TCRP SYNTHESIS 39

TRANSIT COOPERATIVE RESEARCH PROGRAM

Sponsored by the Federal Transit Administration

Transportation on College and University Campuses

A Synthesis of Transit Practice

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Transportation on College and University Campuses

A Synthesis of Transit Practice

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SUBJECT AREAS
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Research Sponsored by the Federal Transit Administration in Cooperation with the Transit Development Corporation

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TRANSIT COOPERATIVE RESEARCH PROGRAM

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

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Federal Transit Administration (FTA). A report by the American Public Transit Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of vice 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 anytime. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

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

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

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

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

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

Special Notice

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PREFACE

A vast storehouse of information exists on many subjects of concern to the transit industry. This information has resulted from research and from the successful application of solutions to problems by individuals or organizations. There is a continuing need to provide a systematic means for compiling this information and making it available to the entire transit community in a usable format. The Transit Cooperative Research Program includes a synthesis series designed to search for and synthesize useful knowledge from all available sources and to prepare documented reports on current practices in subject areas of concern to the transit industry.

This synthesis series reports on various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on those measures found to be successful in resolving specific problems. The extent to which these reports are useful will be tempered by the user's knowledge and experience in the particular problem area.

FOREWORD

By Staff
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This synthesis will be of interest to transit agency professionals, campus communities, and the consultants who work with them in dealing with the provision of campus transit service. The report offers survey information from 30 campus transit agencies including insights into the lessons learned and issues related to planning, implementing, and operating campus transit service. The focus is on the recent trend toward unlimited access funding systems for campus transit service, whereby students, faculty, staff, and in some cases, nonuniversity-affiliated residents of a campus community are afforded unlimited use of transit service without paying a fare.

Administrators, practitioners, and researchers are continually faced with issues or problems on which there is much information, either in the form of reports or in terms of undocumented experience and practice. Unfortunately, this information often is scattered or not readily available in the literature, and, as a consequence, in seeking solutions, full information on what has been learned about an issue or problem is not assembled. Costly research findings may go unused, valuable experience may be overlooked, and full consideration may not be given to the available methods of solving or alleviating the issue or problem. In an effort to correct this situation, the Transit Cooperative Research Program (TCRP) Synthesis Project, carried out by the Transportation Research Board as the research agency, has the objective of reporting on common transit issues and problems and synthesizing available information. The synthesis reports from this endeavor constitute a TCRP publication series in which various forms of relevant information are assembled into single, concise documents pertaining to a specific problem or closely related issues.

This document from the Transportation Research Board integrates information from a literature review, survey responses from 30 transit agencies, and three case studies with experiences thought to be transferable.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, available information was assembled from numerous sources, including a number of public transportation agencies. A topic panel of experts in the subject area was established to guide the researchers in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now at hand.

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This study was managed by Donna L. Vlasak, Senior Program Officer, who worked with the consultant, the Topic Panel, and the J-7 project committee in the development and review of the report. Assistance in Topic Panel selection and project scope development was provided by Stephen F. Maher, P.E., Manager, Synthesis Studies. Don Tippman was responsible for editing and production. Cheryl Keith assisted in meeting logistics and distribution of the questionnaire and draft reports.

Christopher W. Jenks, Manager, Transit Cooperative Research Program, assisted TCRP staff in project review.

Information on current practice was provided by many transit agencies. Their cooperation and assistance was most helpful.

TRANSPORTATION ON COLLEGE AND UNIVERSITY CAMPUSES

SUMMARY

Land use, travel patterns, density, and centralized policy control found in college and university settings often result in university communities demonstrating innovative solutions to provide transit and other non-auto solutions to address contemporary mobility issues. Many campus communities, both in traditional "college towns" and in large urban areas, have implemented or are studying policies to manage parking, provide transit, and shift mode choice. Some have established discounted transit fare programs and others have implemented unlimited access programs.

A survey of 30 campus communities provided information on campus transit systems, including insights into the lessons learned and issues related to planning, implementing, and operating campus transit systems. Topics of interest include:

- Organizational issues, including ownership and operation of the system, student and university roles in governance of the system, and the special case of multiple providers in the same community.
- Financing campus transit, including sources of funds, with special emphasis on the use of student fee and parking revenue.
- The parking–transit connection, which is the use of parking revenue to fund transit and the use of parking rates and policy to encourage transit use.
- Transit as part of transportation demand management programs designed to reduce the difficulty in "selling" university expansion plans. Transit is included in these strategy-driven plans that have replaced facilities-driven ones.
- Application of advanced technologies to campus transportation systems.
- University community approaches to meeting the mobility needs of persons with disabilities.
- Transit's role in promoting safety and security on campus.
- Students' role, especially as drivers for campus transit systems.

The synthesis particularly focuses on and documents the recent trend toward unlimited access funding systems for campus transit systems whereby students, faculty, staff, and in some cases, nonuniversity affiliated residents of a campus community are afforded unlimited use of the transit system without paying a fare. These transit systems are funded through a combination of mandatory student fees, parking revenue, government transit grant programs, and university funds. Such programs have been successfully implemented in both "college town" settings and large urban areas and result in vastly increased mobility options for users and community benefits, especially traffic and parking relief.

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CHAPTER ONE

INTRODUCTION

BACKGROUND

In college and university communities, land use, travel patterns, density, and centralized policy control often provide the basis for innovative solutions that are designed to provide transit and other non-auto solutions to address contemporary mobility issues. Many campus communities, from traditional "college towns" to large urban areas, have implemented or are studying policies to manage parking, provide transit, and shift mode choice. Some have established discounted transit fare programs, and others have implemented unlimited access programs.

Several campus transit systems, such as those at the University of Georgia, Michigan State, the University of Iowa, the University of Massachusetts–Amherst, and several campuses of the University of California, have been providing high-quality unlimited access transit services to their communities for 30 years or more. Others, such as the University of Illinois Champaign–Urbana, Cornell University, the University of Washington, and the University of Wisconsin–Milwaukee, have developed very extensive unlimited access systems during the past 10 years, as campus traffic and parking problems have worsened and demanded new solutions. Furthermore, interest in expanded campus transit services as part of overall transportation demand management (TDM) strategies has gained momentum within the past 5 years.

Recent interest and activity in campus transportation systems stems from a number of factors, including the increased growth of many colleges and universities, growth that strains parking and claims space for new educational facilities while increasing traffic and congestion. The middle to late 1990s have also been a growth period for campus transit systems, because those university communities desiring to increase transit services have had access to increasing federal and state transit funding. The 1991 Federal Intermodal Surface Transportation Efficiency Act (ISTEA) increased authorizations for public transit capital and operating assistance, especially for smaller urban areas. TEA-21 (Transportation Equity Act for the 21st Century) continued this higher level of federal funding, at least through 2003. This increase in federal funding has been accompanied in many cases by increased state funding. The funding available to transit systems in college and university communities has given these systems the resources necessary to consider unlimited access transit that requires significant expansion of service. Transit agencies also recognize that university students, faculty, and staff represent very large and stable markets for their transit services. This market is especially important because it represents a major growth market relative to other transit market segments.

Publicity about the success of campus communities improving their campus transit services has spread among campuses and often causes a groundswell of interest by students who hear about the mobility afforded to students at other universities. Studies such as this synthesis, and conferences such as the two sponsored by the American Public Transportation Association (APTA) in 1998 and 2000, serve to stimulate and inform deliberations at campuses that wish to address their mobility challenges and need information on how to formulate an action plan.

PURPOSE AND OVERVIEW

This synthesis project is designed to provide information and insight into the state of the practice of transportation in college and university communities at a point in time in mid-2000. It particularly focuses on recent (past 10 years) efforts to implement comprehensive, high-quality public transit services, such as unlimited access systems, as part of broader university efforts to implement transportation demand strategies. College and university communities, as used in the context of this study, include both the traditional college towns and large urban areas where significant campus-oriented transportation services are provided.

METHODOLOGY

Information reported in this synthesis was obtained from three sources: a literature review, a survey of 30 campus transit systems, and an in-depth study of specific case study systems. The literature review included a search of TRIS (Transportation Research Information Services) conducted with the assistance of TRB staff. This literature review identified three types of resources: articles written about specific campus experiences; crosscutting articles about such topics as parking and transit or unlimited access systems; and previous directories of campus transit systems. Survey respondents provided additional reports and other background resources, and other information was obtained by searching the World Wide Web. This later source revealed significant information about individual systems as reported on their websites, and it also provided reports not

previously identified through the TRIS search. Key data and findings from the literature review are included in the discussion of the key topics in chapter 3.

The second source of data for this synthesis is derived from the responses from a survey of campus transit systems. Three sources of information were used to identify the systems surveyed: the 1992 Campus Transit System Inventory, prepared by the Mid-Atlantic Universities Transportation Center (*1*); the APTA website, which includes listings of transit system websites throughout the nation (both members and nonmembers) (*2*); and an article by Brown et al. that reported the results of a survey of 31 unlimited access transit systems (*3*).

The 1992 inventory identified more than 180 universities that had some form of public transportation service; however, most of these systems were very small, often with fewer than five vehicles, or they were special purpose systems, such as evening-only demand-response systems. Consequently, because the intent of the synthesis was to focus on communities that had developed significant public transit services that were truly public and not parking lot or dormitory shuttles only systems with 10 or more vehicles, as identified in the 1992 study, were considered for inclusion in this project's survey. Appendix C includes a listing of transit systems from the 1992 study that met that criterion and that were included in this synthesis. Twenty-seven of the 48 systems surveyed for this synthesis were also included in the 1992 inventory. The other 21 systems were identified by members of the synthesis panel, the APTA website, or the Brown et al. article.

A copy of the survey questionnaire is included as Appendix A. A listing of university community transit systems that completed the survey is presented in Appendix B. A total of 48 surveys were distributed by mail in May 2000, and responses were received through September 2000. The 30 responses represent a response rate of 62.5 percent.

Table 1 summarizes the response rates based on transit system organizational type and the nature of the campus community. Systems that operate in college towns represent approximately two-thirds of the respondents, whereas systems operating in large urban areas represent the remaining one-third. The responses are divided equally between transit systems directly operated by the university and those run by a separate transit agency, local government department, or private contractor.

Table 2 gives a further breakdown of the 30 respondents in terms of the type of service they provide (unlimited access) and the approximate enrollment of the university. Approximately two-thirds of the transit systems responding to the survey offer some form of unlimited access service. Based on the other findings in the study, this form of fare payment and quality of service seems to be the most popular and desirable form of campus transit; therefore, it is not surprising that two-thirds of the systems responding to the survey offer this type of service. The survey respondents serve campuses of all sizes, although none served a campus with enrollment of fewer than 10,000 students. The systems were about equally divided between the four enrollment categories cited in Table 2.

TABLE 1
SUMMARY OF CAMPUS TRANSIT SYSTEMS SURVEYED BASED ON TYPE OF COMMUNITY AND ORGANIZATION

System Characteristic	Surveys Distributed	Survey Respondents
Large Urban Area	21	11
College Town	27	19
Total	48	30
University-Operated Transit System	28	15
Separate Agency, City Department, Contractor	20	15
Total	48	30

TABLE 2
SUMMARY OF CAMPUS TRANSIT SYSTEMS SURVEYED BASED ON TYPE OF SERVICE AND ENROLLMENT

System Characteristic	Percent Responses	No. of Responses
Unlimited Access Service	70.0	21
Enrollment		
Less than 15,000 students	23.3	7
15,000–24,999 students	23.3	7
25,000–34,999 students	23.3	7
35,000 or more students	30.1	9

The names and characteristics of the survey respondents are reported in chapter 2.

ORGANIZATION OF REPORT

This synthesis contains descriptive information about transit systems in college and university communities in the United States. It also contains a discussion of key issues surrounding the planning and implementation of campus transit programs. Chapter 2 includes descriptive information on the 30 systems that responded to the survey. Chapter 3 includes detailed discussions of nine key issues related to planning, implementing, and operating campus transit systems. This chapter also reports on the findings of the survey and the literature review as these sources apply to the topics considered. Chapter 4 is devoted to discussion of the issues surrounding the implementation and operation of unlimited access systems; that is, systems where passengers have unlimited use of a transit system without paying a fare because the service is funded with student fees or other non-farebox revenue. Chapter 5 includes three case studies of campus transit systems and university programs that illustrate key aspects of campus transportation policy, planning, and operation. The report concludes with a chapter that summarizes the key findings and conclusions of this synthesis.

CHAPTER TWO

SURVEY RESULTS ON THE CHARACTERISTICS OF PUBLIC TRANSPORTATION SERVICES ON COLLEGE AND UNIVERSITY CAMPUSES

A mail survey of 30 campus transit systems is the main source of primary data for this synthesis study. The purpose of the survey was to obtain data and other information to better understand how campus transit systems are organized, managed, and financed, and to learn more about the special characteristics and services and funding mechanisms used. The method for selecting systems to be surveyed was described in chapter 1. The questionnaire used and the list of transit systems responding to the survey are included as Appendixes A and B. Readers should recognize that the survey results reported here do not include information from all campus transit systems, or even a number of the better-known and successful ones. Limitations on the number of systems that could be included in the sample precluded surveying all known systems. Nevertheless, the information reported in this study based on 30 systems responding to the survey, combined with a literature review and other contacts with campus transit systems, does provide important insights into the current state of the practice for transit services in campus communities.

The remainder of this chapter provides descriptive information on the service area and types of service for each respondent. In addition, operating, financial, and performance data are tabulated for the 30 reporting systems, as well as information on drivers, the primary cost component of any transit system. Additional analysis of these data and summaries of other portions of the survey are included in chapters 3 and 4.

SERVICE AREA CHARACTERISTICS AND TYPES OF SERVICES OFFERED

Tables 3 and 4 summarize descriptive information on the service area characteristics and the types of service offered by each of the 30 survey respondents. Twenty-two of the systems responding to the survey operate in a college town because they have identified the university as the largest employer in their community. Most of the survey respondents operate in small communities; 75 percent report service area populations of 250,000 or fewer residents. The universities served by the transit systems, however, are large ones. The smallest enrollment represented in the responses is just over 10,000 students, whereas the largest enrolls nearly 50,000 students.

Just over half (16 of 30) of the systems report that they are the only transit provider in their area; however, the other 14 are just one of either two or three systems in their area and consequently face additional service coordination challenges. As can be seen in Table 4, the campus transit systems offer a wide range of services, the most common being on-campus circulator/shuttle service, parking lot shuttles, and fixed-route services to off-campus housing complexes.

FINANCIAL, OPERATING, AND PERFORMANCE DATA

Tables 5 through 7 summarize selected operating, financial, and performance statistics for the reporting systems. Additional interpretation of the financial data is included in chapter 3 under the discussion of funding sources. Not all respondents provided all of the required information. In addition, special care should be taken in interpreting the financial data reported in the survey, because not all systems used the same definition of terms. Also, specific expense items included in overall expenses will vary depending on whether a system is a stand-alone transit agency or part of another operating unit, such as a university parking office or city government. Furthermore, especially in the case of the revenue data, not all systems report data using the same definitions or operating revenue. For example, some systems might count student fees or university contributions as fares, whereas other systems would report the same income as local operating assistance or "other revenue."

Table 7 includes select performance indicators that may help other campus transit systems planning new services or wishing to identify systems with characteristics similar to their own for peer comparisons. These statistics show that campus transit systems are very productive when measured in terms of passenger trips per vehicle hour of service, and relatively low-cost providers of transit when measured by the expense/hour or expense/trip indicators.

DRIVER CHARACTERISTICS

The single largest expense item for a bus transit system is the wage and fringe costs of drivers, and campus transit systems are no exception. Table 8 presents data from the survey respondents that profiles the driver situation for their operations including wage rates and, of special interest, their use of part-time, and more specifically, student drivers. Eighteen of the 30

TABLE 3
COMMUNITY CHARACTERISTICS OF CAMPUS TRANSIT SYSTEMS

University	Transit System	Community Served	Service Area Population	University Enrollment	Is University Largest Employer?	No. of Transit Systems in Area
University of Arkansas	Razorback Transit	Fayetteville, AK	57,500	14,500	Yes	1
Stanford University	Marguerite Shuttle	Stanford, Palo Alto, CA	NA	NA	Yes	3
Univ. of California–Davis	UC Davis–Unitrans	Davis, CA	58,000	23,000	Yes	3
Univ. of California–Santa Cruz	TAPS Shuttles	Santa Cruz, CA	55,000	11,000	Yes	2
Univ. of California–San Diego	Shuttle	San Diego, CA	NA	18,677	No	2
Colorado State University	Transfort	Ft. Collins, CO	110,000	23,000	NA	1
Florida State University	Taltrans	Tallahassee, FL	200,000	34,000	No	1
University of Georgia	Campus Transit System	Athens, GA	90,630	30,912	Yes	2
Northern Illinois University	Huskie Bus Line	DeKalb, IL	35,000	23,103	Yes	1
Univ. of Illinois Champaign-Urbana	Champaign–Urbana MTD	Champaign–Urbana, IL	115,000	36,000	Yes	1
Western Illinois University	Go West Transit	Macomb, IL	20,000	12,500	Yes	1
Indiana Univ.–Bloomington	Bloomington Transit	Bloomington, IN	60,633	36,201	Yes	2
Indiana Univ.–Bloomington	Campus Bus	Bloomington, IN	60,633	36,201	Yes	2
Purdue University	CityBus	Lafayette, IN	120,000	37,800	Yes	1
Iowa State University	CyRide	Ames, IA	48,500	26,110	Yes	1
University of Iowa	Cambus	Iowa City, IA	60,000	28,800	Yes	2
Louisiana State University	Campus Transit	Baton Rouge, LA	400,000	31,000	No	2
Univ. of Massachusetts–Amherst	UMASS Transit Service	Amherst, MA	105,000	25,000	Yes	1
Michigan State University	Capitol Area Transp. Auth.	Ann Arbor, MI	200,000	34,719	Yes	1
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	East Lansing, MI	250,000	42,000	No	2
University of New Hampshire	Wildcat Transit	Durham, NH	23,230	12,230	Yes	1
Cornell University	TCAT	Ithaca, NY	100,000	18,729	Yes	1
East Carolina University	ECU Student Transit Auth.	Greenville, NC	65,000	18,233	No	2
North Carolina State University	Wolfline	Raleigh, NC	286,000	27,000	No	2
Penn State University	Centre Area Transp. Auth.	State College, PA	80,000	40,000	Yes	1
Clemson University	Clemson Area Transit	Clemson, SC	30,000	17,000	Yes	1
Texas A&M University	Bus Operations	College Station, TX	120,400	43,400	Yes	2
University of Texas	Shuttle Bus–Capitol Metro	Austin, TX	750,000	49,000	Yes	1
American University	AU Shuttle	Washington, DC	NA	10,092	No	2
Univ. of Wisconsin–Madison	Madison Metro	Madison, WS	250,000	40,761	Yes	1

Notes: NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services.

TABLE 4
SERVICES OFFERED BY SURVEY RESPONDENTS

University	Transit System	Services Provided							
		On-Campus Circulator/ Shuttle	Parking Shuttle	Fixed-Route from Off-Campus Housing	Regional Fixed-Route Service (off-campus)	Commuter Routes from Outlying Areas	Charter Services	Accessible Services for Students	Other
University of Arkansas	Razorback Transit	x	x	x	x	x	x	x	
Stanford University	Marguerite Shuttle	x	x					x	x
Univ. of California–Davis	UC Davis–Unitrans			x	x		x		x
Univ. of California–Santa Cruz	TAPS Shuttles	x	x			x	x	x	
Univ. of California–San Diego	Shuttle	NA	NA	NA	NA	NA	NA	NA	NA
Colorado State University	Transfort			x	x				
Florida State University	Taltrans	x			x			x	
University of Georgia	Campus Transit System	x	x	x			x	x	
Northern Illinois University	Huskie Bus Line	x	x	x	x			x	
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	x	x	x	x		x	x	x
Western Illinois University	Go West Transit	x		x	x	x		x	
Indiana University–Bloomington	Bloomington Transit		x	x					
Indiana University–Bloomington	Campus Bus	x	x	x			x		
Purdue University	CityBus	x	x	x	x		x	x	
Iowa State University	CyRide	x	x	x				x	x
University of Iowa	Cambus	x	x					x	
Louisiana State University	Campus Transit	x	x	x	x				
Univ. of Massachusetts–Amherst	UMASS Transit Service	x	x	x	x			x	
Michigan State University	Capitol Area Transp. Auth.	x	x	x	x			x	
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	x	x	x	x			x	x
University of New Hampshire	Wildcat Transit	x	x	x	x	x	x	x	
Cornell University	TCAT	x	x	x		x	x	x	x
East Carolina University	ECU Student Transit Auth.	x	x	x			x	x	
North Carolina State University	Wolfline	x	x	x	x				x
Penn State University	Centre Area Transp. Auth.	x	x	x	x	x			
Clemson University	Clemson Area Transit	x	x	x		x	x	x	
Texas A&M University	Bus Operations	x		x			x	x	
University of Texas	Shuttle Bus–Capitol Metro	x	x	x		x			
American University	AU Shuttle	x		x				x	x
Univ. of Wisconsin–Madison	Madison Metro	x		x		x			

Notes: NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services.

