers and respond to deal with the drunks. And finally, our law enforcement is very supportive of us. We call them as the last resort. Whenever we have had to contact law enforcement, the person is charged under local ordinance for "hindering public transportation." This is because of the disruption to our service (the bus stops in place until police respond) just to deal with the situation at this point. The hindering charge is the minimum—sometimes the person also gets disorderly conduct and other appropriate charges.
- Our protocol is fairly specific. The driver will attempt to re-direct the person's behavior twice. If after two tries the person is still being belligerent or not complying, the driver will ask them to disembark. If the person will not get off the bus, then the call goes to dispatch. The supervisor and/or police respond depending upon what the situation is. We like to get the really abusive people charged with hindering so we can get into court and ask for a restraining order to not have to serve that problem person. Our judge will only permit us to deny service to someone for a 24-hour period if we boot them off the bus. Getting into court, though, we can get the court order to deny service to the habitual problem person. Our judge has done 90 days, six months, one year, and permanent suspension of bus privileges, depending on what they did. Our on-board video also really helps with this prosecution.
- Our local riders, the low-income job access commuters, well they all help the driver because they know we will stop the bus and no one will go anywhere. So they often will use peer pressure on someone and tell them to quit because they do not want to be late for work or wherever they are going.
- Our town was voted as having the #1 Nightlife in North America ski areas recently. We do have alcohol related inci-

dents, but because of our zero-tolerance policy and how we deal with it; the number of incidents are actually fairly low.

- We do not have those problems.
- We have installed cameras in the buses. We would have done this whether or not our system was "free." We do monitor the activity on the bus and do involve the police when disruptive behavior does not dissipate. We do limit passengers to a single round trip and belongings must not obstruct the use of the bus by others. This has been done by transit agency policy rather than ordinance. We have developed a strong working relationship with local law enforcement by educating them to the value that we provide and working with them to develop policies and procedures that are mutually beneficial.
- We have not passed any ordinances specific to this issue, although we do have a security/police presence on hand at certain times.
- We have very few issues here as a percentage of ridership. We train operators in the areas of safety and security. We do have standard of conduct policies and rider suspension procedures.
- We have been seeing homeless people riding the bus recently. For the most part they do not cause any problem. Rowdy teenagers are just a fact of life. Living in a small community odds are the driver will know the teenagers or their parents and will defuse any situation.
- We have no ordinances but we have had to increase security through the use of surveillance cameras.
- Haven't had too much trouble. Drivers are able to handle most situations and anything they can't they can directly contact a supervisor or police.
- Yes. We had to put security on our buses due to students misbehaving and homeless loitering. No ordinances yet . . . working on them.
- There are very few issues with vandalism, and we don't think it has anything to do with the fare-free policy.

22. Some people think that when no price is charged for a service, that the service has less value and treat it with less respect. Have you detected any evidence of that (increased vandalism, lack of respect to operators, rowdiness, etc.)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Yes, but we don't think it is any different for charging systems.
- The community is a strong advocate of public transit and there is great respect for our service.
- Yes.
- No.
- No. The riders generally appreciate the system with extremely high quality of service responses on surveys and respect the system.
- That was brought to our attention by our board and we have found the opposite.
- None at all. If at any point there are disruptive patrons, we simply call the local police and either have them calm down or put off the bus.
- In the past, the non-supporters of the fare-free policy have stated that the fare-free policy will result in more vandalism on the buses and other transit properties as well as increased loitering and rowdiness. We have responded that the fare box/fare structure is not an enforcement tool. Our bus operators are empowered to be the captain of their own ships. Though we do have vandalism on the bus from

time to time, we have much less than other systems. We have found that the youth become more appreciative and respectful of the service. This has been the result of, as an example, the fact that we do not tolerate disrespectful behavior on the bus and that they, or others they know, have been denied the service for periods of time. Once they lose the service for a while, they become very humbled and grateful once they regain their ability to ride the buses.

- No. On the whole we strongly believe that our riders respect and appreciate the service that we provide.

Public Transit Agency Respondents in University-Dominated Communities

- No, we have a very respectful community and the security cameras allow us to deal with vandals quickly and effectively, which causes word to spread. We deal with vandalism by immediately repairing any damage and this has kept things down. We do have vandalism like anywhere, however.
- Not at all. The value of our transit system to the university and community has always been strong.
- No. Not even one bit. We heard that argument with fares, and it was totally erroneous.
- We have seen no evidence of that.
- I don't think having a fare-free system has created a situation in which the public respects the system less. There is a great deal of pride in the fact that we are the nation's largest fare-free system and what that means toward community support. There have been incidents in which our drivers have less respect for the riders. We have heard comments that "this is a free ride, what do they expect" when there are complaints.
- We have not had increased cases of vandalism.
- No.
- Categorically NO! The system is a huge source of community pride based on rewards we receive and recognition from the state and FTA. The system helped merge the town-gown relationship. The International Town-Gown Association is headquartered in our town, where they cover best practices. The International City Managers Association gave our system an award for best practices in creating a fare-free system. To help minimize disruption on the bus, we play music on the bus and drivers use their discretion.

Public Transit Agency Respondents in Resort Communities

- Absolutely, we have all of those as well as an attitude among some employees that there is no real reason to strive to make the system any better. People who vandalize the service somehow don't realize that they are paying for it. Kids just jump on and jump off and can be rowdy.
- No. We do have alcohol-related incidents, but that has nothing to do with our fare status.
- No. (Three agencies provided this response.)
- The first year we implemented the "free" system, the compliments rolled in. The second year, some members began to view the bus as an entitlement and we started receiving more complaints. However, this point is a chicken/egg issue. We also have dramatically increased our ridership. If, for example, we used to carry 100 passengers and had incidents/complaints from 1% of the passengers, we would deal with one passenger a day. Now carrying 1,000 passengers, we are still having the 1% problem. We now have to deal with 10 people per day. I would say that a "free" system increases passengers, which in turn

increases exposure. However, I would also say that having a "free" system also boosts the number of passengers that are happy with the system (in the above example, you would go from 99 happy passengers to 990 happy passengers per day). I also think that an argument could be made that in general, there is less respect afforded to public entities, regardless of the fee paid.

- Yes, but it is more "external" perception (a marketing issue). It must be noted that staff members do experience "attitudes of entitlement" from riders regularly.
- No, bus drivers in our town are well respected by the residents and visitors.
- I do not know if the level of rowdiness and misbehavior is any more or less than if a fare was charged.
- No way to tell if there has been any increase since we have always been free. But like the previous question, we haven't had too many problems. We do have vandalism on our property, but I couldn't say if it is any more or less than any other transit system.
- Definitely.

23. Have you conducted surveys of your riders' pre- and post fare-free service? Do you know your passengers' opinions on fare-free service in terms of their satisfaction with the quality of the experience of using the free service?

Public Transit Agency Respondents in Rural and Small Urban Communities

- We conduct periodic satisfaction surveys and have completed only two surveys specifically on rider opinion related to fare levels. Riders primarily support fare-free, but also say "if it helps save service I can pay a nominal fare."
- We do surveys and the passengers all note the high quality of service provided.
- Vast majority appreciate it.
- No. Riders universally prefer free to paying a fare. Some riders believe that paying a fare might increase the financial viability of the service and indicate a willingness to pay. Some riders contribute to annual fund raising campaigns.
- N/A. (Two agencies provided this response.)
- We offer a quality service for free, how can you beat it! Riders love it!
- Yes, ECT conducts surveys every year.
- Though we have not conducted surveys on pre- and post-fare-free service, we hear continuously from our passengers that our system is the best and most caring system, specifically mentioning how great our bus operators are as compared to the "fare-charging" systems. We are told that the fare-charging system's bus operators are not friendly for the most part and say that they do not want to interact at all with their customers. Once again, because we do not have that fare box barrier, our operators are able to develop individual rapport with our passengers.
- No. However, an annual survey is completed by the major resort that includes the quality of the experience.
- In 2008 at least one member in 45% of all households had used the service. The survey noted that 83% considered the service excellent, while the other 17% rated it good.

Public Transit Agency Respondents in University-Dominated Communities

- We have conducted surveys and the passengers are very supportive of the fare and the majority of the population has been in the past.

- Yes. Questionnaires always tell us to keep it fare-free. If the service was not fare-free, passengers would seek alternative ways to get to the university and work. Although they take it for granted, they could not survive without it is also a common response. At public hearings about changes passengers are very vocal in keeping the system fare-free.
- No. Almost impossible to survey the people that we would need to on this.
- We have conducted customer service surveys since going fare-free. There were none conducted prior to going fare-free. The customer satisfaction surveys indicate a very high degree of satisfaction with the quality of our services.
- We have not conducted post-change surveys. It is too early to determine this.
- We have done 20 surveys in the past five years. Some are class projects and others by consultants. We get consistently excellent ratings.