TABLE 5
SELECTED OPERATING DATA FOR SURVEY RESPONDENTS

University	Transit System	FY Reporting	Trips	Vehicle Miles	Vehicle Hours	Total Vehicles	Peak Vehicles
University of Arkansas	Razorback Transit	99	1,164,508	304,440	29,351	24	14
Stanford University	Marguerite Shuttle	99	1,001,292	225,522	45,630	22	16
Univ. of California–Davis	UC Davis–Unitrans	99	2,342,000	652,000	61,000	39	31
Univ. of California–Santa Cruz	TAPS Shuttles	NA	NA	NA	NA	NA	NA
Univ. of California–San Diego	Shuttle	00	NA	NA	NA	NA	16
Colorado State University	Transfort	99	1,431,779	739,707	54,963	24	18
Florida State University	Taltrans	NA	NA	NA	NA	NA	NA
University of Georgia	Campus Transit System	99	9,071,840	525,752	74,434	47	38
Northern Illinois University	Huskie Bus Line	00	1,912,311	367,000	34,000	17	13
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	99	8,628,101	2,577,889	204,044	89	74
Western Illinois University	Go West Transit	00	650,000	150,000	12,000	8	7
Indiana Univ.–Bloomington	Bloomington Transit	99	1,020,901	619,347	53,304	24	17
Indiana Univ.–Bloomington	Campus Bus	00	1,888,492	462,665	51,848	30	33
Purdue University	CityBus	99	2,135,333	1,368,090	113,290	69	50
Iowa State University	CyRide	99	2,876,803	889,663	81,121	50	42
University of Iowa	Cambus	99	3,444,000	634,000	64,300	26	21
Louisiana State University	Campus Transit	99	2,300,000	NA	32,000	21	21
Univ. of Massachusetts–Amherst	UMASS Transit Service	99	2,419,599	965,179	57,078	40	30
Michigan State University	Capitol Area Transp. Auth.	99	5,000,000	NA	NA	NA	NA
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	99	4,314,826	3,947,795	275,694	74	62
University of New Hampshire	Wildcat Transit	00	612,986	NA	35,860	32	13
Cornell University	TCAT	99	2,331,939	1,458,698	105,373	56	39
East Carolina University	ECU Student Transit Auth.	00	1,200,000	NA	NA	20	17
North Carolina State University	Wolfline	00	1,411,641	377,795	33,981	19	16
Penn State University	Centre Area Transp. Auth.	99	3,042,431	1,056,603	80,572	56	46
Clemson University	Clemson Area Transit	00	600,000	200,000	23,000	14	14
Texas A&M University	Bus Operations	00	2,300,000	1,700,000	103,000	67	65
University of Texas	Shuttle Bus–Capitol Metro	98	7,000,000	2,200,000	150,500	95	72
American University	AU Shuttle	00	1,100,000	240,000	25,000	7	4
Univ. of Wisconsin–Madison	Madison Metro	98	10,318,900	6,468,800	490,600	290	226

Notes: FY = fiscal year; NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services; TCAT = Tompkins Consolidated Area Transit.

TABLE 6
SELECTED FINANCIAL DATA FOR SURVEY RESPONDENTS

University	Transit System	FY Reporting	Total Operating Expense	Total Operating Revenue	Federal Operating Assistance	Local Operating Assistance	State Operating Assistance	Other
University of Arkansas	Razorback Transit	99	$1,050,494	NA	$387,308	$20,000	$32,021	$123,311
Stanford University	Marguerite Shuttle	99	$1,242,489	NA	NA	NA	NA	NA
Univ. of California–Davis	UC Davis–Unitrans	99	$1,701,403	$1,701,403	$350,000	$425,905	0	$770,301
Univ. of California–Santa Cruz	TAPS Shuttles	NA	NA	NA	NA	NA	NA	NA
Univ. of California–San Diego	Shuttle	00	$1,600,000	$1,800,000	NA	NA	NA	NA
Colorado State University	Transfort	99	$4,708,862	$4,708,862	$369,135	$3,265,750	0	$1,073,977
Florida State University	Taltrans		NA	NA	NA	NA	NA	NA
University of Georgia	Campus Transit System	99	$2,706,968	$283,574	NA	NA	NA	$248,961
Northern Illinois University	Huskie Bus Line	00	$1,900,000	NA	NA	NA	NA	NA
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	99	$12,741,440	$11,489,626		$5,608,722	$5,880,904	
Western Illinois University	Go West Transit	00	$481,000	$491,500	$91,500	0	0	$12,000
Indiana Univ.–Bloomington	Bloomington Transit	99	$2,370,870	$3,032,604	$406,871	$1,722,136	$903,597	0
Indiana Univ.–Bloomington	Campus Bus	00	$2,177,383	$1,695,770	0	$75,000	0	$265,995
Purdue University	CityBus	99	$4,301,226	$1,035,828	$648,579	$1,381,420	$1,302,466	$223,332
Iowa State University	CyRide	99	$3,500,900	$886,747	$468,367	$1,736,389	$332,767	$93,891
University of Iowa	Cambus	99	$1,460,000	$1,552,000	$112,000	$1,017,000	$423,000	$657,000
Louisiana State University	Campus Transit	99	$1,215,000	$1,240,000	NA	NA	NA	NA
Univ. of Massachusetts–Amherst	UMASS Transit Service	99	$1,966,483	$2,400,403	$240,040	$432,073	$1,728,290	$492,000
Michigan State University	Capitol Area Transp. Auth.	99	$18,508,087	$2,104,324	$898,357	$7,453,535	$7,678,443	$404,417
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	99	$18,750,254	$2,224,520	0	$9,107,891	$6,805,344	$612,499
University of New Hampshire	Wildcat Transit	00	$946,761	$946,761	NA	NA	NA	NA
Cornell University	TCAT	99	$5,595,147	$1,393,704	$526,794	$1,292,337	$1,833,675	$225,446
East Carolina University	ECU Student Transit Auth.	00	$1,224,036	$1,164,124	NA	NA	NA	NA
North Carolina State University	Wolfline	00	$1,872,939	NA	NA	NA	NA	NA
Penn State University	Centre Area Transp. Auth.	99	$4,064,488	$1,990,826	0	$313,445	$1,760,217	0
Clemson University	Clemson Area Transit	00	$650,000	$291,000	$200,000	0	$150,000	0
Texas A&M University	Bus Operations	00	$3,380,000	$1,480,000	0	0	0	$975,000
University of Texas	Shuttle Bus–Capitol Metro	98	$6,500,000	$4,500,000	0	$2,000,000	0	0
American University	AU Shuttle	00	$875,000	NA	NA	NA	NA	NA
Univ. of Wisconsin–Madison	Madison Metro	98	$24,478,100	$6,042,200	$3,035,500	$7,093,100	$13,015,200	0

Notes: FY = fiscal year; NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services.

TABLE 7
SELECTED PERFORMANCE STATISTICS FOR SURVEY RESPONDENTS

University	Transit System	Expense/ Passenger Trip	Expense/ Hour	Passenger Trips/ Hour	Average Speed	Trips/ Enrollment	Trips/Total Population
University of Arkansas	Razorback Transit	$0.90	$35.79	39.7	10.4	80.3	20.3
Stanford University	Marguerite Shuttle	$1.24	$27.23	21.9	4.9	66.8	
Univ. of California–Davis	UC Davis–Unitrans	$0.73	$27.89	38.4	10.7	101.8	40.4
Univ. of California–Santa Cruz	TAPS Shuttles	NA	NA	NA	NA	NA	NA
Univ. of California–San Diego	Shuttle	NA	NA	NA	NA	NA	NA
Colorado State University	Transfort	$3.37	$53.98	26.9	13.5	60.7	12.7
Florida State University	Taltrans	NA	NA	NA	NA	NA	NA
University of Georgia	Campus Transit System	$0.30	$36.37	121.9	7.1	293.5	100.1
Northern Illinois University	Huskie Bus Line	$0.99	$55.88	56.2	10.8	82.8	54.6
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	$1.48	$62.44	42.3	12.6	239.7	75.0
Western Illinois University	Go West Transit	$0.74	$40.08	54.2	12.5	52.0	32.5
Indiana Univ.–Bloomington	Bloomington Transit	$2.32	$44.48	19.2	11.6	27.0	8.5
Indiana Univ.–Bloomington	Campus Bus	$1.15	$42.00	36.4	8.9	52.2	31.1
Purdue University	CityBus	$2.01	$37.97	18.8	12.1	59.0	35.2
Iowa State University	CyRide	$1.22	$43.16	35.5	11.0	110.2	59.3
University of Iowa	Cambus	$0.42	$22.71	53.6	9.9	119.6	57.4
Louisiana State University	Campus Transit	$0.53	$37.97	71.9	0.0	74.2	5.8
Univ. of Massachusetts–Amherst	UMASS Transit Service	$0.81	$34.45	42.4	16.9	96.8	23.0
Michigan State University	Capitol Area Transp. Auth.	$3.70	NA	NA	NA	144.0	25.0
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	$4.35	$68.01	15.7	14.3	102.7	17.3
University of New Hampshire	Wildcat Transit	$1.54	$26.40	17.1	NA	50.1	26.4
Cornell University	TCAT	$2.40	$53.10	22.1	13.8	124.5	23.3
East Carolina University	ECU Student Transit Auth.	$1.02	NA	NA	NA	65.8	18.5
North Carolina State University	Wolfline	$1.33	$55.12	41.5	11.1	52.3	4.9
Penn State University	Centre Area Transp. Auth.	$1.34	$50.45	37.8	13.1	76.1	38.9
Clemson University	Clemson Area Transit	$1.08	$28.26	26.1	8.7	35.3	20.0
Texas A&M University	Bus Operations	$1.47	$32.82	22.3	16.5	53.0	19.1
University of Texas	Shuttle Bus–Capitol Metro	$0.93	$43.19	46.5	14.6	142.9	9.3
American University	AU Shuttle	$0.80	$35.00	44.0	9.6	109.0	NA
Univ. of Wisconsin–Madison	Madison Metro	$2.37	$49.89	21.0	13.2	253.2	41.3
Average		$1.50	$43.25	38.9	11.2	100.9	32.0

Notes: NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services; TCAT = Tompkins Consolidated Area Transit.

TABLE 8
CAMPUS TRANSIT SYSTEM DRIVER INFORMATION FROM SURVEY RESPONDENTS

University	Transit System	Unionized?	Top Wage	Average Wage	Part-time Drivers?	Part-time Drivers (%)	Hours by Part-time Drivers (%)	Employ Student Drivers?	Drivers That Are Students (%)
University of Arkansas	Razorback Transit	No	$10.75	$7.44	Yes	50	34	Yes	30
Stanford University	Marguerite Shuttle	Yes	$12.76	$11.14	Yes	10		No	
Univ. of California–Davis	UC Davis–Unitrans	No	$7.75	$7.25	Yes	100	100	Yes	100
Univ. of California–Santa Cruz	TAPS Shuttles	Yes		$12.10	Yes	50		No	
Univ. of California–San Diego	Shuttle	Yes	$14.00	$11.83	Yes	92		Yes	92
Colorado State University	Transfort	No	$17.31	$15.38	Yes	50		No	
Florida State University	Taltrans	NA	NA	NA	NA	NA	NA	NA	NA
University of Georgia	Campus Transit System	No	$15.08	$8.17	Yes	81		Yes	75
Northern Illinois University	Huskie Bus Line	No	$9.25	$8.25	Yes	100	100	Yes	99
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	No	$19.26	$13.87	Yes	52	24	No	
Western Illinois University	Go West Transit	No	$9.50	$9.00	Yes	50		Yes	5
Indiana Univ.–Bloomington	Bloomington Transit	Yes	$11.76	$11.10	Yes	30	25	No	0
Indiana Univ.–Bloomington	Campus Bus	Yes	$12.47	$10.00	Yes	2	1	Yes	2
Purdue University	CityBus	Yes	$14.55	$12.50	Yes	4	1	Yes	3
Iowa State University	CyRide	Yes	$14.42	$11.16	Yes	66	56	Yes	47
University of Iowa	Cambus	No	$10.00	$8.00	Yes	100	100	Yes	100
Louisiana State University	Campus Transit	Yes	NA	NA	NA	NA	NA	No	
Univ. of Massachusetts–Amherst	UMASS Transit Service	No	$10.20	$7.88	Yes	100	100	Yes	100
Michigan State University	Capitol Area Transp. Auth.	Yes	$17.88	$16.76	Yes	31		Yes	
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	Yes	$17.00	$15.10	Yes	5		No	
University of New Hampshire	Wildcat Transit	No	$12.00	$9.25	Yes	90	80	Yes	90
Cornell University	TCAT	Yes	$18.40	$12.25	Yes	23		No	
East Carolina University	ECU Student Transit Auth.	No	$12.00	$7.25	Yes	100	100	Yes	100
North Carolina State University	Wolfline	No	$10.94	$9.14	Yes			Yes	50
Penn State University	Centre Area Transp. Auth.	Yes	$13.36	$11.00	Yes			No	
Clemson University	Clemson Area Transit	No	$10.00	$8.50	Yes	75	40	Yes	30
Texas A&M University	Bus Operations	No	$11.50	$8.80	Yes	100	100	Yes	30
University of Texas	Shuttle Bus–Capitol Metro	Yes	$10.00	$8.90	Yes			Yes	30
American University	AU Shuttle	No	$13.45	$11.70	Yes	5	8	No	
Univ. of Wisconsin–Madison	Madison Metro	Yes	$20.19	$18.66	Yes	15	3	No	

Notes: NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services; TCAT = Tompkins Consolidated Area Transit.

systems report using student drivers; students represent more than 90 percent of the driver work force in 7 of these systems. All of the systems that answered the question report hiring part-time drivers. Furthermore, drivers from 14 of the 30 systems are represented by bargaining units, including several of the systems that make extensive use of student drivers. Additional discussion of the use of student drivers by campus transit systems is included in the next chapter.

CHAPTER THREE

LESSONS LEARNED AND ISSUES RELATED TO PLANNING, IMPLEMENTING, AND OPERATING CAMPUS TRANSIT SYSTEMS

Planning, implementing, and operating campus transit systems involves a range of issues different from those found with transit systems serving nonuniversity communities; for example, the interrelationship of parking and transit policy and operation, the role of students in operating the system, and the interaction between campus and community-based transit efforts. Funding options and mechanisms used by campus transit systems also differ from traditional transit operations. In addition, issues such as providing transportation for persons with disabilities and assuring safety and security have nuances specific to the campus environment. Therefore, the purpose of this chapter is to provide an in-depth discussion of these issues using information obtained from the survey, the literature review, and follow-up interviews with transit system and university representatives. One particularly important topic relating to campus transit operations, unlimited access systems, is the subject of the next chapter.

ORGANIZATIONAL ISSUES

The organization and governance of transit systems is one of the most interesting and complex aspects of campus community transportation. Universities may own and operate transit systems or they may contract with a private firm or separate transit agency for service to their students and employees. In a number of cases, students organize and operate campus transit systems, and in nearly all cases, they have a strong interest in the quality and cost of the transportation services that are provided. This section of the chapter summarizes findings from the survey regarding organization and governance. The case studies in chapter 5 also address many of the complex issues associated with operating transit systems in the university context.

Ownership and Operation of Campus Transit Systems

The two primary patterns of ownership and operation of campus transit systems found in the United States are either a university-operated system or one owned and operated by either a local government or a separate government transit agency. As shown in Table 9, survey respondents were about equally divided between the two choices, with 13 systems operated by a university department or student organization and 14 by a separate local government or transit agency. The other three systems were university directed, but operated by a private contractor.

The way a particular university is organized and the governance system established to direct the transit service depends on state law, the history of town–college relations, the relative capabilities of the university to operate a transit system versus a separate agency, and circumstances when the decisions were made. Many viable operating formats have been developed and maintained for a number of years. Table 9 indicates the ownership and operation of the respondent transit systems, as well as how transit policy and operating decisions are made within university-owned systems. Three approaches are evident. One is for a high-level administrator to approve all decisions. Another is to rest the decision-making power at a lower level in the university; for example, the parking and transportation department. The third approach is to place control of transit policy decisions in the hands of a transit advisory board that includes student representatives.

The other major organizational form found in campus communities is a separate transit agency that is either part of the local government or a single-purpose transit authority or transit district. In this case, where the transit agency is administratively and legally separate from the university, important issues of cost sharing and governance must be resolved. As can be seen from Table 10, the most common way that universities interact with the local transit agency is through service contracts. Universities are represented by voting members in only 3 of the 14 campuses that reported having transit service provided by a separate agency; however, 13 of the 14 noted that they maintain a regular dialog with the transit providers.

Universities apparently prefer to have a cordial, but nevertheless arms-length relationship with the transit agency rather than be directly involved in guaranteeing the solvency and success of the transit system. Participation by university officials on a transit board might be construed by elected officials or members of the local community to imply that the university feels a responsibility to provide transportation, not only on campus, but also perhaps in the community. University officials usually do not want to take on this additional burden. The case study in chapter 5 describing the Michigan State University experience further amplifies this dynamic relationship of university–local government relations.

TABLE 9
GOVERNANCE AND POLICYMAKING CHARACTERISTICS OF CAMPUS TRANSIT SYSTEMS

University	Transit System	Who Operates the Service?	Who Owns the Asset?	If Part of the University, Who Approves Fares, Routes, etc?
University of Arkansas	Razorback Transit	University	University	Traffic, parking, transit committee
Stanford University	Marguerite Shuttle	Private contractor	Private contractor	Associate provost
Univ. of California–Davis	UC Davis–Unitrans	Student govt.	University	Joint comm.—student govt. and city representatives
Univ. of California–Santa Cruz	TAPS Shuttles	University	University	Advisory comm. student referendum on fares, regents approve
Univ. of California–San Diego	Shuttle	University	University	Shuttle department
Colorado State University	Transfort	Local govt.	Local govt.	
Florida State University	Taltrans	Local govt.	Local govt.	
University of Georgia	Campus Transit System	University	University	Regents
Northern Illinois University	Huskie Bus Line	Student govt.	Private contractor	Student Association Mass Transit Board
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	Transit agency	Transit agency	
Western Illinois University	Go West Transit	Private contractor	University/private Contractor	Transit Board
Indiana Univ.–Bloomington	Bloomington Transit	Transit agency	Transit agency	
Indiana Univ.–Bloomington	Campus Bus	University	University	University administrators
Purdue University	City Bus	Transit agency	Transit agency	
Iowa State University	CyRide	Local govt.	Local govt.	
University of Iowa	Cambus	University	University	Department head and vice president
Louisiana State University	Campus Transit	Transit agency	Transit agency	
Univ. of Massachusetts–Amherst	UMASS Transit Service	University	Transit agency	Transit dept. of university and Transit Authority approves
Michigan State University	Capitol Area Transp. Auth.	Transit agency	Transit agency	
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	Transit agency	Transit agency	
University of New Hampshire	Wildcat Transit	University	University	Transportation Policy Committee
Cornell University	TCAT	Joint agency	Univ./local govt.	Board of directors
East Carolina University	ECU Student Transit Auth.	University	University	Transit Advisory Board
North Carolina State Univ.	Wolfline	Private contractor	Private contractor	University–student senate and transit dept.
Penn State University	Centre Area Transp. Auth.	Transit agency	Transit agency	
Clemson University	Clemson Area Transit	Local govt.	Univ./local govt.	Board
Texas A&M University	Bus Operations	University	University	Department director
University of Texas	Shuttle Bus–Capitol Metro	Transit agency	Transit agency	
American University	AU Shuttle	University	University	Assistant vice president
Univ. of Wisconsin–Madison	Madison Metro	Local govt.	Local govt.	

Notes: MTD = Mass Transit District; TAPS = Transportation and Parking Services; TCAT = Tompkins Consolidated Area Transit.

TABLE 10
UNIVERSITY–TRANSIT AGENCY RELATIONSHIPS AND STUDENT INVOLVEMENT ON TRANSIT AUTHORITY POLICY AND OPERATING BOARDS

Role	Respondents (%) (n = 14)
University	
Has official representative on transit system policy board	21.4
Influences decisions through contracts for service	85.7
Maintains regular dialog with transit system concerning services issues	92.9
Students	
Participate as member(s) of transit system policy board	7.7
Participate on advisory committee to transit board	28.6

Student Involvement in Transit System Governance

Students are obviously a key to the success of a campus transit operation in terms of ridership, but they also play key roles in the governance of the transit systems. Two of the 30 transit systems responding to the survey are run by the student government. Furthermore, students play a primary role in advocating improved transit that is funded through student fees. Students are represented on advisory boards for both university and local transit agency-operated systems, either because of the requirements of the student fees or because the transit agency wants the student input. In one transit agency-run system, a student is a member of the board of directors; in three others, students serve on advisory boards.

Multiple Transit Providers in the Same Campus Community

Just under one-half of the transit systems responding to this project's survey (14 of 30) reported that they were one of two or three transit agencies serving their community. Typically in this situation, a university-operated transit system provides service on campus and between campus and nearby selected points with high student ridership, and a "town" system provides general purpose public transit throughout the region. Historically, the reasons behind the two-system phenomenon vary, but usually the university started a bus service either because one did not exist in the town at the time (a common situation in the 1960 and 1970s in small college towns) or the university and town could not agree on the control and financing of a combined system.

An interesting trend that was identified while doing the research for this synthesis concerns the recent activity to combine many of these once-separate systems. Tompkins Consolidated Area Transit (TCAT), which provides transit service to Cornell University, is a joint agency created by the university and local governments. Two other systems included in the chapter 5 case studies, Indiana University and Michigan State University, have also taken steps to coordinate or merge two long-standing systems.