Public Transit Agency Respondents in Resort Communities

- Customers are satisfied with the service as it is but also would like to see expansions to other areas and longer hours—as long as it remains free.
- N/A—always fare-free. (Three agencies provided this response.)
- We did a survey of overall transit riders. Our changing clientele, made up of tourists, made it difficult to obtain valid information as they had only experienced fare or no-fare. Very few passengers had experienced both before and after. We received high marks both before and after the change, but that was in regard to overall opinion about the system.
- Our most recent survey was in 2009–10; 51% of people use it to go to work, 28% for recreation and social, 42% have no car available, 22% find it more convenient, 52% ride eight or more times per week, 88% say service is convenient. Less than 1% found service unacceptable.
- Rider satisfaction surveys are done regularly.
- Sure—they love the fact that it is fare-free—who wouldn't?
- We conducted a passenger survey last fall and received mixed messages. 22% do not want a fare and would not ride, while others say their experience on the bus has been reduced.

24. Have your operators embraced the free-fare system, or do they note any difficulties?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Drivers prefer fare-free to fares because arguments with riders occur more over paying fares.
- The operators are grateful to not have to deal with fares and the associated responsibilities.
- They have had some difficulties at times with “rowdy” passengers.
- Operators and admin. staff love fare-free. It will be a big deal if and when it ends.
- Operators love it as they do not have to deal with being a money cop, and monitoring a fare box.
- Our drivers do not notice any difficulties. Many have come to work here from other agencies. The drivers came from driving school buses or driving at different fare-collecting agencies. They feel safer here since they don't have to deal with any funds.
- Our operators have totally embraced the fare-free system.
- N/A.

Public Transit Agency Respondents in University-Dominated Communities

- Since this is all our operators know they do embrace and support a fare-free service.
- As operators have so many other distractions they are very pleased not having to deal with fares.
- They strongly desire it.
- The operators are fine with the fare-free system. Most of them appreciate the fact that they don't have to monitor fares. If there is a difficulty noted, it is that of vagrants riding the buses and the need to police that.
- Operators were wary of the conversion to fare-free before it was implemented. Staff speaks with drivers on a daily basis and while there are always concerns, drivers have been pleasantly surprised with the lack of increased incidents. The city already had a group pass program that allowed the local school district students to ride free by showing a valid ID. Also, for the past two years, the city allowed homeless men to travel from the Downtown Transit Center to the Cold Weather Shelter on a specific route once in the morning and once in the afternoon. We feel that since these two groups were already familiar with our code of conduct, this allowed for a smooth transition to fare-free.
- Operators love it. Among the passengers are retirees, bank presidents, as well as faculty and students.

Public Transit Agency Respondents in Resort Communities

- Operators are glad not to have to collect fares or police fare evasion. Operators complain about having to deal with fares on our out-of-county commuter system. Operators strongly sense the lack of respect there is for the system by the negative passengers, and it rubs off on them—“we will give you what you pay for”—running early or late, and not really committed to excellence.
- Our operators love to be ambassadors for the town. They have more time to answer guest questions than they would if they had to collect fares. It makes for a more positive guest experience when they get some of that personal attention.
- No.
- The operators loved going to the “free” system. They no longer had to watch for passengers sneaking on the back door, argue over fare, wait until passengers could produce their fare or pass and could focus on answering questions rather than trying to respond and query fares. There were no problems for the drivers.
- Our only problem has sometimes been with fare collection on our Dial-a-Ride route, which does have a nominal fee.
- N/A. (Three agencies provided this response.)
- Our drivers love the fact that they don't have to deal with money.
- They do not know any different because it has been fare-free since day one.
- With the decline of the economy, operators have all said they believe a fare is needed now. Before, operators had mixed feelings.
- Drivers like it. With fares, service would be slower and there would be more arguments.

25. Do you think that fare-free service has allowed your buses to stay on schedule more easily due to reduced dwell time, or does additional ridership cause the bus to operate more slowly?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Fare-free portion of the system operates more efficiently than fare portion. Passengers can enter through all doors except for out-of-county riders who pay as they board.
- Fare-free does factor in less dwell time in designing the bus schedule.
- On certain routes, we have experienced delays due to the increased ridership.
- Increased boardings slow the bus, but boarding time per passenger is reduced. Ridership has grown to the point that current schedules could not be met if ridership was not reduced. This is a very important consideration for future planning.
- More easily.
- Free fares has allowed drivers to be timely in the schedule and the additional ridership boards faster than waiting for riders to fish around for correct fare
- Not really, our system is surrounded by three railroads so being on time is an issue.
- There is no question that fare-free really works when it comes to encouraging folks to use the bus. Our ridership has been climbing since day one, and as such, our schedules are always tight. Clearly, to encourage ridership, our schedules simply must stay on track. We are fortunate to say that one of our challenges is keeping up with our ever-increasing ridership and need for additional buses. Most systems would do anything to have such a problem.
- Yes. Additional ridership during peak times does not typically cause the bus to operate more slowly.

Public Transit Agency Respondents in University-Dominated Communities

- The fare-free service definitely allows the buses to maintain a quicker frequency and a better schedule. We do have significant ridership during peak times, which can be problematic for staying on time.
- Yes to both. No question it is faster without fares. We are able to use both doors and dwell time is minimized.
- Fares would cause us not to be on schedule. Our load counts are huge.
- Whatever time might have been saved regarding the need to no longer collect fares is by far offset by the delays in the schedules that are caused by the increased ridership. As a matter of fact the increasing ridership has caused schedules and their accuracy to be a major challenge for our system.
- The buses have been able to more easily stay on schedule, even with increased numbers of stops being made. The time for boarding has been reduced significantly.
- Yes, it's a balance, but we believe it saves time overall.

Public Transit Agency Respondents in Resort Communities

- It results in reduced dwell time. Based on our limited experience with the commuter routes, we feel that fare collections, even those based on smart systems, would increase dwell time significantly, especially at stations.
- We stay pretty reliably on schedule, except for peak traffic days/times—but then we are not able to move faster than anyone else is.
- No. (Two agencies provided this response.)
- The buses are more reliable because passengers can enter and exit both doors. Although the ridership has gone up,

the ability to load and alight more quickly makes up for the increase in bodies.

- Yes, our routes are on very tight headways, so free service facilitates their on-time performance.
- We feel that if we did charge a fare we would not be able to keep the current schedule. Being fare-free allows us to load and unload more quickly (using both doors), by charging a fare we would only be able to use one door to enter and one door to exit.
- During the “rush hours” there is the possibility of the buses getting behind schedule, but we try to time the schedule so that there is enough “slack time” so that the schedule can be maintained except maybe during exceptional winter weather events.
- If we charged a fare it would greatly impact our ridership and schedule.
- Yes, staying on time is easier.
- Yes, and drivers say the same.

26. What are the challenges (anticipated or unanticipated) associated with your free-fare transit system?

Public Transit Agency Respondents in Rural and Small Urban Communities

- We have some difficulty on regional routes that have high ridership for the fare-free portion displacing potential fare paying riders. We contract with local schools to do supplemental service using school buses and cannot charge fares because of no fare collection ability on school buses.
- As costs rise and revenues remain flat the impression that fares would solve this funding problem is overstated. No paratransit is provided, route deviation or express route.
- How to deal with the expected increase in ridership, increased vandalism, and operating costs.
- The usual challenges of securing revenues (to pay for foregone fare box revenues) always remain.
- There are occasional accusations that transit riders are not “paying their own way” like auto users. These arguments, however, ignore the external costs and implicit subsidies to automobile travel.
- There are really no challenges. (Two agencies provided this response.)
- Public misunderstanding and lack of education about the costs associated with charging/collecting fares. Some people simply refuse to accept fare-free service. We hear often, there's no such thing as a free lunch. In our perspective, fare charging systems do not want the general public to know the true costs associated with collecting a fare. Clearly, in large metropolitan areas the percentage of fares is larger than smaller-sized transit systems. Our system does not need a marketing department. Fare-free markets itself.
- None that we can see, it's all good.
- Funding—the tribe is the only one kicking in local match, and demand continues to escalate. We feel like we are alone in the wilderness when it comes to funding.