FINANCING CAMPUS TRANSIT SERVICES

Public transit systems, whether serving the largest urban areas or small rural communities, depend on a variety of funding sources to pay for their services. A major task of transit managers and policy boards has always been to develop a funding program consisting of user fees, other income, and various forms of government support to cover the capital and operating costs of their systems. Transit systems in college and university communities are no different than any other transit entity. However, the unique institutional arrangements found on campuses, including the close relationship between university parking policy and transit, and the interest that students show toward transit, have allowed campus transit systems to implement funding schemes that may become the model for other communities. Most notable among these innovations is the unlimited access transit program, whereby all fares are prepaid and the transit system is available to users on an unlimited basis.

Sources of Funding for Campus Transit

The specific sources of funds used by campus transit systems vary widely and depend on a variety of local factors. First, if the transit system is considered a public transit agency eligible for state and federal funds, then these important operating assistance resources, when combined with local government matching funds, provide a major portion of the transit system's income. According to this study's survey, 20 of the 28 systems reporting financial data include federal, state, or local operating assistance in their revenue mix. All 10 of the systems not using government transit funding are departments within a university and either have not requested or have not been offered the use of these funds. The latter case is the more likely, because a regional transit agency in the same community is often the "designated recipient" for the grant funding and uses all funding available for its operation. Furthermore, access to these government funds is one of the major motivating factors for university-run transit systems to either merge or turn over their campus transit operations to the regional provider.

Campus transit systems that do not use federal, state, or local transit funds need to develop other income sources; in such cases, student fees and parking permit revenue are the most common. However, student fees and parking revenue also provide significant funding for systems that do receive

TABLE 11
PAYMENT METHODS FOR CAMPUS TRANSIT SYSTEMS

Payment Method	Respondents (%) (n = 30)
All passengers pay a fare	3.3
All passengers ride "free" because service is prepaid	53.3
Students and faculty/staff ride free, others pay fare	20.0
Students and faculty/staff ride at reduced fares	6.6
Other (no fare on campus only; no fare for students, but faculty/staff pay; no fare for undergraduates, but graduates and faculty/staff pay)	20.0

government operating assistance. These fees substitute for farebox revenue for systems that offer prepaid, unlimited access service. As can be seen from Table 11, 90 percent of the survey respondents had some form of prepaid or unlimited access service; therefore, these alternate sources of funding are key to their operations. Table 12 identifies the proportion of transit income these systems receive from nontransit grant sources.

Student Fees

Student fees represent a form of funding unique to college and university communities. Table 13 summarizes the fee information obtained from the survey respondents and includes information on 17 systems that reported using student fees to partially or totally fund unlimited access services. These fees represent from 11 to 100 percent of a system's income and range from $8.00 to more than $50 per semester.

In most cases, student fees designed to support transit must win the approval of the students through some form of referendum. Each university has different rules regarding the way these referenda are proposed and the exact voting rules that are applied. Nevertheless, these student votes are often one of the most important, although time-consuming, parts of an effort to expand transit services using student fees. Finally, the survey asked if the student fees that were used to support their systems needed to be periodically renewed by referendum. Fifteen systems that imposed student fees answered this question and were about evenly split in their responses, with eight not requiring periodic referendums to renew the student fee.

PARKING AND TRANSIT

University campus parking and transit policies are inextricably linked. Transit services replace the need for parking and enable cost-effective parking solutions by providing shuttle connections from remote parking facilities to the central campus, where space for parking is extremely limited. Furthermore, because campus parking and transit policies are controlled by the same entity, the university administration and/or board of directors, these policies are more likely to be coordinated than in a typical community, where parking and transit decisions are made by different organizations.

Parking–Transit Connection

Parking and transit policies and operations on university campuses are linked in three ways. The first is at the operational level, whereby transit, primarily shuttle buses, is used to transport students, faculty, and staff from remote parking lots/garages to the central campus. The university parking program either operates or contracts for a shuttle bus system to give the university the flexibility to meet growing needs for parking. Transit is used to connect lots or structures in remote areas of the campus instead of constructing more expensive parking in scarce central campus locations.

Many campus transit systems trace their origins from parking lot shuttles that expanded into more comprehensive systems. The parking office was often responsible for starting a transit system to provide the parking shuttle service. This historic operational relationship is evident when the organizational placement of transit services within a university is considered; often the same administrative unit responsible for parking also manages the campus transit operations.

The second tie between the parking and transit programs is financial. Forty percent of the survey respondents indicated that their university funded transit at least in part by parking fees or fines. In some cases, the parking fees are used just to fund the operation of the parking lot shuttle bus service, and the parking contribution to transit is merely a way to pay for a component of the overall parking program. On the other hand, universities are increasingly raising parking rates and using parking revenue to fund transit as a TDM strategy to both provide transit incentives and parking disincentives. This willingness to fund transit from parking revenues often results from student pressure to improve transit services and the realization of university officials that improved transit is a lower-cost solution to increased pressure for more parking. The transit option is especially favorable when this additional parking must be provided by high-cost structures. Transit officials at Cornell University, the University of Illinois Champaign–Urbana, and Iowa State University are among many that cite the cost of parking expansion as a major motivating force for the university to consider unlimited access or expanded transit services (*4–6*).

A quick financial analysis can easily show why, when faced with the choice of adding high-cost parking, especially

TABLE 12
SOURCES OF REVENUE FOR CAMPUS TRANSIT OPERATIONS

University	Transit System	Source of Prepaid Revenue for Transit System				
		Student Fees (%)	Parking Permit Revenue (%)	Parking Fines (%)	University General Funds (%)	Student Apartment Passes (%)
University of Arkansas	Razorback Transit	25.0	3	25	8	
Stanford University	Marguerite Shuttle		75			
Univ. of California–Davis	UC Davis–Unitrans	58.0		1		
Univ. of California–Santa Cruz	TAPS Shuttles	93.0		7		
Univ. of California–San Diego	Shuttle		Yes	Yes		
Colorado State University	Transfort	11.0				
Florida State University	Taltrans	10.0	61	29		
University of Georgia	Campus Transit System	100.0				
Northern Illinois University	Huskie Bus Line	100.0				
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	15.0				
Western Illinois University	Go West Transit	80.0				
Indiana Univ.–Bloomington	Bloomington Transit	NA	NA	NA	NA	NA
Indiana Univ.–Bloomington	Campus Bus	NA	NA	NA	NA	NA
Purdue University	City Bus				100.0	
Iowa State University	CyRide	28.5			7.2	
University of Iowa	Cambus	45.0	20.0			
Louisiana State University	Campus Transit	100.0				
Univ. of Massachusetts–Amherst	UMASS Transit Service	10.0	17.0		1.0	
Michigan State University	Capitol Area Transp. Auth.		Yes			
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	NA	NA	NA	NA	NA
University of New Hampshire	Wildcat Transit	20.0	50.0	19.0	10.0	1.0
Cornell University	TCAT					
East Carolina University	ECU Student Transit Auth.	90.5	1.0		8.5	
North Carolina State Univ.	Wolfline	80.0				
Penn State University	Centre Area Transp. Auth.				10.0	5.0
Clemson University	Clemson Area Transit		100.0			
Texas A&M University	Bus Operations	23.0				
University of Texas	Shuttle Bus–Capitol Metro	NA	NA	NA	NA	NA
American University	AU Shuttle	NA	NA	NA	NA	NA
Univ. of Wisconsin–Madison	Madison Metro		Yes, no stats			

Notes: NA = not available; MTD = Mass Transit District; TAPS = Transportation and Parking Services; TCAT = Tompkins Consolidated Area Transit.

TABLE 13
SUMMARY OF STUDENT TRANSIT FEES FOR PREPAID AND/OR UNLIMITED ACCESS SYSTEMS

University Served	Transit System	Student Fee as Percentage of Total Revenue	Fee ($)	Per Time Period and Other Notes
University of Arkansas	Razorback Transit	25.0%	8.00	Semester
Univ. of California–Davis	UC Davis–Unitrans	58.0%	24.50	Quarter. $6.00 summer
Univ. of California–Santa Cruz	TAPS Shuttles	93.0%	59.00	Semester. $177/yr
Colorado State University	Transfort	11.0%	23.00	Year
University of Georgia	Campus Transit System	100.0%	48.00	Semester, $32 summer
Northern Illinois University	Huskie Bus Line	100.0%	60.00	
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	15.0%	30.00	Semester
Western Illinois University	Go West Transit	80.0%	22.00	Semester
Indiana University–Bloomington	Bloomington Transit		21.20	Semester. adjusted for part-time students
Iowa State University	CyRide	28.5%	19.73	
University of Iowa	Cambus	45.0%	13.50	
Louisiana State University	Campus Transit	100.0%	23.00	Semester. $10 summer
Univ. of Massachusetts–Amherst	UMASS Transit Service	10.0%	26.00	Year
East Carolina University	ECU Student Transit Authority	90.5%	57.00	Year
North Carolina State University	Wolfline	80.0%	34.00	Semester, $68/yr, $14 summer
Texas A&M University	Bus Operations	23.0%	50.00	Semester, $150/yr. $65 summer
University of Texas	Shuttle Bus–Capitol Metro		48.00	Semester
University of Wisconsin–Madison	Madison Metro		19.00	Semester

Notes: TAPS = Transportation and Parking Services: MTD = Mass District Transit.

TABLE 14
FINANCIAL ANALYSIS OF PARKING CAPITAL COSTS

	Surface Lot	Parking Structure		
		Low Estimate	Middle Estimate	High Estimate
Cost per space	$3,000	$10,000	$15,000	$20,000
Interest rate	6.00%	5.00%	6.00%	8.00%
Period (yr)	20	20	20	20
Annual cost	$262	$802	$1,308	$2,037

in structures, university officials are increasingly deciding to expand transit services. Based on the assumptions shown in Table 14, the capital cost amortization, not including annual operating costs, of a surface and structure parking space can vary from approximately $250 per year for a surface lot to more than $2,000 per year for a structure parking space. Even this "high" estimate may be less than the per space cost of some parking structures, especially when the cost of the net spaces gained is considered. This net-spaces-gained criterion is increasingly important because universities often choose to build structures on existing lots; therefore, they do not gain the full number of additional spaces built. Data from the survey respondents indicated that the fees charged to faculty, ranging from less than $50 to about $500 per year, seldom cover the capital cost of even surface lots, and in no instance do they cover more than approximately one-fourth of the cost of a more expensive structure.

The use of parking fees to fund comprehensive transit services is an example of the third way in which parking and transit are tied: policy. Universities are in a unique position to implement transportation demand policies that are unachievable in more politically fragmented communities, because the university administration can control land use, parking availability and fees, and transit service availability and fees. An increasing number of universities are using this comprehensive control to promote less reliance on single-occupant vehicle (SOV) travel, thus reducing the need for parking, reducing traffic and congestion, and improving the campus environment.

A university administration's desire to reduce parking demand and increase ridesharing and transit can usually be traced to one of four causes. The first, mentioned previously, is the cost of providing additional parking. Second, on many campuses, no space is available to construct more parking, or to construct parking near where most users would desire; therefore, nonconstruction options must be considered. Third, on some campuses, the concern for the quality of the environment on campus, as broadly defined to include open spaces, esthetic concerns, and general "livability," has caused university officials to pursue various TDM strategies. A University of Colorado Environmental Center report stresses these benefits of promoting non-SOV options and provides examples of university programs that support this objective (*7*).

Finally, in some campus communities, especially those in larger urban areas, local government regulations or agreements limit parking expansion or seek to control traffic to and from the campus. Discussions of limits on campus growth often surface as part of university and/or community comprehensive planning exercises or as part of zoning discussions involving university land-use and parking regulations. Although private universities have long been subject to local land-use and zoning requirements, public universities have often enjoyed immunity from such controls. However, recent trends, as reported by several survey respondents, call for public universities to come under the same zoning requirements as other community property owners. Therefore, both public and private universities, as they propose expansion of campus facilities, face parking and traffic control issues not unlike those encountered by major developers in large urban areas, where the community resists growth because of parking and congestion concerns.

Transit is often one of the solutions designed to mitigate the perceived negative impacts of campus growth. Several universities have successfully implemented zoning and other changes that have allowed increased development by expanding transit services and therefore reducing the zoning requirements for additional parking and the attendant vehicular traffic. Cornell University has expanded its transit services and implemented a comprehensive TDM strategy that has allowed it to reduce the zoning requirements for parking, thus saving the university considerable expense and conserving campus space.

Summary of Parking Data from Survey Respondents

Tables 15 through 17 summarize the parking program data provided by survey respondents. Table 15 provides information on parking supply, demand, and parking fees. Table 16 reports on the same information for student parking, and Table 17 addresses the use and funding of parking lot shuttle services. In some cases, respondents were unable to provide complete data on their campus's parking program. Several respondents reported that the requested data were not known because the university did not keep it in this format. Furthermore, because the survey was sent to the transit provider in the community, and this provider was not connected to the university or the parking program, they may not have had ready access to certain parking data. This situation might suggest that parking and transit administration and policy are not closely integrated.

Respondents noted that faculty parking is generally more available on campus, but at a higher cost than student parking. For systems that reported these data, the maximum number of registered faculty/staff vehicles per available parking space was no more than 1.92, whereas 4 of

TABLE 15
SUMMARY OF FACULTY PARKING AVAILABILITY, USE, AND COST

University	Transit System	Faculty				Faculty Parking Situation	
		Spaces	Registered Vehicles	Registered Vehicles/Space	Annual Fee	Easy	Restricted Close in, but Peripheral Available
University of Arkansas	Razorback Transit	1,635	1,441	0.88	$54–$78		X
Stanford University	Marguerite Shuttle	20,000*			$204–$378		X
Univ. of California–Davis	UC Davis–Unitrans	8,943			$204–$492		
Univ. of California–Santa Cruz	TAPS Shuttles	4,883*	5,786		$252–$504		
Univ. of California–San Diego	Shuttle	15,000*					
Colorado State University	Transfort	3,514	3,667	1.04	$80	X	
Florida State University	Taltrans	3,206	3,500	1.09	$117	X	
University of Georgia	Campus Transit System	6,072	6,600	1.09	$36–$190		X
Northern Illinois University	Huskie Bus Line				$60	X	
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	2,257			$70		X
Western Illinois University	Go West Transit				$60		X
Indiana Univ.–Bloomington	Bloomington Transit	5,009					X
Indiana Univ.–Bloomington	Campus Bus	5,009					
Purdue University	City Bus	4,331	8,000	1.85	$72		
Iowa State University	CyRide	16,302*	16,745*		$57–$285		
University of Iowa	Cambus	8,500	10,600	1.25	$144–$444		X
Louisiana State University	Campus Transit	5,500	4,800	0.87	$57–$147		X
Univ. of Massachusetts–Amherst	UMASS Transit Service	4,759	5,000	1.05			X
Michigan State University	Capitol Area Transp. Auth.	NA					
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	NA					X
University of New Hampshire	Wildcat Transit	3,058	3,000	0.98	$32		
Cornell University	TCAT	11,582*	5,819		up to $560		X
East Carolina University	ECU Student Transit Auth.	1,838	3,545	1.92	$120–$360		X
North Carolina State University	Wolfline	4,802	6,544	1.36	$264		X
Penn State University	Centre Area Transp. Auth.				$120–$312		X
Clemson University	Clemson Area Transit	NA	NA	NA	NA	NA	NA
Texas A&M University	Bus Operations	12,710	9,095	0.71	$198–$348		
University of Texas	Shuttle Bus–Capitol Metro	NA	NA	NA	NA	NA	NA
American University	AU Shuttle	NA	NA	NA	NA	NA	NA
Univ. of Wisconsin–Madison	Madison Metro	NA	NA	NA	NA	NA	NA

Notes: TAPS = Transportation and Parking Services; MTD = Mass Transit District; TCAT = Tompkins Consolidated Area Transit; NA = not available.
* Total all types.

TABLE 16
SUMMARY OF STUDENT AND VISITOR PARKING AVAILABILITY, USE, AND COST

University	Transit System	On-Campus Students			Off-Campus Students				Availability of Student Parking	Visitor Parking	
		Registered Vehicles	Registered Vehicles Per Space	Annual Permit Cost ($)	Spaces	Registered Vehicles	Registered Vehicles per Space	Annual Permit Cost ($)		Spaces	Rates
University of Arkansas	Razorback Transit	1,697	1.87	32	3,545	4,684	1.32	20	Remote	72	
Stanford University	Marguerite Shuttle			96				104–378			$8/day, $1/hr
Univ. of California–Davis	UC Davis–Unitrans			444	7,649		0.00	204–492		5,369	$4/day
Univ. of California–Santa Cruz	TAPS Shuttles								Limited		$4/day
Univ. of California–San Diego	Shuttle								Remote		
Colorado State University	Transfort	2,476	1.17	70	2,406	4,518	1.88	70	Remote	63	
Florida State University	Taltrans	16,000	4.21	52					Limited	1,293	
University of Georgia	Campus Transit System	4,400	1.45	55–200	8,472	18,200	2.15	35–55	Remote	334	No charge
Northern Illinois University	Huskie Bus Line			64				64	Remote		
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD			290	733			70	Remote	2,111	
Western Illinois University	Go West Transit			64				64	Remote		
Indiana Univ.–Bloomington	Bloomington Transit				7,568				Remote	2,784	
Indiana Univ.–Bloomington	Campus Bus				7,568				Remote	2,784	
Purdue University	City Bus	500	0.55	30	4,033	6,000	1.49	30	Remote	1,400	$0.75/hr
Iowa State University	CyRide			40				0–40			
University of Iowa	Cambus				1,400	1,700	1.21	144		2,500	$0.60/hr
Louisiana State University	Campus Transit	4,300		39		19,700		39	Limited		
Univ. of Massachusetts–Amherst	UMASS Transit Service	8,500	1.10						Remote	1,285	$4/day
Michigan State University	Capitol Area Transp. Auth.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	NA	NA	NA	NA	NA	NA	NA	Remote	NA	NA
University of New Hampshire	Wildcat Transit	1,700	0.86	32–100	1,222	3,500	2.86	32	Remote	403	$2/day
Cornell University	TCAT	1,122		70–347		1,947		270–532	Remote		
East Carolina University	ECU Student Transit Auth.	2,800	3.20	20	1,103	3,388	3.07	120	Remote	111	$4/day
North Carolina State University	Wolfline	2,104	0.41	192	4,007	5,504	1.37	120	Limited	685	
Penn State University	Centre Area Transp. Auth.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Clemson University	Clemson Area Transit	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Texas A&M University	Bus Operations	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
University of Texas	Shuttle Bus–Capitol Metro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
American University	AU Shuttle	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Univ. of Wisconsin–Madison	Madison Metro	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes: TAPS = Transportation and Parking Services; MTD = Mass Transit District; TCAT = Tompkins Consolidated Area Transit; NA = not available; Remote = readily available in remote lots; Limited = limited throughout campus.

TABLE 17
SUMMARY OF PARKING SHUTTLE FEES

University	Transit System	Provide Parking Lot Shuttle Service?	How Do Users Pay for Parking Shuttle?		
			No Fare for Entire System	No Fare—Parking Program Pays	Regular Transit Fare
University of Arkansas	Razorback Transit	Yes	Yes		
Stanford University	Marguerite Shuttle	Yes	Yes		
Univ. of California–Davis	UC Davis–Unitrans				
Univ. of California–Santa Cruz	TAPS Shuttles	Yes	Yes		
Univ. of California–San Diego	Shuttle	Yes		Yes	
Colorado State University	Transfort	No			
Florida State University	Taltrans	Yes	Yes		
University of Georgia	Campus Transit System	Yes	Yes		
Northern Illinois University	Huskie Bus Line	No			
Univ. of Illinois Champaign–Urbana	Champaign–Urbana MTD	Yes	Yes		
Western Illinois University	Go West Transit				
Indiana Univ.–Bloomington	Bloomington Transit	Yes			Yes
Indiana Univ.–Bloomington	Campus Bus	Yes			Yes
Purdue University	City Bus	Yes	Yes		
Iowa State University	CyRide				
University of Iowa	Cambus	Yes	Yes		
Louisiana State University	Campus Transit	Yes	Yes		
Univ. of Massachusetts–Amherst	UMASS Transit Service	Yes	Yes		
Michigan State University	Capitol Area Transp. Auth.				
Univ. of Michigan–Ann Arbor	Ann Arbor Transit Auth.	Yes	Yes		
University of New Hampshire	Wildcat Transit	Yes	Yes		
Cornell University	TCAT	Yes	Yes*		
East Carolina University	ECU Student Transit Authority	Yes		Yes	
North Carolina State University	Wolfline				
Penn State University	Centre Area Transp. Auth.	Yes	Yes		
Clemson University	Clemson Area Transit	Yes	Yes		
Texas A&M University	Bus Operations				
University of Texas	Shuttle Bus–Capitol Metro				
American University	AU Shuttle				
Univ. of Wisconsin–Madison	Madison Metro				

Notes: TAPS = Transportation and Parking Services; MTD = Mass Transit District; TCAT = Tompkins Consolidated Area Transit.
*Free for faculty/staff and students with pass, but others pay.

the 12 systems reporting these data indicated more than one space per registered vehicle. On the other hand, student parking, although less expensive, is much more scarce; in some cases, off-campus students encounter up to three registered vehicles per available parking space. Furthermore, student parking, even when it is available, is most often provided in peripheral lots. Likewise, most available faculty/staff parking is on the periphery of campus, although three universities report easy parking availability for faculty and staff. Faculty and staff parking fees range from as little as $32 to more than $500 per year, whereas student parking rates are often less than $100 per year.

Table 17 summarizes information about parking lot shuttles and how they are financed. Nearly two-thirds (63.3 percent) of respondents report operating parking lot shuttles as a part of their transit service. Most systems charge no fare for the parking shuttle because the entire transit system is prepaid. Two systems report charging the regular transit fare to ride from the peripheral lots, and two systems provide free service paid by parking fees.