Public Transit Agency Respondents in University-Dominated Communities

- We have had to work with police to keep vagrants out of our bus shelters. This is more of a problem in the summer.
- More demand than service and difficult to fund additional services.
- On this campus competition for student fees is tremendous. So much so that our fees were taken from us because they are

flexible monies, and we were given state money to cover all our salaries and replace the student fee amount. We are now faced with increased demands and with our present model can only adjust parking fees. We will need a new revenue source to go forward (my this year's project!!).

- I don't really see any.
- The number of riders we are transporting continues to be a challenge.
- There were a number of unintended consequences that came from going fare-free.
 1. The significant increase in ridership takes a toll on the maintenance of the vehicles. With an aging fleet and far more usage, many more stops, the maintenance of the vehicles suffered. If we had to do it over again we would probably suggest hiring additional mechanics to deal with the wear and tear.
 2. Schedules—The significant increase in ridership has caused schedules to be inaccurate and our on-time performance has suffered. Working on improving schedule accuracy is a major challenge for the system.
 3. One of the unintended consequences of the fare-free system is the fact that the demand response system is then free. That combined with lax qualification procedures led to significant cost increases. In order to control those costs, we have gotten much more diligent on making sure persons are certified via ADA regulations.
- While increased ridership has not yet caused passengers to be turned away due to full buses, it is a concern we continue to monitor.
- Haven't really had the same problems others have had, except on a few lines where capacity was an issue. We did buy spare buses once from as far away as Fargo, North Dakota.

Public Transit Agency Respondents in Resort Communities

- Being fare-free tends to attract an element of ridership that is troublesome—vagrants, intoxicated persons, drug addicts, and school students (teens) who have been suspended from school transportation for disciplinary reasons, and this behavior generally carries on to our buses.
- The biggest challenge is sustainability. Without a dedicated revenue stream, we are a big tap on the general fund and when revenues decline, we have to make hard choices about what services to scale back. A dedicated revenue stream needs to be established so that transit is not such a large drain on the general fund.
- Continued funding and the belief of the community that they determine route times, etc.
- Because fares no longer have a direct correlation with the budget, budgets are expected to be reduced but ridership is increasing. If the fare was more than some people would pay, the ridership would decrease and service could also be cut back. If demand went up, subsequent fare revenue would allow for expansion.
- Funding is always an issue. (Two systems provided this response.)
- Reduced services or operational shut down due to lack of funding.
- For us, being dependant on the town's sales tax for revenue. If we have a major drop in sales tax we must either reduce service or consider charging a fare.
- Increasing system capacity as ridership continues to grow.
- Funding and growth planning are always issues.

27. If ridership increased after the institution of fare-free service, have you done surveys of passengers that would

help you determine if the increased ridership has been due to the same passengers riding more, or did the free fares attract truly new riders?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No. (Seven agencies provided this response.)
- A combination of both has occurred.
- Surveys have not asked passenger if they ride more because it is free. However, ridership doubled since fare-free service was provided.
- The free fares attracted significantly more riders.

Public Transit Agency Respondents in University-Dominated Communities

- There is no question there are new riders. There are only approximately 8,000 non-university residents in Macomb. We have gone from 100,000 to 300,000 non-university riders (out of 1.75 million overall) in that time.
- While there are persons utilizing the system more, there are significantly more new riders in the system.
- We have not yet conducted those types of surveys. Anecdotally, we have seen and heard from new riders and we know previous riders are using the system more.
- N/A.

Public Transit Agency Respondents in Resort Communities

- N/A. (Eight agencies provided this response.)
- We have steadily gained ridership over the 14 years since the system was inception. We believe people return to our community as their choice destination because of the convenience and positive experience.
- Because there are constantly changing tourists here, a direct correlation cannot be found. There has also been increased development in areas served by the bus. That being said, a doubling of ridership over 10 years demonstrates that the bus service is popular and the "free" aspect is one of the strongest points.

28. Did you have to lay off any employees as a result of going fare-free (such as fare box technicians or money counters), or were they reassigned to other positions?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No. (Eight agencies provided this response.)
- No. We have added one admin. position and additional drivers for added ADA service. We have three times as many riders as before fare-free with no changes in admin. positions.
- We did not have these employees, therefore there were no lay-offs.

Public Transit Agency Respondents in University-Dominated Communities

- No, it allowed us to reassign tasks.
- No. (Four agencies provided this response.)
- No employee positions were reduced. One employee was required to take farebox revenue to our financial institution, a task that took only a few hours per week. This employee was assigned additional non-transit duties to complete his

work schedule. The city's Utility Billing division previously sold passes to the community. Because one of our connections to another town is still fare-based, Utility Billing continues to sell those passes. Fare box repairs were done by the city's maintenance contractor, First Student. They continue to do all other bus repairs.

Public Transit Agency Respondents in Resort Communities

- N/A. (Nine agencies provided this response.)
- We did not lay any people off, but we were at the crossroads of having to dramatically increase our capital, operating, and staff levels in order to keep operating with a fare. The "free" system let us not have to expand costs while expanding service.

29. What was the internal business case for operating fare-free?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Saving costs associated with fare collection, accounting, auditing, and liability.
- There are reduced administrative costs.
- It was very simple and informal. Two sponsors committed to contributing a flat amount for a two-year period to replace fare box receipts. They continue to provide that level of support today and contributions from other sources such as donations have provided additional revenues.
- Cost of collection exceeds revenue. Also, farebox revenue comes off of the "operating deficit" and does not qualify 100% as the local match for grants.
- Less money controls, passenger safety, drivers could be more attentive to their job of driving.
- Charging a fare is not cost-effective. Charging a fare creates a barrier between the rider and the bus operator. Charging a fare is not user-friendly. Charging fares creates safety issues; people argue about the fare with the operator, and there are robberies and embezzlement exposures because of the fare system. Charging a fare reduces ridership. Charging a fare truly is a very poor business model if the goal is to promote the use of public transportation and to assist in fixing the transportation crisis our nation is facing.
- A budget was built to provide service with available income, without fares. Plus we had substantial local contributions that eliminated the need for fares.
- Charging fares would cost more money than it was worth and the income would reduce our federal grant.

Public Transit Agency Respondents in University-Dominated Communities

- Our case is the same externally and internally, which is meeting the board's end goals: offer innovative services that reduce dependency on the automobile. We believe that operating fare-free is one way to achieve this objective. Additionally we study the fare-free issue in our short-range transit plan every five years. In the last plan completed in 2006 it was suggested that we could lose up to 50% of its ridership if a fare were charged at a level to cover costs to impose the fare. Also in that study a phone survey was conducted and the main reason people aren't using our services is because of inconvenience. As we

have studied the fare issue we believe that imposing a fare would make things even more inconvenient. We would have to increase our headways for fare collection, determine fare zones, create transfers, and the list goes on and on. We believe the increased headways are the greatest inconvenience to our customers. These are the primary reasons of why we remain fare-free.

- Getting a check four times a year from the city beats counting change every day.
- Less costly and maximum efficiency.
- The best case for internal reasons for going fare-free was the understanding that the administration of fare programs, passes, and prepaid passes would be eliminated. Also, there was an expectation that state and federal funding would increase. The elimination of the need for drivers to monitor fares or to have fare policies is also a benefit.
- Our small urban system used revenues from 5307 and JARC 5316 through a state grant, fares (including group-pass programs), a direct contribution from the university, local property taxes (the General Fund share), rental of space on the buses for advertising, and revenue from the State Business Energy Tax Credit program. The transit fee has replaced revenues from fares and the General Fund contribution.
- Bottom line is the economics of free-fare, social benefits to the community, and a model to other communities. We figured that 30% of our operating costs were due to fare collection and extra dwell time. Since fare recovery throughout our state was usually 20%, we saw no sense in collecting fares.

Public Transit Agency Respondents in Resort Communities

- Our elected officials felt that our taxpayers had "pre-paid" for their service by voting for our levies in 1990 and 2001.
- The benefits of mitigating traffic congestion, reducing pollution, enhancing guest experience (which is important for market share and economic stability), and how to promote an environment to attract low-income workers to feed the economic engine.
- Our community goal of keeping traffic at 1993 levels is always our base case.
- Politics.
- N/A.
- For the many reasons already listed.
- Increase ridership and implement TDM measures.