CAMPUS TRANSIT AS PART OF A BROADER TRANSPORTATION DEMAND MANAGEMENT STRATEGY

TDM, a coordinated set of policy and operating strategies that include a combination of incentives and disincentives, emphasizes alternatives to SOV travel. These strategies often involve ways to increase the cost of driving or parking and are offered in conjunction with programs to encourage the use of other modes of transportation including transit, bicycling, and walking. University communities have embraced such strategies as they cope with increased congestion and parking demand resulting from continued enrollment and employment growth. Universities, because of the central control of key aspects of TDM, especially parking availability and price and land-use control, are able to more easily implement coordinated programs of incentives and disincentives than in the typical community with fragmented responsibilities for these elements.

Williams and Petrait (*8*), in their review of the University of Washington U-PASS program, a very comprehensive and effective TDM program, identified several lessons learned from the Washington experience that directly apply to the issue of what is required for a successful TDM program. First, they observe that a balanced TDM program should include both benefits and disincentives. The university would not have been able to promote a disincentive to driving by significantly raising parking rates had their TDM strategy not included the transit and other commuter option incentives. Cornell University, another pioneer in university-based TDM programs, also cites the role of incentives as the key to gaining acceptance for parking rate increases and parking restrictions (*9*). Free transit and/or parking options with price or location incentives to encourage ridesharing are essential elements of a comprehensive program.

A second lesson learned from the Washington experience is that to gain public acceptance, the commuting options offered must be flexible. People cannot always commute by the same mode every day. The U-PASS program recognizes this and provides limited parking passes to individuals that ride the bus at least 3 days each week. In addition, it issues free U-PASS transit passes to purchasers of parking permits in the hope that these SOV operators will choose transit whenever possible.

A third lesson from the U-PASS TDM effort is that parking fees are an essential component of a TDM program both because raising fees serves as a disincentive to SOV use, and also because high parking fees can generate the revenue needed to fund other elements of the TDM program. At the University of Washington, parking revenue provides approximately one-third of the total program budget. Williams and Petrait (*8*) also stress the role that parking plays in a TDM effort. Free or low-cost parking encourages SOV use and thwarts efforts to reduce congestion and parking demand.

TDM has become a popular concept that has been applied and misapplied to a wide variety of transportation activities. In some cases, universities and regional organizations call their transportation activities a Transportation Demand Management program when, upon closer scrutiny, the TDM title is just an umbrella name given to a group of related, but independent activities, such as transit and parking. Even at the planning stage, what previously was called a campus transportation plan study is now often called a TDM plan. Certainly grouping related activities within one organization is the first step toward coordinating transportation policy and operations; however, without substantial integration of program elements, especially transit services and parking rates and availability, achieving the goals of TDM is unlikely.

Programs such as the University of Washington U-PASS program and the Cornell University program meet the definition of effective TDM efforts. The University of Washington program is discussed in more detail in the next chapter, which considers unlimited access transit systems.

A review of responses to this synthesis survey and of the literature suggests that universities are embracing TDM concepts, not only in name, but in substance as well. Many of the unlimited access transit programs described in the next chapter are part of broader TDM efforts. The following is a list of the universities that responded in the affirmative to a survey question that asked if their transit program was part of a broader TDM effort. As can be seen, 40 percent (12 of 30) replied in the affirmative.

Colorado State University
Florida State University
Northern Illinois University
University of Illinois Champaign–Urbana
University of Massachusetts–Amherst
University of Michigan–Ann Arbor
University of New Hampshire
Cornell University
East Carolina University
Penn State University
Clemson University
University of Wisconsin–Madison

A 1993 study by the University of Wisconsin–Madison Campus Ecology Research Project profiled seven campus TDM efforts, including those of the University of Washington and Cornell University. The study also included the University of Wisconsin–Madison and the University of Illinois Champaign–Urbana, two other synthesis survey respondents, along with the University of California, Los Angeles, the University of Minnesota; and the University of Kansas (*10*).

ACCESSIBILITY AND MOBILITY ISSUES

The Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 require public transportation systems and universities to provide accessible transportation services. Although a complete discussion of these legal requirements is beyond the scope of this synthesis, a short summary of the requirement is that fixed-route public transit systems, whether privately or publicly operated, must be accessible to persons with disabilities. Furthermore, most fixed-route systems must also offer complementary paratransit services for those disabled individuals who cannot use the fixed-route system. Two important exceptions to the paratransit requirement are relevant to many campus transit operations; campus shuttles and commuter bus routes are exempt from the complementary paratransit requirement. However, by virtue of their receipt of federal funds, some university systems must, under Section 504 requirements, provide access to their educational programs; therefore, they are obligated to provide paratransit services for their students.

Because of the high cost of paratransit services, the issue of responsibility for providing and paying for services to students on college and university campuses has been a contentious one. Although a university has a requirement to ensure accessibility to its programs and thus might be held responsible for providing and financing accessible paratransit service, the ADA requires that the operator of any fixed-route transit service (other than shuttles and commuter buses) provide complementary paratransit services with no trip or eligibility restrictions as to student/nonstudent status. Therefore, the provider of a regional fixed-route service that travels on a campus could be legally responsible for the making these services available to students.

Both the transit provider and the university, as different entities, have a responsibility to provide accessible service for disabled students and others on campuses served by public transit systems. However, the assignment of responsibility is particularly challenging in situations where more than one transit provider serves an area.

The complexity of this issue is revealed in the survey results, where survey respondents were asked whether they provided accessible service for disabled students. As can be seen in Table 4, although 26 of the 30 respondents indicated that they provided off-campus or regional fixed-route services and were thus likely to be required to provide ADA complementary paratransit service, only 20 indicated that they did provide accessible services for disabled students. Because it is unlikely that these systems are not in compliance with ADA, some other explanation must exist to explain how this mobility need for disabled students is met. The problem may have been in the wording of the question, which asked if the transit system had a *special* program just for disabled students. Conversely, the situation might be similar to that of the Centre Area Transportation Authority (CATA) and Penn State University, whereby CATA and the university have agreed to share the financial and service responsibility for disabled students. This arrangement, first put into place to comply with Section 504 requirements, calls for the university to provide accessible van service to disabled students traveling between points on campus. CATA provides ADA complementary paratransit for students, faculty, and staff traveling to and from campus to points throughout CATA's service area, but not for student trips originating and terminating on campus.

SAFETY AND SECURITY

Providing safety and security on campus, especially at night, has been a major selling point for expanded transit services on university campuses. Nearly half of the survey respondents indicated that improved campus safety and personal security were selling points to students and university administrations when promoting increased transit service.

Campus transit systems support safety and security objectives in three ways. First, comprehensive transit services reduce a student's need to hitchhike or walk along unsafe roadways. Second, campus transit services that operate as late as 3:00 a.m. reduce the exposure of university community residents to unsafe conditions. In recent years, university communities have been particularly concerned about the on campus increase of rape or other assaults and

have developed responses that include improved transit services. Even on campuses without comprehensive transit services, student organizations or the university's residential life office have established escort services and/or late-night van services.

Third, as university communities place increasing emphasis on responsible drinking behavior, transit provides an alternative to operating a motor vehicle while intoxicated. Most transit systems extend weekend hours at least until after bar closings to offer students a responsible alternative to driving. In addition, several universities report offering specific services just for late-night weekends; for example, the "Tipsy Taxi" at the University of California–Davis.

Although transit services generally improve safety and personal security, transit operations also must be concerned about the safety of passengers waiting at bus stops and their safety when departing the bus, especially at night and at remote parking lots. Careful selection of bus stop locations and bus stop area lighting appear to be the best measures to reduce this risk.

APPLICATIONS OF ADVANCED TECHNOLOGIES IN CAMPUS TRANSIT SETTINGS

Universities were among the first communities in the nation to make extensive use of the Internet, as universities joined with the federal government in developing a network to support the exchange of scientific data. Universities were also early adopters of electronic mail, and more recently developed Web-based applications. Consequently, public transit agencies serving campus communities have an advantage over other transit agencies in that Internet access is almost universally available to its major customers, since most universities provide students, faculty, and staff with unlimited Internet access as part of their enrollment and/or employment. Furthermore, public transit systems in university communities are often the beneficiaries of the contributions made by inquisitive and creative students, faculty, and staff who develop creative new uses of the information and communications technologies as applied to the campus transit system.

The applications of the Internet represent just a portion of the broader technological advances that fall within the general heading of Advanced Public Transportation Systems (APTS), the group of Intelligent Transportation System (ITS) technologies that might be applied to the operation and marketing of public transit systems. Consequently, several survey questions addressed the extent to which campus transit systems use Web and other ITS technologies and the types of applications they have or plan to adopt. Table 18 summarizes the survey responses.

All 30 of the survey respondents maintain websites that provide basic information about their campus transit systems. The websites of university-operated campus transit systems are usually a part of the Web presence of the administrative department responsible for transit, most often the parking and transportation or business and finance offices. Independent transit agencies serving campus communities generally maintain their own website, which is specific to the transit operation.

TABLE 18
CAMPUS TRANSIT SYSTEM'S USE OF ADVANCED TECHNOLOGIES

Uses of the World Wide Web	Respondents (%) (n = 30)
No. of systems with websites	100.0
Information on system website	
Route and schedule information	100.0
Ride share matching	26.7
Trip planning	10.0
Real-time schedules	3.3
Other*	24.2

*Includes on-line policies and procedures, rider/community feedback, community announcements, streaming video, and on-line bus pass purchases.

As shown in Table 18, all respondents use their websites to communicate route and schedule information. The next most common feature, reported by about one-fourth of the respondents, was some form of ride sharing information and/or the ability to register on-line for carpools or vanpools. A number of other types of information reported on campus transit websites are also summarized in this table.

Real-time schedule information available to users on their computers is one APTS application that seems ideally suited for the campus transit environment, because of the high rate of access and use of the Internet by students, faculty, and staff. Systems that have installed Automatic Vehicle Location (AVL) systems that provide real-time data on the location of buses not only use this information to manage their systems, but can and do use it to provide customers with up-to-the-minute information on when the bus will arrive at a particular stop.

Only one of the survey respondents reported short-term plans to implement real-time schedule information; however, many respondents said they were studying this technology for possible implementation. Though none of the respondents to the survey indicated communicating real-time schedule information to users, research for this synthesis identified two university communities with real-time, on-line bus information on the Web, the University of Washington and Ohio State University. Both systems are being developed as part of ITS research programs, in conjunction with their respective transit systems, and have developed real-time information systems, although the Ohio State University application seems to be more limited. The system in place at the University of Washington is part of

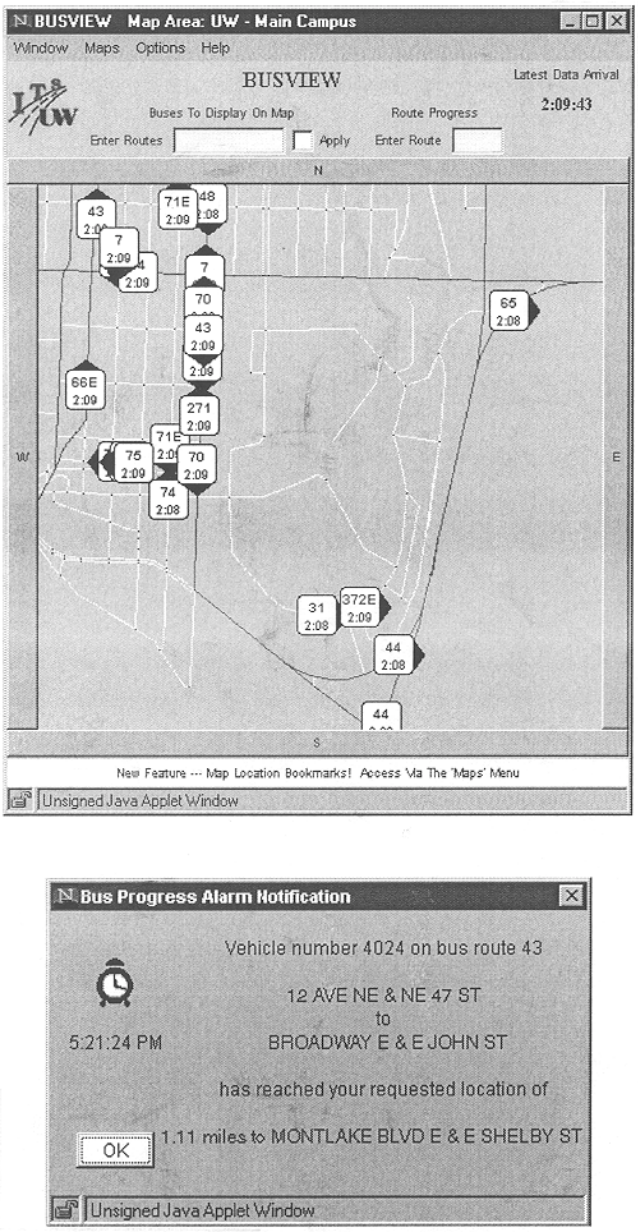

FIGURE 1 Sample screens from the University of Washington's Busview real-time schedule information Web application.

a larger ITS implementation project in the Seattle area called Smart Trek and is currently on-line. The Advanced Traveler Information System component of the Smart Trek project has three transit-related applications: Busview, a Java applet to display real-time bus information on a variety of computer and operating system platforms; Transit Watch, an application providing similar information at key transit transfer stations; and MyBus, a Web application that allows users to customize their view of the real-time system to determine at what time their particular bus will arrive at the most convenient stop. Figure 1 shows a sample screen from the Busview application and includes both the system map where users can track all buses in a given area, in this case, the University of Washington main campus, and a notification screen that users can customize to alert them as to when their bus is at a predetermined location.

As the cost of AVL technology declines, additional campus transit systems are likely to provide users with real-time schedule information. Furthermore, as experience with AVL and real-time Web-based schedule information increases, campus transit systems will more readily be willing to adopt the new technology.

ROLE OF TRANSIT IN MEETING UNIVERSITY EDUCATIONAL OPPORTUNITIES

In addition to providing mobility for college and university students, campus transit systems have had a history of contributing to university educational and research goals. Furthermore, campus transit systems have provided many students with employment opportunities that not only help them finance their education but also introduce them to the transit field as a possible career. Many of today's transit managers became interested in public transportation and started their careers as bus drivers or management interns at campus transit systems.

The survey asked several questions to measure the degree to which the campus transit systems used students as drivers or in other paid positions, the extent to which the transit systems provided educational opportunities to students by providing internships and cooperating with class projects, and, finally, how students were involved in advisory capacities with the transit operation. Each of these transit–student connections is discussed here.

Students as Drivers

The decision to use students as bus drivers involves the consideration of a number of trade-offs. The survey results suggest divergent conclusions concerning the positive and negative aspects of using students as transit employees; survey results indicate that just over one-half (53.3 percent) of the survey respondents' systems used student drivers, and only 30 percent of the systems employed students in management positions. Two-thirds of the systems using students were operated by the university, rather than an independent transit agency. Systems using students apparently have decided that the burdens of high turnover and scheduling problems are worth the effort, not only in labor-cost savings, but for the students' educational and financial benefit. Another benefit cited by systems that use student drivers is that paying students to operate the bus service helps return student fee dollars back to the student community. One factor dissuading some systems from using students may be university or transit agency collective bargaining agreements that either prevent or restrict using

part-time student employees as drivers. Furthermore, state laws requiring drivers to be 21 or over, plus the need for commercial drivers' licenses, often prevents campus systems from employing student drivers.

The University of Iowa's Cambus system has had a long tradition of using students as drivers and managers. Its manager, in a presentation to the 2000 Transportation and University Communities Conference in Gainesville, Florida, identified a number of advantages and disadvantages of employing students in the operation of a campus transit system (*11*). The following list summarizes his observations and captures the clear trade-offs of using students in the transit operation.

- Advantages
  - Financial—Lower wage rate and benefits costs.
  - Employee quality—Consistently high level of intellectual competence and physical ability.
  - Employee relations—Flexibility and receptiveness to change; no union constraints.
  - Employee satisfaction and service quality—Highly motivated employees with satisfaction reflected in job performance.
  - Turnover—Turnover keeps organization "fresh"; good morale, new ideas.
  - Fun—Students contribute to an interesting, diverse, fun workplace; good esprit de corps.
- Disadvantages
  - Turnover—Requires significant investment of time and money to hire, manage, and train.
  - Training and experience—Short-term employment limits level of training and degree of experience that can be attained.
  - Employee investment—Because of short-term commitment and other priorities (education), some students may not put forth the needed commitment to the job.
  - Schedule limitations—Hard to schedule work shifts around class schedules and school break periods.
  - Fun—Less mature students sometimes have difficulty balancing college social opportunities with a responsible job.

Internships and Class Projects

Two other ways in which transit systems can support the educational goals of the university, short of employing students, are to cooperate with students conducting class projects and/or by providing internships for students. Nearly three-fourths of the survey respondents (73.3 percent) cooperate with student class projects, whereas approximately one-fourth (23.3 percent) report employing student interns. One system reported specifically hiring students and faculty to assist with surveys and other research activities.

Students on Advisory Committees

Students, as the major customers of campus transit systems, are often represented on advisory committees. Nearly two-thirds of the responding systems (63.3 percent) reported involving students in these advisory capacities. Although many systems include students on advisory panels only because they have the largest stake in the performance of the transit system, the student role is sometimes more formally defined as part of the agreement to provide student funding where student fees totally or partly support the campus transit system.

CHAPTER FOUR

UNLIMITED ACCESS SYSTEMS

For each transit trip, riders are usually required to pay a fare, in the form of exact change, into a farebox. Contrast this situation with motorists traveling in their own private vehicles, who can travel anywhere at any time. Although motorists know that automobile travel is expensive, the variable costs of any particular trip are small. Furthermore, private vehicle capital costs, insurance, and maintenance expenses are less obvious because they are not incurred on a per trip basis, but often paid annually or monthly in the form of loan or insurance payments. Fuel expense, the main variable cost, is often charged to a credit card and gets lost amidst the other bills. Thus, one tends to ignore the cost of private vehicle travel when making mode choice decisions. However, when a rider pays cash to use transit, not only are transit's costs immediately obvious, they are viewed as being directly related to the number of trips taken.

For decades, transit proponents have identified this disparity in the way users pay for their transportation as a major obstacle to increased transit use. Consequently, most transit systems have developed pass programs and other prepaid, unlimited use options so that transit riders can have unlimited ridership for a given period of time (usually 1 month) and avoid the fare payment hassles of paying cash fares for each trip. These passes are also usually discounted to encourage regular ridership. More recently, the introduction of smart card technology is making this fare payment method more flexible and easier to administer for the transit system and more convenient for the customer. However, all of these methods still require the individual user to make a decision to incur a regular outlay to use transit.

"Free" transit has often been proposed as a way to encourage transit use. Proponents of this approach do not really mean that the transit service is without cost; rather, they propose that the cost of providing transit services be prepaid, either from tax revenues or other sources. For large transit systems, this prepaid scheme has seemed an unattainable goal because of the fiscal implications of losing all farebox revenue while having to cover the cost of the increased service needed to meet the demand that would be expected when fares were abolished.

Although it is believed to be impractical in large urban areas, prepaid transit that would allow users unlimited access to high-quality service has been tried and proven successful in university communities throughout the country. As early as the late 1960s, some universities either started their own unlimited access systems or partnered with local transit agencies to offer bus services that were open to all students and usually faculty and staff. High-quality transit services resulted in high ridership, and these systems were a great success.

Although many examples of prepaid, unlimited access transit existed throughout the country, adoption of the concept moved slowly during the 1980s. The 1990s, however, have witnessed an explosion in the number of universities, both in traditional college towns and large urban areas, that have implemented unlimited access systems. Several factors account for the accelerated implementation rate in recent years. Three of the most significant ones are described here.

One reason for the growth of unlimited access systems is that the transit systems serving campus communities have matured and now have the organizational, managerial, and operating capabilities necessary to provide expanded high-quality service. Another reason for the recent move to unlimited access transit is the funding situation for public transit. The earliest unlimited access systems were started in the 1960s and 1970s when state and federal funds helped university communities respond to concerns about safety and mobility. The 1980s, however, was a period of retrenchment for many transit systems both in large urban areas and in small university communities. The fiscal uncertainties of this period persuaded transit managers and policymakers not to advocate transit expansions such as those required with unlimited access systems. However, the funding picture has been much more positive since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and the Transportation Equity Act for the 21st Century (TEA-21) in 1997, which provided significant increases in federal transit funding that have also been matched by many states with increased state funding. Transit systems are now in a position to experiment with new services.

A third reason for the increased interest in unlimited access systems is the promise and, in many cases, the proven contribution that transit can make toward addressing a number of objectives shared by both students and university administrators. As outlined later in this section, transit services that are used by most students and a significant portion of the faculty and staff can help a university

- Reduce the demand for more parking,
- Increase students' access to housing and employment, and
- Reduce congestion on campus and in the surrounding communities.

The purpose of this chapter is to describe the various models for providing unlimited access transit to college and university communities, to present survey results from respondents that offer unlimited access service, and to summarize the experiences of transit systems that have planned, marketed, and operated these systems.

RANGE OF UNLIMITED ACCESS SYSTEMS

The term "unlimited access" does not describe a specific public transit operating format; rather, it describes a family of approaches that fall within the definition of providing all students and/or faculty and staff at a particular college or university with the right to ride public transit without paying a fare (*3*). As will be shown, the way in which universities accomplish the underlying objective of unlimited access varies significantly from community to community and depends on local situations and the dynamics of the process used to reach the decision to offer this type of service.

The following are the three major attributes that define and distinguish unlimited access systems:

- Eligibility—Who is given unlimited access to transit? The typical choices include the following categories of potential users: students, faculty, staff, visitors, and nonuniversity-related residents of the area.
- Funding method—What are the guaranteed sources of revenue that replace farebox or pass revenues? Typical choices include student fees, parking permit revenue, parking fine revenue, university general funds, and federal, state, and local operating assistance funds.
- Cost reimbursement method—How is the provider of the service compensated? Choices include contracting for services on an hourly basis, depositing all revenue in the provider's account, or charging the university on a per trip or per pass basis.

Alternate approaches to each of these attributes are described in the following sections.

Unlimited Access Transit Eligibility Options

The most fundamental decision in designing an unlimited access system is determining the categories of potential users. In the context of campus communities, the most obvious riders will be students. Brown et al. (*3*), in their 1999 survey of 31 unlimited access systems, determined that just over one-half (16 of 31) provided unlimited access service only to students, with the remainder providing unlimited access to students, faculty, and staff. In addition, the survey results identified at least one example, Clemson University, where the transit system offered unlimited access to all residents of the community, not just those affiliated with the university. More details on this system are presented in the case studies in chapter 5.

The decision to limit participation in the unlimited transit option can most closely be tied to funding. If only student fees are used to support the transit system, then equity concerns might arise if other categories of users, such as faculty and staff, are given access to the transit system. Universities often address this equity concern by funding faculty and staff use of the system by providing university general funds or revenue from parking permit fees. Systems such as the one at Clemson University that are open to the general public receive state and federal transit operating assistance or other sources of funds contributed by local governments.

Another reason to limit participation in an unlimited access transit program is related to system capacity. Universities have often sought to limit eligibility for transit service as they transition from a more traditional fare payment method to an unlimited access option because of concerns for excessive demand that will lead to added service beyond the financial resources in place at the time the service is implemented. However, because students have been shown to be the primary users of the unlimited access system, opening the service to faculty and staff will add relatively little additional demand.

Ridership growth resulting from the implementation of unlimited access has, in some cases, doubled or even tripled. Confronted with this possibility, university and transit system administrators have chosen to implement unlimited access incrementally, by either restricting eligibility or by restricting the services offered in the unlimited access program. For example, Penn State University recently introduced unlimited access on its Campus Loop shuttle routes, but has hesitated to expand the concept to the entire regional system used primarily by students, faculty, and staff. This hesitation stems from capacity constraints facing the transit operator and, more importantly, possible financial exposure from opening the entire regional system. Similarly, in the fall of 2000, Indiana University began a 3-year phase-in of an unlimited access program by opening the Bloomington Transit system to all students, but delaying the same expansion for the routes operated by Campus Bus.

Student-only unlimited access systems, once successfully implemented, usually add faculty and staff as eligible

users, because these groups see the benefits of the service and the university administration recognizes the value of the transit service as an employee commuting option. Another factor that may accelerate the move toward adding university employees as eligible recipients of unlimited access services is the recent change to the federal Commuter Choice program. Under this program, employers can reimburse employees up to $65 per month for transit expenses and the benefit is not taxed. Employees save federal, state, and local income taxes and FICA contributions and employers also save FICA and other taxes. The maximum tax-free benefit will increase to $100 per month by 2002. The federal government now provides this commuting benefit to all of its employees. Private firms along with state and local governments are also adding this benefit for their employees. Given these trends, universities are likely to be asked to offer the same benefit to remain competitive with other employers, which they can do through a properly structured contribution to the unlimited access program on their campus.

Funding Methods for Unlimited Access Transit Systems

One of the most controversial issues related to the introduction of unlimited access transit systems on college and university campuses concerns the source of funds used to reimburse the transit provider for the service. A variety of funding sources have been used, but student fees, parking revenue, and university general funds are the most common sources of income for unlimited access systems. Table 19 summarizes the income sources for the transit systems responding to this survey. (Detailed information for each system is presented in Table 12 in chapter 3.)

TABLE 19
SOURCES OF REVENUE FOR CAMPUS TRANSIT SYSTEMS

Revenue Source	Respondents (%)* (n = 30)
Student fees	63.3
Parking permit revenue	36.7
Parking fine revenue	13.3
University general funds	23.3
Student apartment passes	6.6

*Total exceeds 100 percent due to multiple responses.

Of the 30 universities surveyed for this synthesis, 21 report having unlimited access systems. Of these 21 systems, 17 indicated that student fees contribute from 10 to 100 percent of their revenue. Furthermore, 21 of the 31 systems reported in the Brown et al. study (*3*) used student fees to provide all or a portion of the transit income.

As can be seen in Table 13, these student fees range from as little as $8.00 to more than $50 per semester. The Brown et al. study (*3*) found the average annual student fee to be $32.00 in 1998–1999. In most cases, student fees are imposed by the university only after a student referendum that indicates majority student support for the transit fee. The referendum campaign has been one of the major tasks that students and transit advocates must accomplish to set up an unlimited access system. The process of selling the unlimited access concept is discussed later in this chapter.

Although the student fee is the most popular method of paying for unlimited access transit, parking permit revenues are the next most commonly used and on some campuses the only source of income. Parking revenue represents an important source of funding for transit for several practical and philosophical reasons. Practically speaking, parking revenues are a logical source of funding for transit because parking lot shuttle service is a common element of most campus transit systems. Furthermore, although parking administrators jealously guard parking revenue so that it can be used to support current and expanded parking facilities, the parking fund at most universities is a large, stable source of revenue that can be tapped for other related purposes.

Universities that adopt a set of TDM strategies also target parking revenue as a funding source for transit for the philosophical reason of raising parking rates to discourage auto travel. The cost of parking is increased enough to operate both the parking program and part of the transit program, thereby lowering the transit cost. Programs such as the one at Cornell University have further refined the transit–parking connection by charging variable parking rates based on the extent to which individuals ride share. The University of Washington's U-PASS program issues a "free" transit pass to all purchasers of parking permits, providing parkers with the additional benefit of transit funded by their parking permit fees.

Other sources of revenue used to fund transit programs include university general funds and parking fines. Some universities, if they are in a financial position to do so, avoid the controversial and time-consuming process of student fee referenda by paying for transit from general funds. Penn State University implemented its limited access system on campus by providing the local transit authority with $1 million in general funds instead of proposing a student fee.

Cost-Reimbursement Methods for Unlimited Access Systems

The final attribute that distinguishes unlimited access systems is the way in which the revenue generated from the sources described previously is provided to the transit operator to offset operating and capital expenses. Even in cases where the university directly provides the unlimited access service, the parties responsible for providing the funds usually insist on some objective method for determining

the amount of funds required. In cases where a separate transit agency or private provider operates the service, a formal contract is required.

Several workable reimbursement models have been widely used. Where the transit provider is a department of the university, the method for determining annual contributions from the various funding sources can be negotiated annually or be based on a predetermined cost-sharing basis that might, for example, call for student fees to cover 75 percent of all costs and parking revenues the remaining 25 percent. The transit budget would be developed according to university procedures and might include review and approval by a policy board that includes student representatives.

If the transit provider is a separate agency, it can be reimbursed for service in one of three ways. The first would be a negotiated fixed amount that is not specifically tied to the number of riders or amount of service provided. Several transit systems reported in follow-ups to the synthesis survey that the transit system and the university negotiated a specific dollar amount that the university was willing to contribute to the program. This amount often represented what the university had spent previously to provide its own transit service prior to the transition to unlimited access service provided by the regional operator.

The other two ways that transit systems might be reimbursed are based on either the amount of service provided or the number of persons using the service. Payment based on the amount of service is most common, but payment on the per-ride or per-passenger basis is gaining in popularity in large urban areas. Payment based on service is usually negotiated either explicitly by setting an hourly rate or implicitly by having both sides consider the amount of service required as they negotiate specific dollar amounts. An example of the explicit statement of a per-hour rate can be found in the contract used by Michigan State University and the CATA that details a costing methodology to determine the cost per hour for both fixed-route and paratransit services, and it prescribes the procedure to be used when adding or reducing hours of service.

The per-trip or per-pass reimbursement method for an unlimited access system may require that the university pay the transit provider based on a predetermined per-trip payment. Alternately, the reimbursement method may be used to purchase passes for students and employees according to a fee schedule that often reflects a discount over the general public pass price. Quantity discount incentives designed to encourage universities to promote the transit program may also be included in the arrangement. Sometimes a combination of these per-trip or per-pass arrangements is used by the same transit system. For example, Port Authority Transit (PTA) in Pittsburgh began its U-Pass program with the University of Pittsburgh by negotiating a per-trip reimbursement. Once the university and the transit system gained operating experience, the contract between the two agencies became a fixed-price contract that did not depend on ridership. In addition to fixed-price contracts with the University of Pittsburgh and Carnegie Mellon University, PAT offers discounted monthly passes to smaller colleges in its service area. More details of the Pittsburgh program are presented later in this chapter.

IMPLEMENTATION ISSUES

University communities considering unlimited access options face a variety of obstacles when making the transition from a conventional transit system to an unlimited access program. One such obstacle concerns the ability to forecast the amount of service that will be required to accommodate the ridership growth that invariably results from the shift to fare-free service. Another implementation issue is how transit supporters can sell their university community on unlimited access transit. Each of these implementation issues is discussed here.

Ridership Impacts of Unlimited Access Transit

Because the financial consequences of a serious error in estimating increased ridership are so great, many transit systems and university administrations reject the unlimited access concept as too risky. Unfortunately, no data exist that will allow an analyst to exactly determine the ridership and service requirement impacts of the transition to unlimited access; the ridership growth depends on the nature and quality of the previously provided service and the service changes introduced concurrently with the start of the unlimited access service. Nevertheless, Table 20 presents a compilation of recent experiences that may help enlighten this difficult forecasting assignment.

Data from the first five universities listed in Table 20 are taken from Brown et al. (*3*); the information on the Penn State University and University of Florida experiences was provided by CATA, which serves Penn State; the data on the Pittsburgh experience were obtained from PAT; and information on the University of Wisconsin–Milwaukee UPASS program was obtained from an article by Meyer and Beimborn (*12*).

Based on this information, university communities planning to implement unlimited access service should evaluate service and financing plans to accommodate ridership levels that would likely double and, in many cases, triple. Furthermore, the data presented earlier show only the first year growth rates of unlimited access operations. Most systems report continuing growth in subsequent years, often in the range of 8–10 percent.

TABLE 20
RIDERSHIP INCREASES EXPERIENCED WHEN UNLIMITED ACCESS SERVICE IS INTRODUCED

University	Year Service Began	Ridership Increase (%)	Comments
California State–Sacramento	1992	71	
Univ. of California–Davis	1990	79	
Univ. of Wisconsin–Madison	1996	104	
Univ. of Illinois Champaign–Urbana	1989	193	
Univ. of Colorado–Boulder	1990	200	
Penn State University	1999	160	Unlimited access only on Campus Loop routes
Univ. of Pittsburgh	1998	164	Converted to unlimited access from discounted $0.50 fare
Univ. of Wisconsin–Milwaukee	1994	100	Percentage of students using transit to campus rose from 12 to 25%
Univ. of Florida	1998	50	Figure reported to Penn State

Frequently, ridership forecasts that imply large service increases, such as the ones given previously, cause university and transit administrators to back away from unlimited access systems because of the potential financial risk. One way to minimize the risks but move cautiously toward unlimited access is to initially offer the free service to certain categories of users and/or on certain routes or other portions of the system. As indicated previously, all systems start with students as the first group of eligible riders. Then, once the transit system adjusts operationally and financially to the increased ridership other groups, most notably faculty and staff, are added. In certain cases, where even an increase in student ridership would overwhelm a system, unlimited access may be offered on only designated routes, for example, the on-campus shuttle routes. Penn State University took this approach, whereby unlimited access is currently offered only on the Campus Loops, as a first step toward an eventual goal of expanding it to the entire regional system. Likewise, Indiana University chose to make Bloomington Transit (the town system) fare free, but fares or passes for the campus routes were to be maintained for at least the next year.

Selling the Unlimited Access Concept

Unlimited access systems appear to be the greatest success for campus transit systems; however, the concept represents a significant departure from traditional service and funding arrangements. The question becomes how does the university community embrace and fund the new approach? The task of selling unlimited access is frequently difficult because transit proponents must convince students to impose a fee on themselves to pay for the system and faculty and staff must pay higher parking fees to support the bus service and/or the university administration must provide general funds to support or augment these other sources.

A review of both successful and unsuccessful attempts to implement unlimited access transit suggests the following four crucial ingredients to success:

- Strong student support,
- A willing and open-minded university administration,
- A capable and credible transit service provider, and
- Patience.

Without all four ingredients, the major step of prepaid, unlimited access transit is not achievable.

Gaining the support of the students, university administration, and the transit system largely depends on demonstrating to each party how they benefit. Specific arguments and concepts that work in a particular university community essentially depend on local conditions, trust between parties, historical relationships, and the severity of problems such as parking and congestion. It is still possible, however, to identify specific selling points that have been successfully used in recent efforts. These points are outlined here. Once the case for unlimited access transit is defined for a particular campus community, supporting evidence and data can be gathered from other successful programs at universities similar to the one planning the new service.

Case for Unlimited Access Transit

In their study of 31 systems that have implemented unlimited access transit, Brown et al. (*3*) document five major reasons given by university officials for implementing unlimited access transit on their campuses: (1) reduce demand for parking, (2) increase student access to housing and employment, (3) increase university ability to recruit and retain students, (4) reduce cost of attending college for students, and (5) increase transportation equity. In addition, the study identified three reasons given by transit agency

TABLE 21
MAIN SELLING POINTS TO UNIVERSITY COMMUNITY FOR UNLIMITED ACCESS SYSTEMS

Argument Used to Sell Unlimited Access	Systems Responding to Survey (%)* (n = 30)
Improved mobility for students	73.3
Reduced congestion on campus	60.0
Improved campus safety and personal security	46.6
Savings in the parking program expense due to less need for new facility construction	43.3
Reduced congestion in the community	36.6
General environmental benefits	36.6
Other benefits (lower costs to users, guaranteed revenue to transit system, helps university meet regionally mandated parking limits)	26.6
Systems with long-standing unlimited access program	23.3
Systems without limited access program	10.0

*Total exceeds 100 percent due to multiple responses.

officials for participating in an unlimited access system: (1) increase transit ridership, (2) guarantee revenue source, and (3) improve quality of transit service (*3*).

Respondents to this study's survey offered similar selling points for their campus systems. Table 21 summarizes the responses. Improved student mobility was the most commonly mentioned selling point and undoubtedly the one of greatest interest to students. The unlimited access systems allow students low-cost access to transportation that gives them more housing location choices and more opportunities for employment. Another highly ranked selling point of importance to students and administrators was campus safety. Unlimited access transit has been advocated to reduce hitchhiking by students; reduce the risk to students, especially women, traveling after dark; and provide a nondriving alternative for students who consume an excess of alcoholic beverages.

Perhaps the most effective selling point with university administrators, parking cost and space savings, was identified by approximately one-half of the respondents. Concern about the cost of and the space required for parking is a powerful selling point even in what might be considered rural and small town campuses. Additional parking on many campuses can only be increased by building very expensive structures on campus or by providing peripheral parking and shuttles, either because a university campus is landlocked within the surrounding community and, therefore, does not have space to expand parking or because the university wishes to maintain a compact walking campus. In either case, the cost of additional parking is usually not covered by increased parking revenue; therefore, meeting ever-increasing parking demand is very costly. This situation allows transit proponents a very strong fiscal argument for unlimited access transit as the lower cost alternative.

The selling points cited previously appear to apply to campuses in both large and small urban areas. In addition, the case studies and interviews conducted for this synthesis identified three other selling points of particular importance in large urban areas: congestion reduction, air quality improvement, and reduced parking impacts on surrounding neighborhoods. One of the most successful TDM programs with an unlimited access transit element is the one in place since 1991 at the University of Washington in Seattle. The U-PASS program, whereby all students, faculty, and staff are provided a transit pass for the two transit systems serving the region, was implemented along with other TDM strategies to comply with an agreement between the university and the city of Seattle to maintain 1984 traffic volumes, to not increase the number of vehicles parking in surrounding neighborhoods, and to limit the university's parking supply to 12,300 spaces. The U-PASS program was proposed after earlier attempts to comply with these restrictions failed.

A university Advisory Committee on Transportation was responsible for developing a detailed plan and successfully selling it to the students, faculty, and staff. Using the motto "U-PASS: For You and the U," advocates stressed three reasons for university community support of the plan that would make it worth the cost of a student transportation fee and higher parking rates: lower transportation costs for the user, more commuting options, and a healthier environment (*8*).

Improved air quality is also a motivating force for recent low-cost or no-fare transit programs in urban areas. A number of large cities, including Atlanta, Houston, Chicago, and Minneapolis, whose air quality does not meet the standards set forth in the Clean Air Act of 1990, have implemented university-based transit incentive programs using Congestion Mitigation Air Quality (CMAQ) grants from the FHWA. The Minneapolis program is available to all students at the University of Minnesota with a deep discount ($50/semester versus $54/month for a regular transit pass—a 76 percent savings). The goal of the Minneapolis program is to increase transit ridership by 40 percent over 2 years, thereby reducing carbon monoxide emissions, vehicle-miles traveled, and SOV (*13*).

The Atlanta, Chicago, and Houston programs are open to students at a number of colleges and universities throughout their respective communities. Both Chicago and Houston have more than 20 universities each participating in their programs. Houston's program offered free passes for a limited period (the fall of 2000); the Chicago Transit Authority (CTA) program details vary by university. In all cases, a primary goal and selling point for the programs is reduced air pollution.

The previous discussion outlines the primary selling points for unlimited transit as identified through the literature review, case studies, and survey responses. Readers interested in more detailed discussion of the benefits of unlimited access transit, as well as quantification of the costs and benefits of specific programs can consult a variety of printed and Web resources, including, for example, implementation of the University of Washington U-PASS program (*8*); a chronicling of the University of Illinois experience (*5*); and the University of Colorado Environmental Center's advocacy report, "Finding a New Way: Campus Transportation for the Twenty-First Century," which provides a variety of case studies and arguments for unlimited access and other non-auto transportation alternatives for university communities (*7*).

An on-going evaluation of existing services, including significant impact data on the results of the transit programs, can be found on the World Wide Web for both the University of Wisconsin–Milwaukee UPASS program (*14*) and the U-PASS program at the University of Washington. The latter program produces an annual report with comprehensive financial and performance data that quantify the traffic, parking, and transit system impacts of the U-PASS program (*15*).

Lessons Learned When Promoting Student Fees

In most cases, unlimited transit services are funded, in part, by student fees that the students must vote to impose on themselves. The exact details of each campaign to fund transit through student fees, parking revenues, and/or university general funds are specific to that university and depend on past history, state law, personalities, and the relationship of the transit system to the university community. Nevertheless, several transferable lessons can be gathered from a review of a number of successful and unsuccessful campaigns.

As indicated earlier in this section, a successful campaign to implement unlimited access transit depends on four ingredients: student support, university cooperation (if not support), a capable transit system, and patience. A review of recent successful unlimited access/student fee campaigns suggests that strong student support and a strong student leader are the key ingredients to obtaining student support for a transportation fee. For example, university officials attribute the implementation of the recently adopted U-Pass system at Indiana University to the perseverance and leadership of the president of the Indiana University Student Association. This individual was so committed to the cause of implementing the U-Pass program that continued campaigning for the fee was a major factor in his decision to defer his graduation for one year to run for reelection.

Also, part of a successful campaign to convince students to support the fee, and in some cases for faculty and staff to agree to higher parking fees, is open communications with all parties involved and extensive efforts to achieve buy in. The success of the University of Washington U-PASS plan adopted in the early 1990s was largely due to the leadership of an Advisory Committee for Transportation that included students, faculty, staff, administrators, and other stakeholders.

Although strong student support and leadership are of primary importance to implementing unlimited access systems, these factors alone are not sufficient. University administrations must be open to the concept of imposing student fees or increasing parking fees, actions they seldom enjoy taking. Unless the students overwhelmingly support the student fee for transit, administrators are inclined to resist imposing it, because it appears to be the same as a tuition increase. Likewise, administrators resist parking fee increases to avoid the wrath of faculty and staff, who often feel that parking is a right that should be provided at no cost.

As stated earlier, the key to gaining administrative support is to document for the administration what the university has to gain from the plan. Lower parking costs or increased options for future expansion are two key benefits that can be persuasive. Cornell University's success in implementing a comprehensive TDM program that included transit and ridesharing incentives succeeded, in part, because of the strong financial case given to the university regarding parking savings. A similar argument was also central to the success of the Champaign–Urbana Mass Transit District. The recent changes and expansion of the Michigan State University transit service came about in part because the university wanted to reduce on-campus congestion and to improve the campus environment by eliminating parking within the central campus.

Two final observations about lessons learned are offered. First, a transit system, no matter how capable or interested it is in providing unlimited access transit, cannot generate support for the concept on its own. Nevertheless, the transit system staff can be the technical resource for groups and committees that advance the concept and can

facilitate the process. The transit system also has the obligation to develop realistic operating and financial plans to provide service to meet the likely increase in demand that will result from shifting to an unlimited access system.

The second observation, repeated frequently by veterans of student fee/unlimited access campaigns, is that patience is required. Most attempts at student fee referenda fail the first or even second times they are proposed. Furthermore, often the only way to overcome intense university administration resistance is to await changes in university leadership. Several years or even decades may be required before all of the four essential ingredients are in place at the same time.

UNLIMITED ACCESS SYSTEMS IN LARGE URBAN AREAS

The stereotypical vision of a university community is that of the isolated small college town, nestled in an idyllic setting far from urban life. Indeed, nearly three-quarters (73 percent) of survey respondents report that their university is the largest employer in the community, suggesting this college town setting. However, the survey results and other investigations of the current state of the practice in campus transportation point to a rapidly growing phenomenon of unlimited access transit in large urban areas.

College and university students, faculty, and staff have always represented major ridership opportunities for large urban transit systems, especially in cases where the academic institutions are located in high-density corridors of high service levels. However, during the past 10 years, a number of universities and the urban transit systems in their areas have developed close partnerships that have resulted in unlimited access transit programs.

Two of the earliest examples of such programs were the University of Washington in Seattle and the University of Wisconsin in Milwaukee. More recently, the CTA and the PAT have developed large prepaid pass programs that provide unlimited access to the entire urban transit system for students, faculty, and staff of multiple universities within their service areas.

In some cases, U-Pass programs are really just discounted pass programs whereby the university pays a portion of the transit system's regular pass price, but offers the passes to students, faculty, and staff at significant discounts. These programs would not meet the definition of unlimited access presented at the beginning of this chapter, but are usually the first step on the way to true unlimited access systems. In other cases, the U-Pass systems are unlimited access systems similar to those described elsewhere in this chapter whereby student fees, parking fees, or university general funds (or some combination of these sources) pay the cost of providing "free" transit.

Also, transit systems and universities in several large cities with air quality problems have established U-Pass programs that are partially funded by FHWA CMAQ grants. The goal of these programs is to increase transit ridership, thus reducing auto travel and the resulting pollution. Among the cities receiving CMAQ grants that are using some of the funds for a U-Pass program are Houston, Minneapolis, Atlanta, and Chicago. The specific details of how each city administers the U-Pass program vary widely. In some cases, the U-Pass effort is only a temporary one to determine its effectiveness (Houston), but in other cases, the program provides free, unlimited access to the regional transit system if the rider presents a student or faculty/staff ID.

Four factors appear to motivate large urban transit systems and/or universities in their service areas to collaborate and provide special university pass programs. These motivating factors include a desire by both the university and the surrounding region to reduce congestion around the university, and a desire by the university to reduce the need for on-campus parking or complaints by surrounding neighbors of excessive on-street parking by students, faculty, and staff. In several cases, the U-Pass program is part of a larger TDM effort. Another catalyst for implementing several of the recent U-Pass programs, as evidenced by the CMAQ-funded programs, is the desire to reduce air pollution and other adverse environmental consequences of excessive SOV travel to campuses. Finally, several of the universities that sponsor low- or no-cost pass programs cite their desire to reduce the cost of travel to school as a goal that especially helps them recruit and retain students with limited resources.

University of Washington—Metro Transit/Community Transit U-PASS Program

One of the oldest and most well-documented U-Pass programs in a large urban area is that developed by the University of Washington and the three transit systems serving the Seattle area, Metro Transit, Community Transit, and Sound Transit. The U-PASS program is one element of a comprehensive TDM program started in 1991 as a response to a 1983 agreement with the city of Seattle to create and develop a transportation master plan. The primary goals of the program were to reduce congestion and parking demand in the areas surrounding the university campus that were projected to increase as the university grew and expanded. The master plan set forth two major conditions that the university needed to meet: that traffic volumes to and from campus during peak periods would not exceed those observed in 1984, and that the university not expand its parking supply beyond 12,300 spaces (*8*). In 1991, after initial efforts failed to control traffic and parking to the extent necessary to meet these targets, the University

of Washington and the municipality of metropolitan Seattle implemented a comprehensive TDM program that included the U-PASS transit program. Three transit systems participate in the program including the largest system, Metro Transit, and two smaller ones, Community Transit and Sound Transit.

The following information was obtained from the 1998–1999 U-PASS Annual Report (*15*). Faculty, staff, and students are eligible to participate in the program, which offers unlimited access to the three bus systems, free carpool parking on campus, subsidized vanpool fares, free rides on a night shuttle, ride-matching services, bicycle programs, and discounts at stores and restaurants. In addition, faculty and staff are eligible for a guaranteed ride home in emergencies and discounted daily parking passes. One unique feature of the program is that if either students or faculty/staff buy a parking permit, they get a U-PASS with the hope that even individuals who drive most days will occasionally use transit, and, over time, the occasional use may turn into regular use. In 1999, 974 students and 4,612 faculty members were issued U-PASSES when they purchased parking permits.

As shown in Figure 2, funding for the U-PASS program is derived from five sources, the largest of which is the income from user fees of $31 per semester for students and $42 per semester for faculty and staff. Funding from parking revenue provides approximately 38 percent of the annual budget of about $9 million. Faculty/staff parking rates of $48.50 per month provide the income to support this aspect of the U-PASS revenue stream. Parking fines and other university contributions make up the balance of the revenue. Contracts with the transit systems account for 87 percent of the program's expenses, whereas administration, information and marketing, and other smaller transportation activities (ride matching, bicycle program, night shuttle) consume the balance of the expenses.

During the fall semester of 1999, nearly 42,000 U-PASSES were in circulation and about 85 percent of all students participated in the program. The U-PASS program accounts for 10 percent of all Metro transit trips, and Metro estimates that transit ridership on the system grew approximately 68 percent between 1990, just prior to the start of U-PASS, and 1999. The U-PASS is good for trips not only to the campus, but also throughout the region, and nonuniversity-based trips are a growing segment of overall demand, so that the U-PASS concept benefits the entire region, not just the university.

In addition to tracking data about pass sales, transit ridership, and parking permits and revenue, the U-PASS program monitors traffic to and from the campus area, mode choice, and other measures of effectiveness of the U-PASS

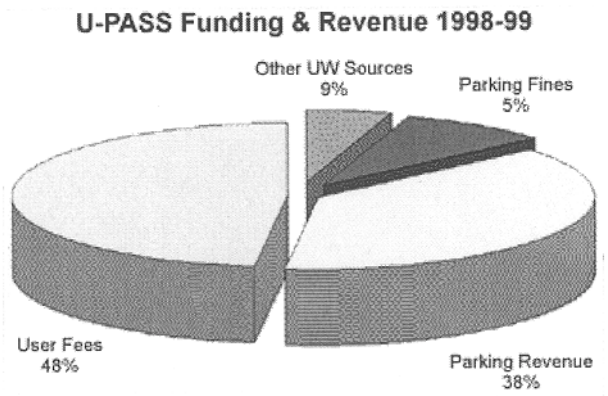

FIGURE 2 Revenue distribution for the University of Washington U-PASS Program—1999 (*15*).

effort. In all cases, performance measures document significant positive impacts. Although trips to campus and parking permits issued have declined significantly from pre-U-PASS periods (pre-1991), indicators of auto use have gradually gone up since the mid-1990s, although they are still at levels much below those observed prior to the implementation of U-PASS.

University of Wisconsin–Milwaukee—Milwaukee County Transit System UPASS Program

Another long-standing and well-documented unlimited access system operating in a large urban area is the University of Wisconsin–Milwaukee UPASS program, which began in the fall of 1994. Originally designed for students at the University of Wisconsin–Milwaukee, the program has been expanded to include students at Marquette University. Students at the University of Wisconsin–Milwaukee can receive a free UPASS as long as they are registered for at least one course. Marquette requires that students be enrolled full time. The University of Wisconsin–Milwaukee costs for the service are paid through a $31 per semester student fee that is just one of several "Segregated Fees." The bus pass fee represents approximately 11 percent of the overall $284 semester fee (*16,17*). Faculty and staff are eligible to purchase a 3-month pass, which provides unlimited access, for $30.00, a 66 percent discount over the regular transit pass price.

Faculty at the university have prepared several evaluation reports on the University of Wisconsin–Milwaukee UPASS program that document its success (*12,14*). During the first 2 years of the program, transit ridership increased by about 30 percent and the proportion of students driving to campus declined from about 54 percent to about 40 percent. At the same time, the proportion of students riding the Milwaukee transit system more than doubled, from 12 percent before UPASS to about 25 percent 2 years later.

Port Authority Transit—Pittsburgh and the University of Pittsburgh, Carnegie Mellon, and Four Other Colleges

Pittsburgh's transit system, Port Authority Transit (PAT), responded to its own desire to increase ridership and to the community's interest in reducing congestion in the Oakland area of the city, where the University of Pittsburgh is located. PAT was interested in providing the U-Pass program to the University of Pittsburgh and then to other universities in the area, because the Oakland corridor of Pittsburgh receives high-quality transit that would attract ridership. The Manager of Special Services for PAT provided the following information concerning the history and structure of Pittsburgh's U-Pass program.

In May 1995, the Port Authority developed an agreement with the University of Pittsburgh to establish what was called the University Zone or "U-Zone." The U-Zone corresponded to a specific region or boundary within the Oakland area within which University of Pittsburgh students, faculty, and staff were allowed to ride free when displaying a valid school ID. The university would then reimburse the Port Authority for each ride taken within the U-Zone. The cost per trip was negotiated on an annual basis. A discounted pass and $0.50 drop program were also added. The $0.50 drop program entitled all students, staff, and faculty who possessed a valid university ID to ride for $0.50 within zone 1 after 7:00 p.m., Monday through Friday and all day on weekends and holidays. A discounted pass program was also established at this time.

In July 1999, the U-Zone and the $0.50 drop program were abolished and a new agreement was established that allowed all students, staff, and faculty who possessed a valid school ID to ride free within the entire Port Authority system. At that time, the University of Pittsburgh agreed to pay the Port Authority $1,500,000 per year to allow their students, staff, and faculty total access to the transit system. Within a 4-month period in 1998, university ridership was averaging 427,187 rides per month, compared with a monthly U-Zone ridership of 161,518 in 1997. In the fall of 2000, ridership averaged 493,094 rides per month. Ridership grew so much that in July 1999, the contract was renegotiated. When PAT concluded that revenue from the University of Pittsburgh contract was insufficient to cover the costs of needed service expansions, it negotiated a contract with the university that will provide the Port Authority with $1,750,000 in 1999, $1,900,000 in 2000, and $2,100,000 annually from 2001 through July of 2004.

Also in 1999, PAT entered into an agreement with Carnegie Mellon University (CMU) to allow CMU students, staff, and faculty to ride free with the use of a valid school ID. CMU agreed to pay the Port Authority $567,500 for the first year. Both parties meet every 6 months to renegotiate the payment that is not to exceed 8 percent above or 2 percent below the current annual fee. During the fall semester of 2000, CMU averaged 59,524 rides per month.

Both contracts have contributed toward an increase in overall ridership. PAT is pleased that these agreements have and will generate a reliable source of ridership. Given the success of the University of Pittsburgh and CMU U-Pass contracts, PAT has entered into agreements with other, smaller colleges in the area including Point Park, Chatham, Carlow, and Robert Morris colleges.

The contracts with the smaller colleges allow students to purchase PAT monthly passes at a discount, because PAT sells passes in bulk to the colleges, which buy the first 250 passes at PAT's regular price of $40.00 per pass per month, and each additional 250 passes at a 10 percent discount. The colleges then are free to sell the passes to students at a price that reflects a discount of their choice.

Observations About U-Pass Programs in Large Urban Areas

The previous three profiles of unlimited ridership programs for large urban universities illustrate a growing trend of transit agencies working in partnership with colleges and universities to greatly increase student mobility, improve the environment surrounding the campuses, and, at the same time, provide important ridership and revenue sources for the transit agency. Although early programs such as the University of Washington U-PASS program started as a partnership between a single university and the local transit providers, more recent programs, such as PAT's and the CTA's, involve many universities.

A review of these programs and discussions with individuals involved in designing and operating them suggests three major issues that must be addressed when considering a U-Pass-type program in a large urban area. The first is a concern about the impact of the dramatic increase in ridership on the transit system that usually results from the unlimited access program. The most successful programs that are most able to adapt to the changes are those where the transit agency already has significant service in and around the campus. However, even when that is the case, nearly all of the U-Pass programs have required that additional service be added to meet demand. The dual issues resulting from this increase in ridership are the ability of the transit system to add the capacity and, more importantly, the ability of the agency and/or the university to fund the increased service. Most large systems have the physical capacity to add services; however, they are sometimes constrained in their ability to do so by the costs involved. The most successful university/transit agency partnerships are the ones where both sides understand the need to adjust the

terms of the contractual agreement and have open dialogue about the service/cost trade-offs. All three of the cases discussed previously exhibit that important characteristic.

The second issue that arises when proposing a U-Pass arrangement, especially if student fees are involved in funding the services, is the equity question. What if a student cannot use transit or has no reason to do so (e.g., lives close to campus)? Why is it fair to charge all students for a service that only a portion will use? As noted previously, 85 percent of University of Washington students purchase U-PASSES so the equity issue seems less important than in other situations where, as is the case in Milwaukee, only about a one-fourth of the students use the bus on a regular basis. Part of the selling effort of unlimited access transit that requires student fees is to make the case that the entire campus community is better off because of the transit fee, and that even nonusers benefit.

The final issue that continues to confront several large urban systems concerns the fraudulent use of the system, which arises primarily in cases where students who do not use their U-Pass give their pass and/or ID to nonstudents. Also, if the student ID is not dated, students who have graduated or left school can continue to use the transit service without paying. This issue has been a difficult one in Pittsburgh, where PAT had agreed to let university students ride the buses simply by showing their student ID. Although it is a photo ID, PAT officials are concerned that trips are provided free to individuals who were never students or who are no longer students. Press accounts of the CTA's implementation of U-Pass in Chicago recount the organization's concern for the same issue and the desire of the CTA to require a special ID card in addition to the university ID. PAT officials are currently negotiating with University of Pittsburgh officials to devise a better identification system that would include some way to ensure that the user is currently enrolled. Smart card technology, which allows complex information to be programmed on a chip imbedded in an ID card, is rapidly being adopted by both universities for ID cards and by transit systems as passes. This technology could possibly solve most of the concerns of both parties and provide minimum inconvenience to both the passenger and the transit agency while assuring nonfraudulent transactions.

"LIMITED" UNLIMITED ACCESS SYSTEMS

The unlimited access transit model has been proven successful at universities throughout the country, both in traditional college towns and in large urban areas. However, many major universities with large conventionally funded transit operations are unable to make the transition to the "limited" unlimited access model. The reasons for this inability were discussed earlier in this chapter and include apprehension of the financial implications of such a move; concern about the ability of the transit operator to adjust to the new, higher service levels; or an inability to reach an agreement on how to fund the service, especially when such agreements involve student fees or parking increases.

In cases where the conditions are not present to implement full unlimited access transit, many university communities have developed what will be called "limited" unlimited access systems. The most common of these systems only provide service on campus or to nearby student housing. Cambus, at the University of Iowa, is one of the older systems of this type and provides prepaid transit service on selected close-in routes, whereas two other regional transit systems serve the remainder of the region and surrounding communities.

Another model that may transfer to other campus communities unable to move to the full unlimited access concept is one used by the transit system serving Penn State University, the CATA. It is an example of how to serve a majority of riders with prepaid transit without taking the step of full unlimited access.

When CATA was formed in the early 1970s to provide fixed-route bus service in the State College, Pennsylvania, area (population 53,000 in 1970), Penn State University (enrollment 24,000 in 1975), CATA, and some local officials proposed a student fee-supported unlimited access system. The university administration opposed such a move and also decided to establish and fund its own on-campus loop system rather than contribute to the regional system. CATA, therefore, developed a regional transit system that primarily transported students from off-campus housing complexes to the campus, while the university provided on-campus service.

Shortly after CATA began service, the owner of a large apartment complex approximately 2 miles from the campus requested that CATA provide discounted annual passes in bulk so that tenants could receive free, that is, prepaid, unlimited access transit. By contracting with CATA, the apartment owner could avoid the expense of a chartered bus that was providing minimal service to the student tenants. Because the apartment complex was located along the corridor with the most frequent CATA service, the tenants had access to greater frequency of service than with the previous charter. In addition, CATA obtained a stable source of income. At the time of the first agreement, annual passes were available to the general public for about $100 per year; the bulk contract for 800 apartment passes resulted in the passes being discounted to about $40 each. The passes allowed riders to use the entire CATA system, not just the route serving the apartment complex.

The pass program was a big success and it grew as other apartment complexes asked to join the program to remain competitive. Through the bulk apartment contracts, CATA was able to achieve a portion of the goal stated when it originally proposed the unlimited access approach.

However, federal and state transit funding cutbacks in the early to mid-1980s caused CATA and local elected officials to question the wisdom of the deep-discount pass program. After much deliberation, the discounted pass program was phased out, but CATA cooperated with apartment owners in designing regular routes to serve tenants who were able to buy passes at the regular price.

The next phase of the apartment program began when a developer proposed a new apartment complex of more than 200 units (as many as 800 students) approximately 2 miles from campus in the most congested corridor entering the central Penn State University campus area. As a condition of the zoning change needed to build the complex, local elected officials required the developer to enter into a long-term contract with CATA to provide transit passes to all tenants. Unlike the earlier apartment pass program, this new pass program allowed students to ride only the route that served their complex. Also, in a departure from the early procedure of determining the pass price by calculating a discount on the regular pass, the amount of the contract with this apartment owner was based on the additional cost of CATA providing the service.

Over the past 10 years, additional apartment complexes have been constructed with the stipulation that they contract with CATA for transit services for their tenants and install bus shelters and construct waiting areas. For the 2000–2001 academic year, CATA had agreements with seven apartment complexes with a total transit pass value of $545,000 (about 10 percent of CATA's overall budget). Ridership represented by these prepaid passengers now accounts for approximately one-half of CATA's 12,000 daily trips.

Consequently, through the apartment contracts, CATA has accomplished an approximately 50 percent unlimited access system, albeit one that limits riders using the apartment passes to only one route. Furthermore, because the university, as part of a comprehensive TDM strategy, now funds CATA to provide unlimited access on the Campus Loop intra-campus circulator, another 25,000 daily trips are made by students, faculty, staff, and visitors that have free access to the routes. Taken together, the apartment contracts and the university contribution result in about 85 percent of CATA's riders enjoying "limited" unlimited access transit.

Whereas this 85 percent statistic could be viewed as near accomplishment of the ultimate goal of unlimited access, the fact that so many students now ride without directly paying for service has become a major stumbling block to implementing full open access. Two issues are raised. First, because so many students benefit from either the prepaid apartment pass program or the university-supported free campus loops and are satisfied with the service received, they have not championed unlimited access to the degree found on other campuses when student fees were enacted.

The second issue concerns the impact of replacing the apartment owners' payments for services with either student fees or increased government funding. Local government and university officials generally sympathetic to the goals of an unlimited access system are hesitant because apartment owners would be relieved of their obligation to support transit, and the lost apartment revenue would have to be included in the funding required for an unlimited access plan.

CATA's apartment contracts have benefited the agency in several tangible ways: they provide a stable revenue base and they allow CATA to offer frequent service in several major corridors. However, they fall short of meeting the mobility goals of the full unlimited access system because not all students have access to the passes, and the passes are only valid on a very limited part of the transit network. Although the apartment contracts have somewhat complicated the issue of moving toward full unlimited access service, they might be an option for other university communities wishing to implement partial service in the face of opposition to the full program.

CHAPTER FIVE

CASE STUDIES

The unique characteristics of college and university communities give public transit systems an unprecedented opportunity to provide creative mobility solutions for their communities and campuses. As the survey results from this study and the literature review have demonstrated, campus transit systems have developed extremely innovative service expansions and funding arrangements. Although basic information on many of these innovative services has been described in chapters 3 and 4, more detailed case studies of several recent service and/or funding innovations are presented in this chapter. The intent of the case studies and supporting information is to give university administrators, students, and transit system officials seeking to change their campus transit systems some specific information on approaches they might adopt in their communities.

Although many creative solutions to campus transportation were identified in the course of this synthesis study, space does not permit case study treatment for each one. Therefore, three case studies were selected that met the following criteria. First, the system's experience had not been widely reported in the past and thus already documented in existing sources. Second, the system's staff needed to agree to provide the necessary additional information for the case study. Finally, and most importantly, the experience of the system was thought to be transferable and, therefore, disseminating information about the experience by means of this synthesis report would benefit the campus transit community.

The three case studies are:

Clemson University–Clemson Area Transit—The Clemson Area Transit system is a relatively new transit service offering no-fare service to the entire region by means of a creative funding arrangement that includes university contributions and state and federal rural transit operating assistance funds.

Michigan State University–Capital Area Transportation Authority—The Capital Area Transportation Authority recently assumed responsibility for the campus transit operations of Michigan State University. The following discussion of this operation emphasizes the contract between the university and the transit system and the methods used to protect the interests of both parties while improving public transit.

Indiana University Bus Service–Bloomington Transit—After years of discussion and a student referendum, these two transit services have begun a phased integration of the campus and community transit systems and the following discussion reports on this progress.

CLEMSON AREA TRANSIT

Clemson Area Transit (CAT) is a joint venture created in January 1996 by Clemson University and the city of Clemson, South Carolina. The success story of how the city and the university cooperated to create a fare-free transit service for both communities may serve as a model for other university communities, especially those with limited or no existing public transportation. The principle feature that this case study illustrates is how a university and its surrounding community can collaboratively design a transit service, taking advantage of available state and federal transit capital and operating funds, to offer students, faculty, staff, visitors, tourists, and all residents of the community the maximum level of service possible within the limits of available resources. The information included here was obtained from the survey response and an interview with staff of the CAT system.

Background on the Region and History of the Transit Service

Clemson University is a public university located in the northwest corner of South Carolina; approximately 17,000 undergraduate and graduate students are currently enrolled, and the university employs approximately 1,300 full- and part-time faculty and 3,100 staff. Clemson University is located in the city of Clemson, which has an estimated population of 13,000 persons, and is in Pickens County, a rapidly growing county of approximately 104,000 persons. Both the city and the county populations have nearly doubled since 1970, a factor that has motivated both town and campus officials to consider new public transit services.

Prior to the mid-1990s, the only transportation on campus or in the community was an informally operated parking lot shuttle bus service on the Clemson campus, limited to commuting students. This shuttle service was originally organized and operated by students using university-provided vehicles and a mix of paid and volunteer drivers. In 1995, the last year of its separate operation, this service required five vehicles and had an operating budget of approximately $350,000, with service subcontracted to a private security company.

In response to increased congestion on campus and in town, pressure to expand parking capacity, and a general concern about the lack of student mobility, community officials, students, and university administrators agreed to hire a consultant to evaluate options and recommend ways to improve public transportation services. This study, completed in 1994, recommended two separate bus systems: one on campus and one in the community. This recommendation was based on a variety of social and political considerations.

In 1995, as the first step toward implementing the consultant's recommendations, the city of Clemson hired a transit administrator. Once on the job, the transit administrator convinced town and campus officials to reconsider the two-system approach of providing transit and began a collaborative discussion with all potential stakeholders, including local officials, university students and administrators, and state and federal transit funding agencies. CAT and the services described below were the result of that collaboration.

No-Fare Transit "The Clemson Model"

Established in 1996, the CAT system was structured by the transit administrator as a 50/50 joint venture, created by a formal contract between the city of Clemson and Clemson University to assume responsibility for operations and assets of the Clemson University shuttle service (five vehicles) and to be operated by the city of Clemson. Some shuttle employees became city employees, and the university agreed to provide up to the $350,000 per year it was spending on the shuttle as pre-paid fares to the new bus service. A joint advisory board consisting of 16 representatives appointed by the university and city (8 each) now makes recommendations on service levels and other policies, but final budgetary and contractual responsibility for the CAT service resides with the city council.

In cooperation with city and university representatives, CAT designed a system of on-campus and community routes that provides a high level of service to the campus and the surrounding communities. From the beginning, the bus service was designed to be offered to all members of the community without a fare. No fare boxes or other fare collection infrastructures were ever installed in the CAT system. Unlike many campus transit systems that offer unlimited access by imposing student fees, CAT provides no-fare service to members of the university community through parking fees; no student fees are involved in the CAT funding formula.

As is the case in any successful collaboration, both sides (the university and the community) "won" from the Clemson Model structure. The university profited by being able to divest itself of its limited, problematic parking shuttle service and by improving mobility for students, faculty, staff, and visitors. It also gained relief from pressures from the university community to increase parking capacity. The town profited by having reliable, comprehensive public transit services for the first time. Traffic congestion around the campus has decreased, and city residents without easy access to an automobile have gained new-found mobility.

One of the keys to the success of the Clemson community/university partnership was the way the operation and financing of the system was originally structured. Funding for the new system came from three sources. First, the university pledged to provide CAT with the same level of funding it had been expending to operate its parking shuttle. This guaranteed local funding enabled CAT to leverage matching state and federal capital and operating assistance. This government support had been available to the city of Clemson, not the university, but it could not be obtained because no eligible service had been offered. With the new arrangement, both the university and the community were able to obtain much more transit service than had been possible by means of the university's shuttle system, and the cost to the local community was the same or less than what the university had spent for its shuttles.

The Clemson transit administrator, as part of his implementation plan, worked closely with South Carolina Department of Transportation officials to obtain access to state and federal operating and capital assistance for rural areas (Federal Section 5311 funds). The request for new funding came at a time when federal and state funds were increasing. Furthermore, the Clemson Model was well received and funded because CAT's strong ridership contributed to the state's formula for federal funds. Not all states allocate federal rural transit funds to support operating assistance, as is the case at Clemson, so this funding approach may not work in other situations with different state funding policies.

Now that the CAT service has been in place for several years, the biggest problem facing the system is how to continue to manage and fund growth. Tables 22 and 23 show operating and financial statistics for the past two fiscal years. As can be seen, the system is growing rapidly. Because CAT is a very efficient small system (operating expense per vehicle hour is about $30.00), it is able to offer significant service levels even on a total budget of less than $1 million. Additional revenues, however, will be needed to expand the service.

CAT has recently added new services to surrounding communities that were not a part of the original CAT agreement, and these services are provided on a cost-of-service basis under separate contracts. In addition, CAT recently established its NightCAT service, a shuttle service

TABLE 22
OPERATING STATISTICS FOR THE CAT SYSTEM

Operating Measure	FY 1998–1999	FY 1999–2000
Total ridership	516,602	666,925
Total vehicle-miles	200,459	249,370
Total vehicle-hours	20,365	25,144
No. of peak vehicles	14	14
No. of routes	9	10

TABLE 23
FINANCIAL STATISTICS FOR THE CAT SYSTEM

Financial Measure	FY 1998–1999 ($)	FY 1999–2000 ($)
Total operating expenses	540,841	782,480
Total university contribution (pre-paid fares)	200,000	200,000
Federal operating assistance (Rural Section 5311 funds)	152,008	277,850
State operating assistance	124,114	168,396
Other	64,719	136,234

between the downtown bars and student residences that provides students with a late-night alternative to driving. Corporate funding provides $30,000 over a 3-year period to help support this safe ride service, matching the contribution from the student government. NightCAT, the safe-ride program, is a unique and successful public and private sector initiative.

Lessons That Can Be Transferred

The CAT success story illustrates the benefits derived from close cooperation between university and community officials and an acute knowledge of transit operations and funding. Because of the cooperative arrangements, the greater Clemson community was able to develop and fund an implementation plan for comprehensive transit service that benefited everyone in the community and that could be financed using available resources.

The two unique features of the CAT success model are (1) the use of local funds that are counted as pre-paid fare revenue, which matches state and federal rural transit operating and capital assistance grants; and (2) the no-fare system that is open to all members of the community and that does not require costly fare collection equipment and procedures, thus resulting in significant savings to CAT and added convenience to passengers. In this case, structuring the operating assistance requirements of the service using local funding and available state and federal funds is an optimal business model. This Clemson Model can be used by more university communities to rethink their paradigm and significantly reduce their costs.

The relatively rare no-fare concept adopted in the Clemson Model has many benefits compared with the "unlimited access" services widely implemented in other university communities, because the service is available to anyone without paying a fare or even showing a bus pass. The CAT administrator advocates that other university transit systems seriously consider the no-barrier system. According to the advocates of the Clemson Model, because most riders on university systems (even ones that are "unlimited access" but require a pass to ride) are prepaid, the extra revenue generated from the small percentage of riders that either do pay or might pay is insignificant when compared to the high capital and operating cost of collecting fares. In the Clemson Model, the remaining small percentage of cash fare paying riders (usually senior citizens) could not justify the cost of collecting fares.

The comparison of the revenue lost from fare-paying riders with savings gained from no fare boxes will vary from community to community. However, by eliminating fares and passes, a transit system could avoid the significant capital and ongoing operating cost of a fare collection system. It could also improve operations and passenger convenience, not to mention increase ridership, by speeding up boardings because there are no longer any barriers to getting on or off the bus.

MICHIGAN STATE UNIVERSITY—CAPITAL AREA TRANSPORTATION AUTHORITY

The Michigan State University (MSU)–East Lansing, Michigan, community has been served by two separate transit systems for many years. The MSU bus service, started in the mid-1960s, was one of the pioneering campus transit operations in the nation. Furthermore, for nearly as long, the Capital Area Transportation Authority (CATA) has provided bus service throughout the greater Lansing–

East Lansing area. East Lansing proper has a population of just over 51,000 persons (not including MSU students), but CATA's 110-square-mile service area in the greater East Lansing area includes approximately 250,000 inhabitants. The university's enrollment exceeds 43,000 students, with approximately 17,000 students living on campus.

In April 1999, after many years of separate transit operations, MSU and CATA entered into a 10-year agreement, whereby CATA took over the operation of all transit services on the MSU campus. This case study presents some of the details of the contract and operating plan for this takeover to illustrate the types of issues that must be addressed in such a service change. The sources of information for this case study included the responses to the survey, an interview with CATA staff, the Transit Services Agreement entered into by the two parties, and the "Comprehensive Operations Analysis for the Capital Area Transportation Authority" prepared by Carter–Goble Associates in 1999.

History and Background of the Two Systems

MSU operated four bus routes serving the campus and nearby student-oriented areas of East Lansing. CATA operated more than 20 routes and provided regional transit service in East Lansing and surrounding areas. The university paid for the cost of its service through student pass sales, parking income, and some limited general funds. CATA's funding was provided by fares, state and federal operating assistance, and the proceeds of a dedicated transit tax (a millage on the local property tax that voters reaffirm every 5 years).

As is typical in most university communities where both a transit agency and the university operate separate, overlapping services, many people in the community, along with CATA officials, felt that a single integrated transit system would better serve the needs of the region and be more cost-effective. However, the university administration was satisfied with the status quo and did not desire this combination of services.

Conditions changed in the late 1990s, however, when the four ingredients necessary for a successful combination came together. First, the university's attitude toward a combined system changed, due in part to a change in administrative leadership, and from a need to address increased traffic and parking issues on campus. The new university leadership felt that operating a bus system was not central to the university's mission of research, education, and outreach and wanted to divest the university of its transit operation.

Second, the university needed to address the negative consequences of the more than 22,000 vehicles that entered the central campus each day. A university master plan, "2020 Vision: A Community Concept for the MSU Campus," proposed increased green space in the core of the campus and the shift of more than 1,000 parking spaces from the core to peripheral lots. Enhanced transit service was needed to implement this vision.

The change in attitude and the new willingness to discuss a combined system were certainly necessary to the eventual takeover of campus routes by CATA, but they were not sufficient to allow such a major shift. CATA also needed two more ingredients, the physical and organizational resources, and adequate funding necessary to accomplish the expansion. Fortunately, the 1997–1999 period found CATA with the physical and organizational resources, because the system was already a fairly large transit enterprise with high-quality physical resources, and it had existing operating experience and expertise that was recognized in the community. Therefore, CATA was in a position to increase its services if it had a way to finance the changes.

The final and crucial ingredient necessary for CATA's successful integration of services was the provision of adequate funding by the state of Michigan, which had increased funding of transit operations from 33 to 50 percent. The additional funding allowed CATA to pursue the takeover of service with assurance of adequate resources. Given the convergence of these four factors, a willingness to negotiate, a purpose for the change, physical and organizational resources, and the funding base to accomplish the change, CATA and MSU officials began a lengthy negotiation/collaboration that resulted in the 10-year operating agreement that was executed in April 1999 and implemented with the start of the university semester in August 1999.

One further constraint that shaped the nature of the final arrangement was the university's opposition to a student fee to pay for the transit services. The university's opposition to the student fee was the result of the MSU president's pledge of a tuition rate guarantee with no additional mandatory fees. The plan ultimately adopted by CATA and the university maintained a fare for all trips, although it was heavily discounted for students.

Transit Services Agreement

The Transit Services Agreement signed by MSU and CATA in April 1999 specified that CATA would take over the MSU bus services and operate the same level of service for the first academic year at no cost to the university. A summary of the 10-article agreement is included as Appendix D to this report. The way in which CATA and MSU agreed to handle issues such as governance, service performance, service expansions and contractions, and other

issues of interest to both parties could be instructive to other university and transit officials attempting to forge such an agreement.

The key features of the agreement that could be illuminating to other communities considering such a combination of services are the sections that describe the base service levels included and the procedures that would be used to increase or decrease service. Related to the service level definitions is the costing methodology that would be used to determine the cost of service additions and reductions.

The CATA/MSU contract includes very creative solutions that are designed to address the concerns of both sides in what might be viewed as a threatening situation. The university gave up control of a bus system that has served them well for more than 30 years and trusted a major element of the campus infrastructure to an outside agency. Also, the university was concerned about losing control over the cost of the operation and, perhaps, viewed itself as being at the mercy of an outside organization. The contract procedures to devise, approve, implement, and pay for new services address these real issues.

From CATA's perspective, they were charged with the responsibility for providing high-quality transit service, but did not have the freedom to make service changes in order to maintain this high-quality service and respond to increasing demand. Equally as important from CATA's perspective was that it might be forced (either contractually or because of public opinion) to maintain services that it could not afford to operate. Again, the CATA/MSU contract developed a number of creative ways to minimize the risks involved in the change in responsibility for transit services.

Through the first year of the agreement, all parties report being satisfied with the services provided and the progress made toward expansion. The contract's provisions seem to have provided a sound basis for cooperation.

As has been the case on many university campuses where transit services have been improved, ridership growth increases the urgency for service expansions. The experience at MSU follows this pattern. After the first year of operation, MSU agreed to provide an additional $400,000 in funding to support the addition of new services. This commitment is in addition to what could be another $400,000 possibly required to add services because of the "demand test" as specified in the contract.

INDIANA UNIVERSITY BUS SERVICE—BLOOMINGTON TRANSIT

Indiana University (IU) in Bloomington, Indiana, is served by two transit agencies, Bloomington Transit (corporate name: Bloomington Public Transportation Corporation) and Campus Bus, a service of the university. IU is a large, Big Ten public university, with an enrollment of approximately 36,000 students. The Bloomington area has a population of approximately 60,000. The two transit systems have provided fixed-route service in the area since the 1970s.

Two aspects of the IU campus transit operations are of interest in this case study. The first is the coordinated arrangement the two systems have worked out to share resources but remain as separate systems. Unlike the MSU case, IU and Bloomington Transit may continue to exist as separate operations, but work closely together and, more importantly, jointly develop the universal access program that began in the fall of 2000. The story behind the campaign to establish what is called the "Universal Bus Pass" is the other interesting aspect of the IU program. The sources of information for this case study included the responses to the survey, a telephone interview with staff of IU Transportation Services, and information from the IU Campus Bus and Bloomington Transit websites.

Background on the Two Systems

Historically, Campus Bus operated routes on the IU Campus, and Bloomington Transit served the surrounding community. However, in recent years, the services of the two systems began to overlap, as Bloomington Transit began serving more destinations of interest to students, and Campus Bus, responding to student demands, began serving a large off-campus shopping mall.

According to the data submitted for this study by the two agencies, IU's Campus Bus service and Bloomington Transit are about the same size when measured in terms of budget or annual vehicle hours. Each agency expends approximately $2.2–2.3 million per year and produces approximately 50,000 bus hours of service. However, Campus Transit accounted for about 1.9 million passenger trips in 1999, and Bloomington Transit about 1 million trips. Bloomington Transit receives state and federal capital and operating assistance funding, but Campus Bus does not. Prior to the start of the Universal Bus Pass program in August 2000, nearly all of the Campus Bus's revenue was derived from individual pass sales and cash fares.

Coordination and Sharing of Facilities

In the early 1990s, Bloomington Transit and Campus Bus representatives undertook a planning exercise to examine a number of transportation issues, including how the two systems could work together to improve regional transit. Differences in operating costs (the Campus Bus service is

less costly per hour than Bloomington Transit) and operating approach precluded consideration of a merger. However, one tangible outcome of these discussions was a plan to construct a joint maintenance and administrative facility. Neither system had adequate modern maintenance, storage, or administrative facilities; therefore, both were interested in a plan that would provide such facilities. The arrangement agreed upon was for Bloomington Transit to obtain state and federal capital grant funds to construct the facility and for the university to provide the land with a value that could be counted as a local share for the grants. Opened in 1997, the new facility is home to both systems, but they each maintain independent operations within the facility. A fence divides the parts room for each system; however, the systems share common maintenance areas, driver rooms, and restrooms.

This case is interesting because it demonstrates how two separate agencies can work together and by creative solutions such as the joint facility enjoy the economies of a larger system without merging into a single system. The close cooperation and physical proximity undoubtedly will be an asset to both systems as they implement the Universal Bus Pass program described below.

Implementing Unlimited Access Transit—The Indiana University Universal Bus Pass Program

The fall of 2000 marked the beginning of the university's 3-year phase-in of an unlimited access transit system. Three noteworthy features of the IU situation are the phase-in approach being taken to minimize financial risks and service disruptions, the marketing efforts of the students, and that two separate transit systems are participating in the common funding source.

Prior to the fall of 2000, students wishing to use the campus transit system could either pay a cash fare or purchase a $200/year unlimited-use pass. A separate cash fare or pass was required to ride Bloomington Transit. As the result of a 3-year campaign by student leaders, a new, universal bus pass program was initiated with the start of the 2000 fall semester. The plan called for students taking more than six credits to pay a mandatory student fee of $21.20 per semester, with reduced amounts for fewer credits. In return, students, by showing a valid IU student identification card, would be allowed unlimited access to either system.

A key element of the phase-in plan for the Universal Bus Pass program was the decision to delay opening the Campus Bus service to unlimited access by means of the student ID for at least 1 year. Therefore, for the 2000–2001 academic year, students continued to pay a cash fare or purchase a pass to use Campus Bus. However, the university has discounted the Campus Bus pass by the amount equivalent to two semesters of the mandatory student fee or $42.40 per academic year. In future years, perhaps as early as the 2001–2002 academic year, the unlimited access feature will be added to cover the campus transit service.

In its first year of operation, approximately one-third of the proceeds from the student fee will be used to reimburse Bloomington Transit for the revenue the system lost because students now ride for free. In addition, the payment to Bloomington Transit helps to cover expenses for the College Mall route that it took over from Campus Bus. The student fee revenue also helped lower the cost of the Campus Bus pass.

The IU Campus Bus service is using the revenues to expand other transit services on campus, a major objective of the student campaign for the Universal Bus Pass. In the late fall of 2000, Campus Bus began a night shuttle route on campus, and it plans more service additions in the future.

A final part of the IU Universal Bus Pass plan concerns the role that students played in encouraging the university administration to adopt such a concept. Perseverance on the part of the president of the Indiana University Student Association (IUSA) is credited with getting this program implemented. Serious discussions of the Universal Bus Pass concept began in 1997 under the leadership of the IUSA president. His interest in the success of the Universal Bus Pass concept was one of the primary reasons that he postponed his graduation for 1 year and successfully ran for another term as IUSA president. His efforts paid off when the trustees gave preliminary approval to the plan in 1999 and then final approval in June 2000. Subsequent IUSA presidents have also championed the Universal Bus Pass concept and have been instrumental in its success.

CHAPTER SIX

CONCLUSIONS

Colleges and universities and their surrounding communities have developed a wide variety of innovative approaches to meeting the mobility needs of their students, faculty, staff, and residents. In addition, campus transit systems have led efforts within their communities to increase transit and other non-single-occupant vehicle travel options. These efforts are motivated by a desire to reduce congestion and parking demand around campuses; problems that face many university communities, where enrollment growth and an increase in campus activities strains the existing highway and parking infrastructure. In addition, most university transit programs seek to increase student mobility to provide more housing and employment options and to reduce the overall cost of education.

Campus communities are uniquely suited to experiment with creative ways to meet these objectives because the university administration controls transit, land use, and parking. Therefore, trade-offs between transit and parking, or parking and educational facilities, can be implemented rather than just proposed and discussed. This centralization of control has led to innovative transportation demand management programs at the University of Washington, Cornell University, the University of Illinois, and for an increasing number of large universities struggling with growth issues.

University communities have evolved a wide range of approaches to organizing, managing, and most importantly, funding transportation programs that meet the objectives described above. A survey of 30 medium-to-large campus transit operations revealed that no single approach is widely used or clearly superior. Universities in approximately one-half of the communities responding to the survey directly provide transit services; the other communities are served by separate transit agencies or municipal governments. Private contractors are also used to provide service on several campuses. Campus transit systems, whether university-owned or separate agencies, have developed a broad range of funding mechanisms to support transit services. Funding sources involve the traditional federal, state, and local government operating assistance programs, but also include student fees, parking permit and fine revenue, and general funds contributed by the universities.

The most striking conclusion reached from the survey is the extent to which campus transit systems are moving toward the goal of unlimited access, whereby students, and in most cases faculty and staff, are afforded unlimited use of the transit services without paying a fare or buying a transit pass. These systems are funded through a combination of student fees, parking revenue, operating assistance grants, and university contributions. Seventy percent of the respondents to the survey offered some form of unlimited access. Many others are planning to move in that direction. Students support unlimited access because it gives them more commuting choices and increased freedom to select where they live and work. Transit systems promote the concept because it allows them to provide more and better transit service and gives them a stable funding base. University administrators support unlimited access as a method to reduce traffic and parking problems on campus and to attract and retain students.

A second and related trend is the growth of multi-university, unlimited access systems in large urban areas. The University of Wisconsin–Milwaukee and Marquette University programs are among the oldest examples of this type of arrangement, whereby the regional transit system contracts with multiple universities to provide unlimited access passes to students, and in some cases, faculty and staff. Pittsburgh's Port Authority Transit and the Chicago Transit Authority are more recent examples of this program, which provides university/college communities with a strong incentive to use public transportation. In some cases, parking or university general funds pay for the passes; in others, the university sells the passes to students at a discount. An increasing number of student bodies have voted by means of a referendum to tax themselves and impose a mandatory student fee to fund the program. Finally, some large urban unlimited access programs have been started and funded with Congestion Mitigation Air Quality federal funds, with the goal of reducing air pollution and congestion.

A third trend is the increasing adoption of comprehensive transportation demand management programs that include strong disincentives to driving in the form of higher parking fees and restricted parking options, and improved commuting alternatives including unlimited access transit, car and vanpool incentives, and bicycle and pedestrian programs. These programs are thriving on both large urban campuses such as the University of Washington in Seattle, and in college town settings such as Cornell University in Ithaca, New York.

The final trend evident from the surveys and other investigations for this synthesis is improved coordination between multiple transit agencies in the same community.

Nearly one-half of the survey respondents reported that they were one of two, or in several cases, one of three transit systems serving their community. These systems, typically a town bus system and a campus bus system, evolved in the 1960s and 1970s as universities and their surrounding communities often took differing approaches to meeting the mobility needs of their constituencies. The recent trends toward unlimited access systems and more aggressive transportation demand management programs have encouraged universities and their communities to join together and evaluate how to best organize and operate transit to meet the expanded expectations resulting from these new approaches to transit. Transit is also an increasingly important element of university- and/or community-based comprehensive planning activities, and an especially important tool for allowing universities to continue to expand yet meet zoning requirements and community concerns related to parking needs and congestion.

Based on information presented here, further study may be warranted in the following areas:

- Career development using campus transit systems as management incubators,
- Specialty services that can be offered in high-density activity areas,
- Americans with Disabilities Act implementation issues in a university setting,
- Economic analysis of the use of part-time student drivers versus full-time drivers, and
- Transportation demand management approaches as applied to university communities.

Finally, university communities are incubators for new approaches to meeting mobility challenges that confront both large and small communities. Greater efforts need to be made to share information on the successes, failures, and lessons learned by these bold innovators. This synthesis may serve as one tool for sharing this information, but continued efforts and programs should be developed to facilitate sharing of information between university communities, and also to translate the knowledge gained to applications for all communities.

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APPENDIX A

Respondent Questionnaire

TRANSIT COOPERATIVE RESEARCH PROGRAM
Synthesis Topic SA-11

TRANSPORTATION ON COLLEGE AND UNIVERSITY CAMPUSES

QUESTIONNAIRE

Academic campuses have special characteristics that often enable more experimentation in transportation policies than other public locations. Furthermore, the internal circulation of a campus lends itself to walking, bicycling, and shuttle services with links to larger public transit networks. Today, many campus communities are analyzing, planning, and implementing policies to manage parking, provide transit, and shift the mode choice from the single-occupant private auto. Some have implemented discount transit fare programs and others have implemented unlimited access programs.

To better understand and disseminate information about this important subject, the Transit Cooperative Research Program (TCRP) has approved Project SA-11, "Transportation on College and University Campuses." This synthesis of practice will involve a review of the literature, case studies, and most importantly, this survey of approximately 50 large campus transit systems. The results of the project will be published as part of TCRP's very practical synthesis series.

As one of those professionals who is directly involved in planning or operating public transportation services in a university community, you could help us better understand campus transportation systems so that the lessons learned by successful practitioners can be passed on to others who are trying to make changes on their campuses.

In addition to completing the following questionnaire, you could also assist this project by sending copies of planning or feasibility studies related to your campus and its transportation system, any reports or articles describing your operation, annual reports or operating summaries, and any marketing materials that would help explain the way your system provides public transit in your campus community.

Please send your completed questionnaire and any supporting materials by **June 26, 2000**, to the address given below.

If you have any questions, please feel free to call me, Jim Miller, at (814) 692-8405, by fax at (814) 692-8407, or email me at campustransit@mindspring.com. You may also contact Ms. Donna Vlasak at the Transportation Research Board, (800) 424-9818 or (202)-334-2974.

Please mail completed questionnaires to:
James H. Miller
2118 Halfmoon Valley Road
Port Matilda, PA 16870

Information about Person Completing the Questionnaire

Name _____ Title _____

Organization _____

Address _____

_____

_____

Telephone ( )_____ Fax ( ) _____ Email address _____

Identity of the University, the Community, and the Transit System

1. Name of Community Served _____

2. Name of University Served _____

3. Name(s) of Transit System(s) serving the university and surrounding community (legal and/or marketing name)

_____

_____

_____

4. Name of the office and the contact person at the university that is responsible for transportation operations

   Name of the office/department _____

   Name and title of contact person _____

5. Is there anyone else at the university or within the local community (another transit provider) that we should contact to better understand the transit services in your community? ____ No ____ Yes If yes, please give name and phone number.

   _____

   _____

Background Information on the Community and University Setting

6. What is the total population of the community in which the campus is located? _____

_____

7. What is the total enrollment of the college or university campus in your community? (indicate full-time, part-time)

_____

8. What percentage of these students are
   undergraduates _____%
   graduate students _____%

9. What percentage of the students
   live on campus _____ %
   live with 1 mile of campus _____%
   live more than 1 mile from campus _____%

10. What percentage of the students register cars to park on campus?

    on-campus undergraduates _____% off-campus undergraduates _____ %
    graduate students _____ %

11. How many faculty and staff are employed at your university? (either total or FTE, please specify)
    Faculty _____ Staff _____

12. Is the university the largest employer in your community? Yes _____ No _____

Background on the Transit System

13. Is the transit system serving the campus community? (Please check the appropriate response.)

    _____ a department or administrative unit of the university
    _____ a department of the local government
    _____ a separate transit agency (district, authority, corporation)
    _____ other, please explain _____

    _____

14. What kinds of transit service do you provide for the campus community? Check all that apply.
    _____ on-campus circulator/shuttle
    _____ shuttle from remote parking lots to campus
    _____ regular fixed-route service between off-campus housing and campus
    _____ regional community-wide transit service
    _____ commuter routes from outlying areas to campus
    _____ charter services
    _____ accessible service for disabled students
    _____ other, please describe _____

    _____

Financial and Operating Data

Please provide the following information for your transit system for the most recent completed fiscal year.

15. Operating Data for fiscal year _____ (Please indicate period)

Operating Statistic	Value
Annual passenger trips	
Total annual vehicle miles	
Total annual vehicle hours	
Total vehicles in fleet	
Peak vehicle requirement	

16. Financial Data for fiscal year _____ (Please indicate period)

Revenue/Expense Item	Amount
Total operating expense	
Total operating revenue	
Federal operating assistance	
State operating assistance	
Local operating assistance	
Other income (Please explain)	

Driver Information

17. Are your drivers represented by a bargaining unit? Yes _____ No _____

18. What is the current top hourly wage rate for bus drivers? _____

19. What is the average hourly wage rate for bus drivers? _____

20. Do you employ part-time drivers? Yes _____ No _____
    If yes, what percentage of your drivers are part-time? _____ What portion of your total revenue hours are provided by part-time drivers? _____

21. Do you employ students as bus drivers? Yes _____ No _____ If yes, what percentage of your drivers are students?

Governance and Policy Making Characteristics

22. Who operates the system?

    _____ University _____ Transit Agency _____ Local Government
    _____ Private Contractor _____ Other (Explain) _____

23. Who owns the assets (buses, facilities) of the transit system?

    _____ University _____ Transit Agency _____ Local Government
    _____ Private Contractor _____ Other (Explain) _____

24. If you are a department of the university, who sets fares and approves routing/service decisions?

_____

25. If you are a separate transit operating agency that provides transit on campus, what role does the university administration or student body have in making operating and policy decisions? Check as many answers as apply.

_____ the university has official representatives on the transit system policy board
_____ the university influences transit decisions through contracts for service
_____ the university and the transit system maintain a regular dialog concerning service issues
_____ students participate as members of the transit system policy board
_____ students participate on an advisory committee to the transit system

Fares and Funding Information

26. How do users pay to ride your transit service? Check all that apply.

_____ all passengers pay a fare
_____ all passengers ride free because the service is prepaid
_____ students and faculty/staff ride free, but others pay a fare
_____ student and faculty/staff ride at reduced fares
_____ other, please describe (if you have brochures or other information that explains your fare policy, please enclose them with the questionnaire.) _____

_____

27. If prepaid fees represent all or a large part of your systems revenues, please indicate the source of these revenues and the percentage of total revenue derived from these sources.

<u>% of total revenue</u>

_____ Student fees Amount of this fee _____ per year _____ per semester
_____ per summer or special session
_____ Bulk purchase of passes by the university
_____ Parking fees (registration/permit fees)
_____ Parking enforcement fees (fines)
_____ University general funds
_____ Contracts with off-campus apartments or businesses

28. Does the university provide free or discounted transit passes to employees?

Yes _____ No _____ If yes, please explain the program offered _____

_____

Parking Information

29. Please provide the following information on the university's parking program.

Category	Number of parking spaces available	Number of registered vehicles	Parking permit cost per year, month (please indicate period)
Faculty/staff			
On-campus students			
Off-campus commuter students			
Visitors			

30. How would you characterize the parking situation on your campus?

_____ readily available parking for faculty and staff near work locations
_____ very restricted close-in parking for faculty and staff, but readily available peripheral parking
_____ readily available student parking in remote/peripheral locations
_____ limited student parking
_____ other, please describe _____

_____

31. Does your transit system provide shuttle service to and from peripheral parking facilities?

Yes _____ No _____

32. If you do provide shuttle service from parking facilities, how do the users pay for this service?

_____ no fare charged since transit is provided for all users without a fare charged
_____ no fare charged for trips to/from parking facilities. Transit costs paid by parking program
_____ regular transit fare charged
_____ other, please describe _____

_____

Applications of Advanced Technologies to Transit

33. Does your transit system offer customer information via a web site?

Yes _____ No _____ If yes, what is the web address (URL)?

34. Please indicate the information provided via your web site by checking all choices that apply.

_____ route and schedule information
_____ real-time schedule information (tied to automatic vehicle location system)
_____ trip planning
_____ ridesharing/matching information
_____ other, please explain _____

_____

35. Please describe any applications of advanced technology that you have implemented or are going to implement within the next year or two, e.g., automatic vehicle location systems, stop announcement systems, electronic information kiosks.

Student Involvement with Your Transit System

36. How are students involved in the policymaking and operation of your transit system? Check all that apply.

    _____ students are employed as drivers
    _____ students are employed in administrative/management positions
    _____ we regularly offer internship opportunities for students
    _____ we cooperate with class projects and other research efforts
    _____ students participate on advisory committees

Selling Transit in Your Community

Transit and university professionals promoting an increased role for transit and other ridesharing options are anxious to learn of the experience of others who have successfully "sold" transit in their campus communities. Of special interest are the experiences that others have had with funding and implementing significantly expanded transit services. In many cases these are "unlimited access" systems whereby riders do not pay a fare to use the service, but the system is funded from parking or student fees.

If your system has recently (within the past 3-5 years) implemented an unlimited access system and/or conducted a campaign to greatly increase transit service, please answer the following questions.

37. Our campaign to increase transit service and/or establish an unlimited access system stressed the following benefits to transit. (Check all that apply.)

    _____ reduced congestion on campus
    _____ reduced congestion in the community
    _____ savings in parking program expense due to less need for new facility construction
    _____ general environmental benefits
    _____ improved campus safety and personal security
    _____ improved mobility for students
    _____ other points, please explain _____

    _____

38. Would you be willing to provide additional information about your experience and be considered as a case study for this synthesis project? Yes _____ No _____

    If yes, who would be the best contact person to provide information?

    Name _____ Phone _____ Email _____

39. Does funding of your transit service depend on a periodic student referendum to authorize/reauthorize the student fee? Yes _____ No _____

40. Would you be willing to share your experiences with such campaigns? Yes ___ No _____

41. Have changes to your transit system been considered a part of a larger regional Transportation Demand Management (TDM) program? Yes _____ No _____

What would you like to know?

Do you have any questions about transportation on colleges and university campuses that we could address in this study? How could the current study of campus transportation better help your system?

_____

_____

_____

The primary objective of this TCRP Synthesis project is to assemble information that will benefit transit practitioners. We thank you for sharing information about your system with us as you completed this questionnaire and hope that when it is summarized in the final report, it will meet this information exchange objective.

Thank you for assisting us with the project.

APPENDIX B

Participating University Community Transit Systems

University of Arkansas
Razorback Transit
University of Arkansas
115 Razorback Rd.
Fayetteville, AR 72701

University of California–Davis
Unitrans
University of California–Davis
One Shields Ave.
Davis, CA 95616-8527

University of California–San Diego
Shuttle
University of California–San Diego
9500 Gilman Dr.
LaJolla, CA 92093-0991

University of California–Santa Cruz
TAPS Shuttle
University of California–Santa Cruz
Santa Cruz, CA 95064

Stanford University
Marguerite Shuttle
Stanford University
340 Bonair Siding
Stanford, CA 94305-7255

Colorado State University
Transfort
6570 Portner Rd.
Fort Collins, CO 80525

Florida State University
Taltrans
Office of Parking
University Center C2300
Tallahassee, FL 32306-2650

University of Georgia
Campus Transit System
University of Georgia
2505 Riverbend Rd.
Athens, GA 30602-5870

University of Illinois Champaign–Urbana
Champaign–Urbana Mass Transit District
45 E. University Avenue
Champaign, IL 61820

Northern Illinois University
Huskie Bus Line
Campus Life Building
Northern Illinois University
DeKalb, IL 60115

Western Illinois University
Go West Transit
1 University Circle
Macomb, IL 61455

Indiana University–Bloomington
Campus Bus Service
120 W. Grimes Lane
Bloomington, IN 47403

Indiana University–Bloomington
Bloomington Transit
130 W. Grimes Lane
Bloomington, IN 47403

Purdue University
City Bus
P.O. Box 588
Lafayette, IN 47902-0588

Iowa State University
CyRide
Ames Transit Agency
1700 W. 6th St.
Ames, IA 50014-4543

University of Iowa
Cambus
University of Iowa
100 Cambus Office
Iowa City, IA 52242

Louisiana State University
Campus Transit
Office of Parking, Traffic & Transportation
Public Safety Building
Baton Rouge, LA 70803

University of Massachusetts–Amherst
UMASS Transit Service
PO Box 31110
Amherst, MA 01003-1110

University of Michigan
Ann Arbor Transportation Authority
2700 S. Industrial Highway
Ann Arbor, MI 48104

Michigan State University
Capitol Area Transportation Authority
4615 Tranter Avenue
Lansing, MI 48910

University of New Hampshire
Wildcat Transit
295 Mast Road
Durham, NH 03824

Cornell University
TCAT
Transportation and Mail Services
Cornell University
116 Maple Avenue
Ithaca, NY 14850-4902

East Carolina University
ECU Student Transit Authority
18 Mendenhall Student Center
Greenville, NC 27858

North Carolina State University
Wolfline
139 Administrative Services Center
2711 Sullivan Dr., Box 7221
Raleigh, NC 27695-7221

Penn State University
Centre Area Transportation Authority
2081 W. Whitehall Rd.
State College, PA 16801

Clemson University
Clemson Area Transit
1200 Tiger Boulevard, Suite 2
Clemson, SC 29631

Texas A&M University
Bus Operations
Agronomy Rd.
College Station, TX 77843

University of Texas
Shuttle Bus
Capital Metro
2910 E. 5th St.
Austin, TX 78702

American University
AU Shuttle
4400 Massachussetts Ave., NW
Washington, DC 20016-8068

University of Wisconsin–Madison
Madison Metro
1101 E. Washington Ave.
Madison, WI 53703

APPENDIX C

Campus Transit Systems Operating 10 or More Vehicles as Identified in 1992 Campus Transportation System Inventory Prepared by the Mid-Atlantic Universities Transportation Center That Were Included in This Synthesis

Operate 25 or More Vehicles

Cornell University
Indiana University–Bloomington
Iowa State University
Pennsylvania State University
Purdue University
Texas A&M University
University of California–Davis
University of Georgia
University of Illinois Champaign–Urbana
University of Massachusetts–Amherst
University of Michigan–Ann Arbor
University of Texas–Austin
University of Wisconsin–Madison

Operate 10 to 24 Vehicles

Clemson University
Colorado State University
North Carolina State University
Northern Illinois University
Stanford University
University of Arkansas
University of California–San Diego
University of California–Santa Cruz

APPENDIX D

Summary of Capital Area Transportation Authority–Michigan State University Transit Services Agreement

Article 1. CATA Transit Service

a. Specified CATA as the sole provider of fixed-route and paratransit services to MSU. MSU agreed not to contract for service with any other provider for on-campus services unless CATA had not provided that type of service in the past or charter services that violated FTA guidelines.
b. CATA agreed to maintain the same base level of service as had been offered the prior year at no cost to the university. Base Service was defined to include four categories of fixed-route and paratransit services including Line-haul fixed-route service, Nite Line fixed-route service, Green/White Line deviated route services, and accessible paratransit services.
c. The contract also included detailed specification about how special event services and other exceptions would be handled.
d. Base services were defined for each of the four types of services listed above in terms of annual vehicle hours. (The first year's service included 28,200 vehicle hours of service, about equally divided between fixed-route and paratransit service.)
e. The contract specified a detailed procedure for adjusting the base for each type of service so that the cost of service could also be adjusted.

Article 2. Service Changes

a. CATA agreed to conduct a quarterly performance review during the first year of operation and then a semiannual review thereafter. This review would include evaluation of customer satisfaction, ridership reports, on-time performance, and route performance.
b. CATA and MSU agreed to develop a five-year service plan. (The "Comprehensive Operations Analysis for the Capital Area Transportation Authority" prepared by Carter-Goble Associates in 1999 resulted from this commitment.)
c. A joint decision process specified how service change decisions were to be made.
d. CATA was authorized to make service reductions based on performance criteria already in use by CATA. Specifically, if an MSU route fell below 60 percent of the adopted standard for passengers per vehicle hour, CATA could recommend discontinuation of the service upon giving the MSU Vice President for Finance and Operations "reasonable notice."
e. A "Service Demand Test" was also included in the contract that authorized CATA to add service hours in response to demand increases. Specifically, CATA could add service without cost to MSU for a thirty-day test period. If ridership averaged more than 40 passengers per hour in any two-hour period, or more than 15 passengers per hour throughout the test period, CATA could continue the service at its discretion.
f. Since no similar benchmarks and performance standards existed for the paratransit service, CATA was charged with developing such evaluation criteria within the first year.
g. CATA also agreed to support the university's efforts to reorganize on-campus parking by planning and implementing service changes that facilitated the shift in parking from central campus to the periphery.
h. The contract specified that CATA take over MSU-owned bus shelters and also specified a plan for additional shelters. In addition, the contract specified respective roles with respect to ownership, operation, and policies regarding other amenities such as stops, curb cuts, and future transfer centers.

Article 3. Fares

a. All fares and fees, grants, and other revenues related to the bus service are to be retained by CATA.
b. CATA's existing fare structure applies to all services ($1.00 cash fare, $25.00/month pass). CATA retains the right to adjust fares.
c. Students displaying a current ID are eligible for a discounted student fare of $.25 cash fare or a $12.50/month or $40.00/semester pass. The cash fare level is to remain at $.25 for the first two years of the contract, but CATA may raise it to $.50 in the third year, and then it may be adjusted to reflect inflation in subsequent years. The

student pass price is to remain constant for the first three years and then raised based on inflation in the remaining four years of the contract.

d. A separate Commuter Pass, good for one route that serves a commuter parking lot, is offered by CATA to students, faculty, and staff for $15.00/semester or $25.00 for two semesters. This price is fixed for the first three years of the agreement but then allowed to float with inflation.
e. Other fees for paratransit and special services are also specified.
f. CATA will not charge MSU for the Base Service; however, MSU will pay for additional services according to the provisions of the contract that describe how new service is added and costed.
g. The agreement calls for MSU to pay CATA based on the "marginal rates" for supplying additional services. The contract specifies the first year's level for these rates to be $37.52 per hour for line-haul service and $29.19 per year for paratransit services.
h. The maximum MSU agrees to pay for any additions to service is $400,000 per year in any year of the contract.

Article 4. Communications

a. Specifies that CATA's identity will be used on all stops, shelters, signs, etc.
b. CATA and MSU will jointly develop a marketing plan to distribute information on how to use the services.
c. CATA agrees to maintain a pass sales location in each residence hall.

Article 5. Vehicle Purchase

a. CATA agreed to purchase MSU's bus fleet of 14 RTS transit coaches and five Champion lift-equipped buses for $1,021,263. (CATA used capital grant funds to make these purchases.)
b. A detailed transition schedule was included to insure time for CATA to acquire and renovate the buses.
c. Both systems leased tires from the same vendor and the transfer of the lease arrangement for the MSU tires was specified.

Article 6. Cooperation

a. MSU could appoint one non-voting member to the CATA Board.
b. CATA could recommend a voting member to be appointed to the MSU All University Traffic Committee.
c. CATA will provide a "transition employee" to be based in an office at MSU to oversee the first year's transition and coordinate customer service issues. MSU agrees to pay 50 percent of the salary and fringes for this position.
d. Each party designates a Contract Manager to act as a single point of contact for the agreements.

Article 7. Safety and Emergency

a. MSU police will provide assistance to CATA bus operators and supervisors.
b. CATA will give MSU priority service in cases of catastrophic emergencies.

Article 8. Contract Implementation

Describes the process of beginning the transition as soon as the agreement was signed and allowed CATA to begin route reconfiguration as soon as plans were complete.

Article 9. Insurance and Indemnity

Standard insurance and indemnity requirements including specification of liability limits.

Article 10. General Contract Provisions

Typical contract language, and included term of agreement and method for notification to extend agreement.

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