30. What was the external business case for operating fare-free?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Better customer service.
- There is a financial benefit to the passenger.
- In simple terms, given the cost of a fare system, only a small percentage of costs can be covered through fares. Attracting riders that would otherwise drive contributes to cleaner air, reduces parking demand and traffic.
- Federal and state operating subsidies make fares less necessary.
- Response to the potential ridership that they are not paying twice for a bus ride by paying a fare and being taxed.
- Our mission statement says it all: "The mission is to provide a package of ridesharing services which emphasize rider use, safety and satisfaction, and results in increased

mobility opportunities, less dependence on the automobile, decreased traffic congestion, and improved air quality for all people in the service area, riders and non-riders alike.”

- Contributions were solicited from area businesses to allow fare-free service. The fare-free image, the welcomeness to ride our system, helped us tremendously during our start-up years.
- The casino bus had always operated fare-free setting a precedent, plus the people they were carrying were generally students, service employees, and seniors, all low income.

Public Transit Agency Respondents in University-Dominated Communities

- It made our system more universal and less university-oriented.
- It was a university decision.
- Externally the case for going fare-free was to provide more accessibility throughout the community to activities to show true community-wide support of transit. From the university perspective they could increase the cost of employee parking on campus and give persons an option to move to a park-and-ride lot.
- Same as last answer. (Three agencies provided this response.)
- Bottom line is the economics of free-fare, social benefits to community, and a model to other communities

Public Transit Agency Respondents in Resort Communities

- Tourism.
- The benefits of mitigating traffic congestion, reducing pollution, enhancing guest experience (which is important for market share and economic stability), and how to promote an environment to attract low-income workers to feed the economic engine.
- Our agency is one of many departments vying for the same general fund dollars. By not having to increase transit budgets while expanding service allowed monies to be freed up for other departments.
- Our community goal of keeping traffic at 1993 levels is always our base case.
- Politics.
- N/A.
- Good visitor experience and exposure for the city and county.
- Increase ridership and implement TDM measures.

31. Assuming ridership increased, what types of changes did the transit agency or other entities make concurrently and post-fare elimination that might have also affected total ridership (e.g., reduced or higher-priced parking, new employment generators, increases in university enrollment, a sharp increase in gas prices, etc.)?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Higher costs to operate personal cars were the most significant factor in increased ridership.
- None. (Three agencies provided this response.)
- Gas price increases played a major part (along with the free rides).
- Originally a fare-free zone was established without a dramatic increase in ridership. Ridership began to increase as

service planning improved with more frequent and direct service and then rose more sharply as system-wide fare-free was implemented. I like to be quoted as saying, “You can’t give away lousy transit service.”

- While we have always operated fare-free, ridership grows disproportionately during times of increases in gas prices and declines in economic activity. This implies a high sensitivity to the price of fuel and personal income to bus ridership.
- The overall mobility for education, recreation, and medical appointments.
- Basically, this is not applicable. However, I would like to add that we have developed Transit Parks for users of the system. We do not charge any fare for vehicles to park in these areas.

Public Transit Agency Respondents in University-Dominated Communities

- We streamlined some routes to eliminate a number of stops, and increased hours of service almost every year.
- None. (Two agencies provided this response.)
- As previously mentioned, a 20% service increase was implemented at the same time we went fare-free. Also, the university’s commitment to controlling parking on campus was developed.
- Coincidentally, the parking control for our customer free zone in downtown went from an unlimited time to 3-hour limit. This was done totally separately from the transit fare change and was not done to impact transit use. This may have had some impact on transit use, but not likely.
- Not much has changed, student enrollment has remained pretty steady and new riders come from outside campus.

Public Transit Agency Respondents in Resort Communities

- N/A. (Nine agencies provided this response.)
- At the time, nothing else changed. Over the years, infill has reduced parking, remote parking has been increased, and gas prices have increased. Ridership has also increased and it is my opinion that the “free” bus has contributed to this.

32. If the free-fare system was discontinued, why and how was it discontinued?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Trips to out-of-county destinations were changed to a fare to enable passage of a local tax increase.
- N/A. (Eight agencies provided this response.)
- Fare-free is still in effect, but with stagnating revenues, increasing fuel costs, and ADA costs, combined with stagnating or shrinking revenues from local, state, and federal governments, as well as soaring demand due to rising fuel prices, fares may become necessary. To that end we are exploring high tech fare systems such as contactless card readers and other technologies that will minimize boarding times and provide maximum opportunity for third-party billings.

Public Transit Agency Respondents in University-Dominated Communities

- We would have to make a substantial investment in an automatic fare system, which we are not likely to do.
- N/A. (Six agencies provided this response.)

Public Transit Agency Respondents in Resort Communities

- N/A. (Ten agencies provided this response.)

33. What evaluations were conducted (if any) after the fare-free system was implemented (or discontinued)? Can you provide a copy of any white papers or analyses that were written?

Public Transit Agency Respondents in Rural and Small Urban Communities

- No reports available. Fare revenue on out-of-county trips very effective and out-of-county trips are increasing. Some members of our board may see this as justification for charging system-wide fares.
- N/A. (Seven agencies provided this response.)
- We have conducted multiple evaluations and surveys. The system is a raving success.

Public Transit Agency Respondents in University-Dominated Communities

- There were no formal evaluations of the fare-free system after it was begun. The ridership increases were so significant that the community has solidly supported going fare-free without any kind of analysis.
- Surveys done each year, results are excellent.

Public Transit Agency Respondents in Resort Communities

- N/A. (Seven agencies provided this response.)
- We have not done any specific studies, beyond the normal long-range transit plan, because the system operates well.
- On city website under transportation.

34. Have you ever had significant complaints from any element of the community that led to reconsideration of the fare-free system? For instance, some people say if the service isn't important enough for the users to pay for, why should others pay?

Public Transit Agency Respondents in Rural and Small Urban Communities

- Many comments pro and against. Complaints declined significantly when the decision was made to charge for out-of-county trips.
- No. (Four agencies provided this response.)
- Yes. This has to be defended every year before local city/town councils.
- Not a significant number. There are occasional accusations that transit riders are not "paying their own way" like auto users. These arguments, however, ignore the external costs and implicit subsidies to automobile travel.
- Have not had negative feedback, riders and potential riders are happy it is free, are pleased with the safety and security the driver provides, and are glad to have this type of regional service, which they never had before.
- When a measure has been placed on the ballot to increase sales tax (5 times) to support our system, we've had members of our community speak out against fare-free service delivery. The letters to the editor during those times have been numerous. Interestingly, when a negative, anti-fare-free letter would get published, multiple

letters would be sent in to respond to those negative letters that are supportive.

- No, we keep getting requests for more service and it has grown dramatically.

Public Transit Agency Respondents in University-Dominated Communities

- Our system is funded locally by a local option sales tax passed by voters. There are a vocal minority of non-riders that state that a fare should be charged to make sure the riders are paying their fair share. This same group of people, however, does not believe that roads should be tolled.
- N/A.
- At one point, there was a faction that thought we should charge based on the idea of value. That has totally dissipated.
- We have had some people comment they would pay fares to keep the bums off.
- We fought this battle with our city council and it continues to come up once in a while. We did not raise a single dollar of taxes to fund our service so the argument is moot.
- We have not received significant complaints from the community that would lead to reconsideration of the fare-free system.
- No significant complaints have been received.
- Has never happened; to the contrary, we are a subject of community pride.

Public Transit Agency Respondents in Resort Communities

- The only significant complaints we receive are with regard to vagrants, drug addicts, and intoxicated persons that frequent our service. Our assumption is that most if not all of these types of persons would stop riding if they had to pay for our services.
- No. We have scaled back our summer operations in recent years to react to the economy. The per-passenger cost in the summer was out of line and it was an easy budget cut to make.
- No. (Four agencies provided this response.)
- With tightening budgets, the desire to make transit pay for itself continues to be brought up. The argument is oversimplified to say, "If you have 1 million passengers and you charge them a dollar each, you will generate 1 million dollars." The points that need to be educated are several. First, there will be a reduction in passengers. I do not know of a model that shows what that reduction would be, but it would be significant. Secondly, there is a cost to purchasing and installing fare boxes and the new technologies requested by the public are expensive. Outfitting a fleet would be very costly. Staffing levels would have to be increased for money handling. Staff and capital would also have to be increased to provide more vehicles to account for the increase in service time. When put in perspective, although counterintuitive, eliminating the "free" system would actually cost more.
- When we've had to institute service cuts, there has sometimes been an outcry for a "spare change" service. I think I invented this term! We've been asked to allow riders to donate to the bus system with their spare change rather than reduce service. We've also been asked to charge nominal fees such as a quarter.
- Similar conversations are ongoing, but have not yet created a ground swell for change.
- Majority of the community believes the system is vital for the community.

Abbreviations used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation