Transportation of Rural Elders and Access to Health Care

Peter C. Damiano
University of Iowa

Elizabeth T. Momany
University of Iowa

Norman S.J. Foster
University of Iowa

Please see article for additional authors.
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Peter C. Damiano
Elizabeth T. Momany
Norman S. J. Foster
Hermine E. McLeeran
Commissioned by the
Midwest Transportation Center,
a consortium of Iowa State University
and the University of Iowa

Director
Tom Maze
Director, Iowa Transportation Center
Professor of Civil and Construction Engineering
Iowa State University

Associate Director
David J. Forkenbrock
Director, Public Policy Center
Professor of Urban and Regional Planning
The University of Iowa

Advisory Committee
Allen R. Henning, Transportation Manager, Deere and Company.
V. Kenneth Jensen, Regional Administrator, Federal Highway Administration
Larry Miller, President, Ruan Transportation Management Systems
Robert H. Neal, General Manager, AGRI Grain Marketing.
Darrel Rensink, Director, Iowa Department of Transportation
Richard J. Schiefelbein, Assistant Vice President, Labor Relations, Burlington Northern Railroad Company
K. Stephen Spade, General Manager, Des Moines Metropolitan Transit Authority
Lee O. Waddleton, Area Director, Federal Transit Administration

Ex-officio members: Tom Maze, Director, and David Forkenbrock, Associate Director
TRANSPORTATION OF RURAL ELDERS
AND ACCESS TO HEALTH CARE
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Peter C. Damiano
Assistant Professor, Public Policy Center and Department of Preventive and Community Dentistry

Elizabeth T. Momany
Postdoctoral Associate, Public Policy Center

Norman S. J. Foster
Research Associate, Public Policy Center

Hermine T. McLeran
Director, Aging Studies Program

University of Iowa

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for the Midwest Transportation Center

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PREFACE

Demographic data show that the rural Midwest is becoming less populous and older. As a population gets older, its need for health care services increases, a fact that makes access to health care a growing concern. One of the many dimensions of access to health care is the ability to physically travel to a doctor's office, hospital, or other health care facility. While this study addresses general issues surrounding rural elders' access to transportation, we pay special attention to their travel to obtain health care.

Rural elders use a variety of means to travel to obtain health care. Some are able to drive their own vehicles, others ride with family members, friends, or neighbors, and others require the services of public transportation. Our report focuses on public transportation. We examine how rural Iowans age 75 and over use public transit and discuss the nature and magnitude of their transit needs. We also assess the capacity of Iowa's public transit system to meet the needs of rural elders.

Research for this project was carried out at the University of Iowa Public Policy Center. Funding was provided by the U.S. Department of Transportation, University Transportation Centers Program. This program was created by Congress in 1987 to "contribute to the solution of important regional and national transportation problems." Following a national competition, the program established university-based centers in each of the ten federal regions. This project was funded by Region VII's Midwest Transportation Center, a consortium of Iowa State University and the University of Iowa. Matching funds were provided by the Iowa Department of Transportation, which also provided data for this project.

The research team has benefited greatly from its collaboration with an 11-member project advisory committee. This committee helped to focus the issues to be addressed, and its members shared their insights throughout the research process.
ACKNOWLEDGMENTS

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The project advisory committee played a critical role in this study. Assistance provided by committee members guided the research and helped us interpret the results in a practical manner. Special thanks go to J. P. Golinvaux, from the Air and Transit Division of the Iowa Department of Transportation, for his insight into important questions and his help obtaining data concerning the regional transit systems.

Our special thanks also go to Professor David Forkenbrock for his advice, cajoling and encouragement toward completion of this project. His edits and suggestions greatly improved the substance and flow of the report.

We would like to thank all the rural elders who graciously and patiently completed the telephone interview. We also appreciate the contribution of the Area Agency on Aging (AAA) directors and the managers of Iowa’s regional transit systems, who helped us collect information during the course of this study. We appreciate the work of Mary Losch and the staff at the Iowa Social Science Institute who conducted the interviews with rural elders.

We had tremendous help from our graduate student research assistants. Charles Tien was critical to the data analysis portion of the project; David Andersen designed and conducted the transit manager survey, and his previous experience as a practicing transit planner was highly valuable; Janet Miller interviewed the transit managers and AAA directors and helped in many other ways; and Jennifer Vesey located telephone numbers and provided general research support.

Special thanks go to our colleagues at the Public Policy Center. Anita Makuluni served as editor and project assistant. Carolyn Goff provided administrative support with the Midwest Transportation Center and the University Transportation Centers Program. Their friendship improved the quality of this report.
PROJECT ADVISORY COMMITTEE

Ron Beane
Administrator, Operations Division
Iowa Department of Elder Affairs
Des Moines, Iowa

Rose Lee
Executive Director
Regional Transit Authority
Spencer, Iowa

Marge Bledsoe
Chief, Bureau of Health Delivery Systems
Department of Public Health
Des Moines, Iowa

Delores Mertz
Iowa House of Representatives
Ottosen, Iowa

J. P. Golinvaux
District Representative
Air and Transit Division
Iowa Department of Transportation
Des Moines, Iowa

Marian Peter
Transit Manager
Northeast Regional Transit System
Decorah, Iowa

John Jensen
Iowa Senate
Plainfield, Iowa

Donna Rhone
Director, Hawkeye Valley Area
Agency on Aging, Inc.
Waterloo, Iowa

Sandy Koll
Program Manager, Adult Protective Services
Department of Human Services
Des Moines, Iowa

Dan Strellner
Director, Aging Services
Aging Services, Inc.
Cedar Rapids, Iowa

Roy Lamansky
Jefferson County Supervisor
Fairfield, Iowa
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CHAPTER 1

INTRODUCTION

Access to health care is a multidimensional concept related to the fit between the patient and the health care system (Penchansky and Thomas 1981). Both characteristics of the delivery system (such as the availability of physicians in rural areas) and characteristics of the population at risk (age, geographic location) affect access to care. Consequently, how a population uses health care services and its satisfaction with the care received become indirect measures of a population's realized access (Anderson et al. 1983). In rural Iowa, the lack of primary care providers, the closing of some rural hospitals, and the distance that many residents must travel to receive care are just a few of the factors that can affect the ability of rural elders to access care. Because rural residents tend to have more chronic illnesses and disabilities than their urban counterparts (Braden and Beauregard 1994; Rowland and Lyons 1989), they also need more transportation to health care facilities. Distance to care and the likelihood that this distance will increase as more rural hospitals close, make transportation an even more important aspect of access to care for rural elders.

Previous research has indicated that a greater percentage of the transit needs of elders is unmet compared to other segments of the population (Meyer and Gómez-Ibáñez 1981; Urban Mass Transportation Administration 1979). Many groups concerned with the needs of elders in Iowa emphasize the importance of rural transportation. In 1989, the Governor’s workshop on transportation focused on transportation for elders (State of Iowa 1989). In 1991, a transportation task force established by the Iowa Departments of Elder Affairs, Human Services, and Transportation evolved from the Governor’s workshop (State of Iowa 1991). This task force focused on the availability, affordability, and accessibility of transportation for elders in Iowa.

This study of the transportation needs of rural elders builds on such efforts and has three principal objectives:

- to describe the number and geographic distribution of rural elders in Iowa and how these are changing;
- to identify the need for transportation services among rural elders, particularly for health care, as a way to predict future need for transit services;\(^1\) and
- to determine the current transit use and transit needs of a representative sample of rural Iowa elders, age 75 and over, especially regarding travel for health care purposes.

---

\(^1\)Need is defined as trips taken by the elderly combined with trips the elderly were not able to take.
In this study, we pay particular attention to differences in transportation need based on age (elders age 75 to 84 versus elders age 85 and over), gender, whether elders live alone, and their functional health status.

The next chapter (Chapter 2) outlines the data collection methods used to study the travel of rural Iowa elders and the effect of transportation on their access to health care. Chapter 3 describes travel patterns and changing demographics of rural elders in Iowa. Chapter 4 focuses specifically on the nature and extent of rural transit use by Iowans age 75 and over. In Chapter 5, the supply side of transit services is investigated through interviews with regional transit managers and Area Agency on Aging directors, while in Chapter 6, the use of health care services by rural elders and their travel to health care is reported. Finally, Chapter 7 discusses our findings and the resulting policy implications for Iowa’s regional transit systems and the Area Agencies on Aging regarding rural elders’ access to transit services. The appendices include a discussion of the sampling procedure we followed; the questionnaire used to interview rural elders, transit managers, and AAA directors; and a description of the regional transit systems in Iowa.
CHAPTER 2
DATA COLLECTION

Extensive data were needed to accomplish our research objectives. This chapter describes how we acquired these data. The primary sources were a telephone survey of rural elders throughout Iowa, a telephone survey of regional transit managers in Iowa, and a telephone survey of the Area Agency on Aging directors in Iowa. Each is discussed in turn. First, however, we define the geographic context of our analysis.

DEFINITION OF RURAL USED IN THIS STUDY

This report focuses on rural Iowa elders. A number of definitions can be used to decide which areas of Iowa should be defined as rural. The definitions most commonly used are metropolitan/nonmetropolitan areas and urban/rural areas. (For a more detailed description of the various types of geographical categories, see Myers [1992, pp. 63–72].)

The U.S. Office of Management and Budget (OMB) defines metropolitan and nonmetropolitan areas to encompass entire counties. In 1990, Iowa had eight metropolitan areas, centered on Des Moines (Polk, Dallas and Warren Counties), Cedar Rapids (Linn County), Iowa City (Johnson County), Davenport (Scott County), Sioux City (Woodbury County), Council Bluffs (Pottawattamie County), Dubuque (Dubuque County) and Waterloo-Cedar Falls (Black Hawk and Bremer Counties). Using the OMB definition, Iowa’s remaining 88 counties are nonmetropolitan.

The Bureau of the Census defines “rural” as “not urban,” and defines urban as “all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urban areas” (Bureau of the Census 1992, p. A–11). An urbanized area “comprises one or more places (‘central place’) and the adjacent densely settled surrounding territory (‘urban fringe’) that together have a minimum of 50,000 persons” (Bureau of the Census 1992, p. A–12).

In practical terms, this approach means that the fringes of large cities in Iowa are defined as urban areas, making the rural parts of each county smaller. For example, Johnson County has three places with populations over 2,500: Iowa City, Coralville, and North Liberty. In 1990, these three places together had 73,011 residents, leaving 23,108 other residents in Johnson County. The “official” number of rural residents, however, was only 21,821 according to the Bureau of the Census. Thus 1,287 people live within the urbanized areas of these three places but outside city limits.

To define rural as nonmetropolitan is unworkable in the context of this report. Defining entire counties as metropolitan or nonmetropolitan would mean that elders living on a farm 10 or 20 miles from one of Iowa’s large cities would be classed as “urban,” while an elder living in a town might be classed as “rural.” The Census Bureau’s rural/urban definitions are more useful for this study.
because they differentiate within counties to a finer degree. We therefore decided to use the Census Bureau's definitions, with one modification. Many of Iowa's larger towns have fixed-route transit systems, which are available to elders in these communities. A large number of communities over 2,500 ("urban" by the Census definition) do not have such fixed-route transit systems. To allow for this distinction, we used the following set of categories:

- **Census-rural.** Census definition—not in an urbanized area or place with a population over 2,500
- **Transit-rural.** In a place with a population over 2,500 but *without* a fixed-route transit system
- **Urban.** In a place over 2,500 *with* a fixed-route transit system

The concept of transit-rural was developed for this study because it is likely that people in towns with more than 2,500 residents would have different needs for transit than elders in towns of 2,500 or less. The use of transit services by census-rural residents will therefore be compared to that of transit-rural residents to determine if differences in need or use of transit do exist.

**TELEPHONE SURVEY OF RURAL ELDERS**

A telephone survey of a stratified, random sample of 800 rural Iowa elders helped us

- evaluate the mobility of rural elders using such measures as whether an elder has a driver's license or access to a vehicle;
- determine the distribution of trip purposes and frequency of trips taken by rural elders;
- determine the factors that predict which groups of rural elders are most likely to use transit services;
- evaluate knowledge and differences in attitude between transit users and nonusers regarding transit services;
- determine the use of health care services by rural elders; and
- determine the travel patterns of elders for receiving health care.

A full description of the sample and survey methods is given in Appendix A. A copy of the telephone survey is given in Appendix B.

**Data analysis**

The data were analyzed in three phases. First, age and gender distributions were computed to determine whether there was a response bias. Such a bias would bring into question whether the data could be generalized to all rural elders within the sample and the state. Second, the data were analyzed to describe the sample and level of transportation use. Third, analytic techniques were employed to determine the factors that predict elders' use of public transit and whether they had taken a trip the previous day.
The sample was found to reflect the population of all rural elders in Iowa. Differences between elders completing the telephone interview and those not completing the interview may result in a response bias. To determine the degree of bias within the data, distributions were completed comparing these two groups of elders on the basis of age, gender, and transit region of residence. No significant differences were found.

We employed univariate and multivariate analyses to determine which variables best predict the use of public transit and whether elders had taken a trip the previous day. A variety of factors were used, including age, gender, geographic location, living arrangement, health status, mental health status, and whether or not the elder had a driver's license. The analyses are discussed in detail in Chapter 4.

Limitations

A telephone survey presents certain limitations. First, only persons able to complete a telephone survey are included within the analyses. Therefore, those who are hard of hearing, cognitively impaired, or who have other problems precluding use of the phone are not included yet may very well require help with transportation. Second, only persons with telephones could be included within the sample, excluding from the study a small percentage of the population age 75 and over. Third, persons without an identifiable telephone number were excluded. This resulted in the loss of many individuals from the original random sample. Although the nonresponse bias tests indicated a representative final sample, these adjustments to our original sample may have biased the results in a way that is not easy to identify. The loss of those with hearing or health problems may bias the results of the telephone survey toward elders who are physically well.

SURVEY OF TRANSIT MANAGERS AND AAA DIRECTORS

A telephone survey of transit managers and directors of Iowa Area Agencies on Aging (AAAs) was conducted during July and August 1993 to shed light on the nature of transit service in rural Iowa. The questionnaire used in the surveys of transit managers and AAA directors appears in Appendix C.

Each of the 16 regional transit system managers was asked to participate in the study. Fifteen of the transit managers completed the telephone interview and one declined. Of the 13 AAA directors, 11 completed the telephone interview. One referred the questions to that region's transit agency and one of the AAAs actually operates the transit system in its region directly and is counted as a transit manager. Directors and managers were asked questions regarding the policies and funding history of the transit systems and how transit systems and AAAs coordinated their activities. They were also asked general questions regarding their future prospects for funding.
SUMMARY

In summary, we collected data for this study in the following manner.

- Eight hundred rural Iowa elders were surveyed by telephone to determine their transportation patterns, attitudes toward and use of transit services, travel to and use of health care services, and demographic characteristics. An additional 113 elders who had used transit were oversampled to improve our knowledge of elders’ use of transit services.

- We conducted telephone surveys of Iowa regional transit managers and of Iowa AAA directors. These surveys were used to determine the attitudes of transit managers and AAA directors regarding transit services for Iowa rural elders.
We begin our analysis of the role of transportation in access to health care by examining the changing numbers and locations of rural Iowa elders. We then focus on travel patterns of these rural elders, particularly their use of alternative transportation modes.

IOWA’S RURAL ELDERLY POPULATION

The number of elders in Iowa has been growing steadily for many decades, while the number of younger residents of the state peaked in the 1960s. Figure 3–1 shows that the number of younger (age 17 and under) Iowans has declined from about one million people in 1960 to just over 700,000 in 1990. By contrast, the number of Iowans age 65 and over grew to over 425,000 by 1990, nearly twice the absolute number in 1940.

Figure 3–1. Number of Iowans age 65 and over and age 17 and under, and percentage of population in each major age group, 1940–90

Iowa's population as a whole grew slowly until 1980, then fell from 1980 to 1990. The proportion of the state's population that is age 65 and over has grown significantly during these decades. In 1940, 9.0 percent of Iowans were age 65 and over; by 1990, this proportion had grown to 15.3 percent (Goudy and Burke 1991, p. 191).

**RURAL POPULATION TRENDS IN IOWA**

Like many other states, Iowa has become more urban in the last several decades. Table 3–1 shows how the proportions of the state's population that are urban and rural have changed since 1940. In 1990, 39.3 percent of Iowa's population lived in rural areas. Of Iowans age 65 and over, 41.6 percent lived in rural areas, a figure 2.3 percent higher than the overall state average.

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940</td>
<td>57.3</td>
<td>42.7</td>
</tr>
<tr>
<td>1950</td>
<td>52.3</td>
<td>47.7</td>
</tr>
<tr>
<td>1960</td>
<td>47.0</td>
<td>53.0</td>
</tr>
<tr>
<td>1970</td>
<td>42.8</td>
<td>57.2</td>
</tr>
<tr>
<td>1980</td>
<td>41.4</td>
<td>58.6</td>
</tr>
<tr>
<td>1990</td>
<td>39.3</td>
<td>60.7</td>
</tr>
</tbody>
</table>

**Table 3–1. Rural and urban share of total population, Iowa, 1940–90 (percent)**

*Sources: Goudy and Burke (1992, p. 27); Bureau of the Census (1992, Table 1).*

In 1990, 7.2 percent of all Iowans were age 75 and over. Elders are not uniformly located across the state, however. Figure 3–2 shows how the proportion of the population age 75 and over varies for only rural portions of counties. In these rural areas, the proportion of residents age 75 and over is less than 7.5 percent in about half of all Iowa's counties (Figure 3–2). Only 15 counties have proportions above 10 percent.

Figure 3–2 shows that higher proportions of elder Iowans are found in the rural areas of southern Iowa, along the Missouri border, and in western and north-central Iowa. In nine counties, people age 75 and over accounted for no more than five percent of the total population; these counties included most of the state's largest cities, such as Des Moines, Cedar Rapids, Davenport, and the university towns of Iowa City and Ames.

As one might expect, counties with relatively few elders age 75 and over often have quite low densities of elders, in terms of persons per square mile. This is also true in certain predominantly rural counties where the densities of all age groups is low. Figure 3–3 shows the population density of rural elders in Iowa counties. The lowest densities tend to be found in the south central and western portions of the state, largely in counties that are rural in character.
Figure 3-2. Proportion of residents age 75 and over in rural areas, 1990

SOURCE: Bureau of the Census (1992, Table 77).

Figure 3-3. Population density of rural elders age 75 and over

SOURCE: Bureau of the Census (1992, Table 77).
TRAVEL BY RURAL ELDERS

Travel by Iowa rural elders age 75 and over was studied using a telephone interview as described in Chapter 2.

Family support

Interviewers asked questions to determine how likely elders are to have someone else in their home who could provide a ride if the elder were unable to drive. Elders who were interviewed tended to fall into one of two main groups. As Table 3-2 shows, 376 rural elders (47 percent) lived in a household with no other family members present; 384 (48 percent) lived in a household with one other family member. Almost all of the rural elders who lived alone were widowed, representing 316 of the 376 people living alone. Similarly, almost all of those living in two-person households were married, 352 out of 384 people. Non-family support within the household was insignificant; only three of the 800 elders reported that they live with a non-family member.

Many of the questions posed to evaluate travel patterns of the elders had been used previously in the National Personal Transportation Survey (NPTS) conducted by the Federal Highway Administration (Research Triangle Institute 1991). In particular, the questions about “trips taken yesterday” had been used in the NPTS to characterize travel behavior.

Trip-making behavior of Iowa elders

Of the 800 telephone survey respondents, 536 (67 percent) reported having taken a trip on the previous day. A trip was defined as “any time you went from one place to another for any purpose.” The total number of trips taken by 536 rural elders was 1,581. Each of the rural elders who had taken any trips therefore made an average of 2.95 trips. (It is helpful to keep in mind that a journey from home to the grocery store and back would count as two trips.) For the entire group of 800 elders, including those who took no trips, the average number of trips taken the previous day was 1.98.

Rural Iowa elders make trips for a variety of reasons. Table 3–3 shows the distribution of trip purposes for all of the trips taken on the previous day. Trips made to return home at the end of a journey are excluded from this analysis.

Table 3–2. Number of respondents, by marital status and household size

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Number of other family members living with respondent</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3 or more</td>
<td>Refused</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>26</td>
<td>352</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>398</td>
</tr>
<tr>
<td>Widowed</td>
<td>316</td>
<td>26</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>354</td>
</tr>
<tr>
<td>Divorced or never married</td>
<td>30</td>
<td>26</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>Refused or don’t know</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>TOTAL</td>
<td>376</td>
<td>384</td>
<td>25</td>
<td>9</td>
<td>6</td>
<td>800</td>
</tr>
</tbody>
</table>
### Table 3-3. Previous day's trip purposes

<table>
<thead>
<tr>
<th>Trip purpose</th>
<th>Number</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other social/recreational</td>
<td>198</td>
<td>21.0%</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>168</td>
<td>17.9%</td>
</tr>
<tr>
<td>Other family or personal business</td>
<td>150</td>
<td>15.9%</td>
</tr>
<tr>
<td>Visit friends or relatives</td>
<td>93</td>
<td>9.9%</td>
</tr>
<tr>
<td>Other shopping</td>
<td>85</td>
<td>9.0%</td>
</tr>
<tr>
<td>Church</td>
<td>70</td>
<td>7.4%</td>
</tr>
<tr>
<td>Pleasure driving/along for ride</td>
<td>50</td>
<td>5.3%</td>
</tr>
<tr>
<td>Doctor</td>
<td>37</td>
<td>3.9%</td>
</tr>
<tr>
<td>To or from work</td>
<td>25</td>
<td>2.7%</td>
</tr>
<tr>
<td>Work-related business</td>
<td>32</td>
<td>3.4%</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
<td>2.3%</td>
</tr>
<tr>
<td>Dentist</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Vacation</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Refused to answer</td>
<td>7</td>
<td>0.7%</td>
</tr>
<tr>
<td>No reply</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>941</td>
<td>99.8%</td>
</tr>
</tbody>
</table>

**NOTE:** excludes trips taken to return home and seven trips for which no purpose was coded. Total does not add to 100 percent because of rounding.

Shopping was the most frequent reason reported for taking a trip. About 27 percent of all trips were for shopping purposes, of which two thirds were grocery shopping trips. Because many of the trips for “other family or personal business” include trips to post offices, banks and related destinations, the total share of shopping trips, broadly defined, is substantial. “Other social and recreational reasons” were also mentioned frequently. Visiting friends and relatives accounted for about ten percent of all trips.

About four percent of all trips reported by Iowa rural elders were trips to health care providers. A number of health-related trips could also be counted in other categories, such as trips to a pharmacist to purchase drugs.

Rural Iowans’ trip purposes generally correspond to those found in larger, national surveys. Table 3-4 compares trip purposes between this survey of Iowans age 75 and over and the 1990 National Personal Transportation Survey’s findings for Americans age 65 and over. The shares of trips taken to earn a living, for school or church, and for other reasons correspond closely. This sample of older Iowans tended to have a smaller proportion of trips for family and personal business and a higher proportion for social and recreational purposes, than did the national sample of Americans age 65 and over who lived in both rural and urban areas.

*Rural Elders: Location and Travel Patterns*
Table 3-4. Trip purposes, National Personal Transportation Survey, 1990, and survey of rural Iowa elders, 1993

<table>
<thead>
<tr>
<th>Year, survey, age group</th>
<th>Earning a living</th>
<th>Family and personal business</th>
<th>School or church</th>
<th>Social and recreational</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990, NPTS 65+ person tripsa</td>
<td>5.5%</td>
<td>57.2%</td>
<td>8.5%</td>
<td>27.3%</td>
<td>1.5%</td>
</tr>
<tr>
<td>1993, Iowa 75+ person trips</td>
<td>6.2%</td>
<td>47.6%</td>
<td>7.5%</td>
<td>36.7%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>

aHu and Young (1993, Table 4.10).

Transportation mode

The vast majority of trips by rural Iowans age 75 and over were taken in cars (Table 3-5). Private cars accounted for over 91 percent of all trips. Walking was also important, accounting for about seven percent of all trips. All other modes combined accounted for less than two percent of all trips. Only five of the reported trips used public transit.

Because such a large proportion of all trips are taken by car, the proportion varied only slightly for the different trip purposes. Figure 3-4 shows how the proportion of all trips taken by car and on foot varies for each major trip purpose. Trips for family and personal business represent about half of all trips; 93 percent

Table 3-5. Trip modes for all non-home trips

<table>
<thead>
<tr>
<th>Means of transportation used</th>
<th>Number</th>
<th>Percent of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private auto (includes station wagon, van or truck)</td>
<td>862</td>
<td>91.6%</td>
</tr>
<tr>
<td>Walking</td>
<td>60</td>
<td>6.4%</td>
</tr>
<tr>
<td>Refused to give mode</td>
<td>5</td>
<td>0.5%</td>
</tr>
<tr>
<td>Taxi</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>0.4%</td>
</tr>
<tr>
<td>Transit vehicle (includes bus, van or auto)</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>2</td>
<td>0.2%</td>
</tr>
<tr>
<td>Bus</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>RV or motor home</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Motorcycle</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Moped/motorized bike</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Airplane</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>No reply</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>941</td>
<td>99.9%</td>
</tr>
</tbody>
</table>

NOTE: Because of rounding, the total does not equal 100 percent. Trips taken to return home are excluded from this tabulation. Including such trips does not change the distribution materially. For example, the proportion of all trips including those made to return home taken by private auto was 91.46 percent and on foot was 6.64 percent.
of these trips were taken by car, and fully 98 percent were taken by car or on foot. Cars represent less than 90 percent of all trips only in the case of trips to church, but cars and walking still totaled 99 percent of all church trips.

While private cars are the dominant mode of transportation used by rural elders in Iowa, not all elders have the same access to private cars. We asked elders a number of questions about who owned and drove the car on yesterday’s trips to determine how independent automobile availability was. Table 3–6 summarizes the results of these questions.

Most private cars used for elders’ trips were vehicles owned by their household (87.1 percent of all private cars used). In most of these cases, the elder or his or her spouse drove the car on the trip. In about three quarters of all cases where a household vehicle was used, the elder drove the car (72.6 percent), and in
another 11 percent of cases, the spouse drove. In the remaining 16 percent of cases, a person other than the elder or their spouse drove the household vehicle on the trip in question. For a significant number of Iowa elders, having a car does not automatically mean that they always drive themselves when going on trips. It is unclear to what extent necessity played a role in determining whether elders involved another person in trips made using their own car.

More than half of the other people who drove elders’ vehicles on trips were family members (siblings, children, grandchildren) and less than half were neighbors or friends (Table 3-6). As might be expected, the largest two groups were children and friends, indicating the importance of close family and friends in helping elders remain mobile.

Some of these other drivers may be available to help elder Iowans simply because they live in the same household, so we asked for the residential location of these drivers. We were also interested in whether elders paid these other drivers, either in cash or in other ways. Table 3-7 summarizes the results. In large part, the other drivers did not live in the elder’s household (only 11 percent did) and the elder did not compensate them (only 17 percent gave any form of compensation, and only one third of those who did, gave cash). This seems to indicate that many elder Iowans have access to close family and friends who help them remain independent by driving them to various locations.

Table 3-6. Characteristics of vehicles and drivers for trips taken

<table>
<thead>
<tr>
<th>Trips taken where elder:</th>
<th>Number (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used private automobile</td>
<td>862 (91.6% of all trips)</td>
</tr>
<tr>
<td>of which, vehicle used was from elder's household</td>
<td>751 (87.1% of trips taken using autos)</td>
</tr>
<tr>
<td>of which, driver was</td>
<td></td>
</tr>
<tr>
<td>self</td>
<td>626 (72.6% of trips taken using autos)</td>
</tr>
<tr>
<td>spouse or partner</td>
<td>96 (11.1% of trips taken using autos)</td>
</tr>
<tr>
<td>other person</td>
<td>140 (16.2% of trips taken using autos)</td>
</tr>
<tr>
<td>of which, driver was</td>
<td></td>
</tr>
<tr>
<td>brother or sister</td>
<td>13 (9.3% of all other drivers)</td>
</tr>
<tr>
<td>son or daughter</td>
<td>60 (42.9% of all other drivers)</td>
</tr>
<tr>
<td>grandchild</td>
<td>5 (3.6% of all other drivers)</td>
</tr>
<tr>
<td>friend</td>
<td>43 (30.7% of all other drivers)</td>
</tr>
<tr>
<td>neighbor</td>
<td>7 (5.0% of all other drivers)</td>
</tr>
<tr>
<td>other</td>
<td>12 (8.6% of all other drivers)</td>
</tr>
</tbody>
</table>
Table 3-7. Residential location of other drivers and compensation arrangements for trips taken

<table>
<thead>
<tr>
<th>Trips taken where elder:</th>
<th>Number (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was driven by another person who was not a spouse of which,</td>
<td></td>
</tr>
<tr>
<td>number who lived in the elder’s household</td>
<td>16 (11.4% of total)</td>
</tr>
<tr>
<td>number who lived in another household</td>
<td>124 (88.6% of total)</td>
</tr>
<tr>
<td>and of which,</td>
<td></td>
</tr>
<tr>
<td>elder paid person with money for this ride</td>
<td>8 (5.7% of total)</td>
</tr>
<tr>
<td>elder paid person with food or other compensation</td>
<td>16 (11.4% of total)</td>
</tr>
<tr>
<td>elder did not pay or compensate person for ride</td>
<td>116 (82.9% of total)</td>
</tr>
</tbody>
</table>

CONCLUSIONS

The demographic data presented in this chapter document the fact that elders constitute a growing portion of Iowa’s population. In 15 of the state’s counties, persons age 75 and over constitute over ten percent of the total rural population. The data also show a major population shift in Iowa from rural areas to urban areas.

Elders are not distributed equally across Iowa’s counties, which raises important issues related to access to care. Elders living in rural areas have different needs than those living in metropolitan areas, and they often require special transportation solutions.

We studied the travel patterns of Iowa’s rural elders age 75 and over, using a telephone survey. Two thirds of the 800 elders interviewed had taken a trip of some sort the previous day. Shopping was the most frequent purpose; only about four percent of the total trips were made to obtain medical care. By far the most common transportation mode used was the automobile (92 percent). Public transportation of any form was used for less than one percent of all trips by the elders who were interviewed.
CHAPTER 4
CURRENT USE OF TRANSIT BY RURAL ELDERS

In this chapter, we examine the nature and extent of public transit use by rural elders in Iowa. While only a small percentage of trips by elders involve public transit, these trips are often very important to the traveler. We begin by examining factors that affect the mobility of rural elders, including driver’s licenses, vehicle availability, and functional health status. We then focus on the elders in our survey sample who had actually used public transportation during the past year.

MOBILITY

There are numerous factors that may influence the travel of rural elders generally, as well as their need for and use of public transit. These factors include:

- whether the elder has a driver’s license,
- the number and type of restrictions on the driver’s license,
- the number of vehicles available for regular use in the elder’s household, and
- the elder’s functional health status.

Licensed drivers

Seventy-seven percent of surveyed rural elders age 75 and over were licensed drivers (619 of the 800). Whether an elder had a driver’s license varied substantially by gender and age (see Table 4–1). Men, regardless of age, were more likely than women to have a driver’s license. Additionally, elders between the ages of 75 and 84 were more likely to have a license than those age 85 and over. In comparing across gender and age, the percentage of men licensed to drive drops from 94 percent for those between 75 and 84 years of age to 81 percent for those age 85 and over. This age effect is even stronger in women; it drops from 75 percent in women between 75 and 84 years of age to 49 percent in women age 85 and over. This discrepancy, a 13 percent drop in men compared

<table>
<thead>
<tr>
<th>Table 4–1. Driving license status by gender and age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women (n=500)</strong></td>
</tr>
<tr>
<td>75 to 84</td>
</tr>
<tr>
<td>Have a driver’s license</td>
</tr>
<tr>
<td>Only those who live alone:</td>
</tr>
<tr>
<td>Only those in transit-rural:</td>
</tr>
</tbody>
</table>
to a 26 percent drop in women, may indicate a cohort effect. National data indicate that women today age 75 and over are much more likely to be licensed to drive than women of this age were in the past. This is because many more women who were born prior to about 1910 never learned to drive when they were younger (Rosenbloom 1993).

Whether an elder had a driver's license varied by age and gender, but did not vary greatly by whether the elder lived alone or by the size of town in which the elder lived (transit-rural areas over 2,500 versus census-rural areas).

The licensing patterns in Iowa agree closely with national Federal Highway Administration (FHWA) data. Nationally, 66 percent of those age 70 and over are licensed to drive (Federal Highway Administration 1992, p. 32). As in Iowa, a much higher percentage of men are licensed in this age category than women. Eighty-eight percent of men age 70 and over are licensed drivers while only 53 percent of such women have a license. For both urban and rural areas in Iowa, Federal Highway Administration data indicate that 68 percent of Iowans age 70 and over have a license, which is about equal to the national average (Table 4-2). Iowa has a slightly higher percentage of women licensed than the national average and a slightly lower percentage of men.

The difference between our survey results and the Federal Highway Administration data in terms of the percentage of elders with a driver's license may be due to three factors:

- the population we surveyed represented only rural residents, who might have a greater need to be licensed drivers;
- the population we interviewed was slightly older (age 75 and over compared to age 70 and over); and
- only non-institutionalized elders were included in our survey.

Of the licensed rural elders in our survey, six percent were restricted to daytime driving (39 of 619), while less than two percent (10 of 619) had limits on how far they could drive from their home.

**Vehicle availability**

The vast majority of all Iowa elders surveyed (86 percent) had at least one car available to their household. Fifty-four percent (432 of 800) had one vehicle

<p>| Table 4–2. Number of licensed drivers and population age 70 and over in Iowa |
|-----------------------------|-----------------|----------------|</p>
<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number with driver's license over age 70(^a)</td>
<td>96,591</td>
<td>110,517</td>
</tr>
<tr>
<td>Number of people over age 70(^b)</td>
<td>112,969</td>
<td>190,683</td>
</tr>
<tr>
<td>Proportion of population with license</td>
<td>86%</td>
<td>58%</td>
</tr>
</tbody>
</table>

\(^a\) Data from Federal Highway Administration (1992, p. 33-34).

\(^b\) Data from Goudy and Burke (1991, pp. 176-179).
available, 26 percent (208 of 800) had two, and six percent (49 of the 800) had three or more vehicles available. Fourteen percent (110 of the 800) had no vehicles available to their household. Although not directly comparable, national data across all ages for 1990 indicate that nine percent of all households had no vehicles, 33 percent had one vehicle, 38 percent had two vehicles, and 20 percent had three or more vehicles (Hu and Young 1992, Table 4, p. 12).

As we found with driver’s license status, the number of vehicles available to a household varies by gender and age (Table 4–3). Women in both age categories were considerably more likely than men to have no car available to them. Comparing between age groups, men and women age 85 and over were considerably more likely to have no car available than their counterparts age 75 to 84. As was true with driver’s license status, men between the ages of 75 and 84 were the most likely to have a car available while women age 85 and over were the least likely to have a car available.

Unlike the findings for driver’s license status, the availability of a car varied by whether the elder lived alone and by the size of the town. The percentage of elders who did not have a car available to them increased for all women and for older men living alone. Almost all of the elders (91 percent) who reported that no car was available in their household lived alone. Looked at another way, fully 26 percent of all single-person households in the survey reported that they had no car available; whereas only 1.8 percent of the households with two family members had no car. This difference is important because almost half (47 percent) of all rural elders surveyed reported living alone.

**Functional health status**

The functional health status of elders obviously affects their ability to get around on a daily basis. Simply defined, functional health status is the ability to conduct normal daily activities. Rural elders were asked to think about the degree of difficulty they would have (no trouble, some trouble, or a lot of trouble) doing a series of activities if they had the time to complete them. These functional health status questions and the elders’ responses are reported in Figure 4–1.

Very few elders reported that they would have any difficulty taking their medication, eating, handling their money, dressing and undressing, or peeling an apple (five percent or less). A few more (16 percent) would have trouble

<table>
<thead>
<tr>
<th>Table 4–3. Automobile availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>No automobile available in household</td>
</tr>
<tr>
<td>Only those who live alone:</td>
</tr>
<tr>
<td>Only those in transit-rural:</td>
</tr>
</tbody>
</table>

NOTE: Numbers in parentheses represent the number of respondents of each gender and age group.
shopping and almost 30 percent would have some trouble doing housework or getting to places within walking distance. About half (55 percent) indicated they would have trouble walking one mile, while all but 16 percent would have trouble running the length of a football field. Responses about their ability to perform each task were then averaged into a functional health status score to rank the individuals according to their ability to function. On a scale of one to three, with one indicating no trouble completing the tasks and three indicating a lot of difficulty, the rural elders were relatively high functioning, averaging a score of 1.3. This functional health status score varied little by age or gender, as Table 4–4 shows.

Table 4–4. Average scores for functional health status, by gender and age

<table>
<thead>
<tr>
<th></th>
<th>Women (n=500)</th>
<th>Men (n=299)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75 to 84</td>
<td>85 and older</td>
</tr>
<tr>
<td>Functional health status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(average score)</td>
<td>1.38 (383)</td>
<td>1.48 (114)</td>
</tr>
<tr>
<td>Only those who live alone:</td>
<td>1.38 (216)</td>
<td>1.47 (84)</td>
</tr>
<tr>
<td>Only those in transit-rural:</td>
<td>1.40 (134)</td>
<td>1.48 (35)</td>
</tr>
</tbody>
</table>
The mental health status of elders is an important component of their health status and their ability to function; depression can significantly influence whether elders socialize or travel outside their home. We therefore tried to get a sense of mental health status by asking, “How often, in the past month, have you felt so down in the dumps that nothing could cheer you up?” Figure 4–2 shows that in this population of rural elders, almost four in ten elders (38 percent) reported that at some time in the past month they felt so down in the dumps that nothing could cheer them up.

**FREQUENCY (REGULARITY) OF USE OF TRANSIT SERVICES**

To further investigate the limited use of public transit by elders, we asked respondents about the extent to which they use transit, the types of trips they make using transit, and their attitudes toward it.

Each elder was first asked whether he or she had used transit services in the last year. Thirteen percent had taken at least one trip. Three percent reported that they used transit about once a week or more, one percent about once every two weeks, one percent about once a month, six percent a few times per year, and two percent about once a year.

Transit use varied by both age and gender, as Table 4–5 indicates. Women were more likely than men to have used transit in the last year, and women age 85 and over were more likely to have used transit in the past year than women between the ages of 75 and 84.

![Figure 4–2. Elders’ responses as to how often, during the past month, they felt so down in the dumps that nothing could cheer them up.](image)

Note: Twenty-nine elders out of 800 (3.6%) did not respond to this question.
Table 4-5. Use of transit in last year by gender, age, household size, and locality

<table>
<thead>
<tr>
<th></th>
<th>Women (n=500)</th>
<th>Men (n=299)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75 to 84</td>
<td>85 and older</td>
</tr>
<tr>
<td>Have used transit in the last year</td>
<td>14% (383)</td>
<td>25% (114)</td>
</tr>
<tr>
<td>Only those who live alone:</td>
<td>19% (215)</td>
<td>27% (83)</td>
</tr>
<tr>
<td>Only those in transit-rural:</td>
<td>24% (135)</td>
<td>33% (36)</td>
</tr>
</tbody>
</table>

Use of transit by women also varied by the size of town in which they lived (Table 4-5). Women in both age groups who lived in larger rural towns (transit-rural) were more likely to have used transit than those who lived in smaller rural towns. For men there was no sizable difference in use of transit based on the size of town in which they lived.

**KNOWLEDGE OF LOCAL TRANSIT SYSTEMS**

In Iowa, transit services are available in all parts of the state through the regional transit systems (a description of public transit services in Iowa is found in Appendix D). These services may not be available every day or to all locations, but transit services from a regional transit system are generally available to all elders in Iowa.

Over half of all rural elders who did not make a transit trip last year (52 percent) were not aware that transit services were available in their area. Knowledge of transit services did not vary as much by gender or age as did use of transit services, but women age 85 and over were less likely than elder women under 85 years to know about transit services in their area. Knowledge of transit services did vary substantially by the size of town in which the elder lived (Table 4-6). Seventy-six percent of women under age 85 who live in transit-rural areas were aware of transit services, compared to 49 percent of the males in this age group. The pattern was reversed for elders age 85 and over: 67 percent of the women and 75 percent of the men believed that transit service was available to them. Incidentally, almost all of the elders who were aware that transit services were available in their area believed they were eligible to use them (96 percent).

Table 4-6. Knowledge of public transit by elders who did not make a transit trip in the last year

<table>
<thead>
<tr>
<th></th>
<th>Women (n=376)</th>
<th>Men (n=252)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75 to 84</td>
<td>85 and older</td>
</tr>
<tr>
<td>Public transit is available to me</td>
<td>52% (301)</td>
<td>37% (75)</td>
</tr>
<tr>
<td>Only those who live alone:</td>
<td>48% (162)</td>
<td>31% (54)</td>
</tr>
<tr>
<td>Only those in transit-rural:</td>
<td>76% (98)</td>
<td>67% (21)</td>
</tr>
</tbody>
</table>
To evaluate transit trips in more detail, elders in the first sample of 800 elders were asked about transit trips they had taken in the last two weeks. Also, an additional 113 elders who had used transit in the last year were interviewed. Based on their responses, we found the two groups to be comparable in terms of demographic traits, which allowed us to combine the responses of the two groups of transit users to give a final sample of 216 elders who had used transit in the last year.

**TRANSIT TRIPS IN THE LAST 14 DAYS**

To estimate how often elders use transit, we asked those who reported having used transit in the last year how many transit trips they had taken in the past 14 days. We felt that a two-week period would yield more trips than simply asking about trips taken the previous day, yet it would be recent enough for elders to recall trips accurately. One third (33 percent) of those who had used transit in the last year had made a trip using transit in the 14 days prior to the interview. Most who had taken a trip “in the last two weeks” used transit more than once (70 percent). The other 30 percent of these people (21 of 71) made only one trip in this 14-day time period.

**Purpose of last transit trip**

To examine transit trips in more detail, elders were asked a series of questions about their last trip using the transit system. The distribution of reasons for taking a transit trip varied considerably from those for taking a trip the previous day (Table 4–7). Going to the doctor was the most common reason given for their last transit trip. Trips described as vacations by the elders ranked much higher among transit trips than among all trips taken by the elders, while other family or personal business ranked much lower.

**Distance traveled**

Many of the transit trips taken by elders were of very short distance. Forty-five percent of all transit trips were one mile or less. Sixty-five percent were 10 miles or less. Twenty-five percent, however, were for a distance of 50 miles or more, and 19 percent were 100 miles or more.² Twenty-three percent of the trips (n=47) were to a different county, while 22 percent were to a different state (n=44).

In addition to questions related to transit use, we asked our respondents a series of questions about their reliance on transit, attitudes toward services offered, and willingness to pay for these services.

**Reliance on transit**

Many elders who used transit indicated that they were very dependent on transit for travel to their most recent destination. Referring to their last transit trip, over

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²We think that many of these longer trips were on private bus carriers, often to other states for vacations and visits
one third indicated they would not have been able to take that trip if transit had not been available (Table 4–8). The people who relied on transit the most appeared to have less support at home. Only one percent of the elders who used transit could have been driven by a spouse instead. Only 16 percent of elders would have driven themselves if transit had not been available.

Table 4–7. Purposes of most recent transit trip and of all trips

<table>
<thead>
<tr>
<th>Trip purpose</th>
<th>Number</th>
<th>Percent of total transit trips</th>
<th>Rank among transit trips</th>
<th>Percent of total trips taken yesterday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor</td>
<td>38</td>
<td>17.6%</td>
<td>1</td>
<td>3.9%</td>
</tr>
<tr>
<td>Other social/recreational</td>
<td>34</td>
<td>15.7%</td>
<td>2</td>
<td>21.0%</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>30</td>
<td>13.9%</td>
<td>3</td>
<td>17.9%</td>
</tr>
<tr>
<td>Visit friends or relatives</td>
<td>22</td>
<td>10.2%</td>
<td>4</td>
<td>9.9%</td>
</tr>
<tr>
<td>Other</td>
<td>20</td>
<td>9.3%</td>
<td>5</td>
<td>2.3%</td>
</tr>
<tr>
<td>Vacation</td>
<td>17</td>
<td>7.9%</td>
<td>6</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other shopping</td>
<td>13</td>
<td>6.0%</td>
<td>7</td>
<td>9.0%</td>
</tr>
<tr>
<td>Pleasure driving/along for ride</td>
<td>12</td>
<td>5.6%</td>
<td>7</td>
<td>5.3%</td>
</tr>
<tr>
<td>Other family or personal business</td>
<td>12</td>
<td>5.6%</td>
<td>7</td>
<td>15.9%</td>
</tr>
<tr>
<td>Work-related business</td>
<td>4</td>
<td>1.9%</td>
<td>10</td>
<td>3.4%</td>
</tr>
<tr>
<td>To or from work</td>
<td>2</td>
<td>0.9%</td>
<td>11</td>
<td>2.7%</td>
</tr>
<tr>
<td>Church</td>
<td>1</td>
<td>0.5%</td>
<td>11</td>
<td>7.4%</td>
</tr>
<tr>
<td>Dentist</td>
<td>1</td>
<td>0.5%</td>
<td>11</td>
<td>0.2%</td>
</tr>
<tr>
<td>Refused to answer</td>
<td>10</td>
<td>4.6%</td>
<td>7</td>
<td>0.7%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>216</td>
<td>100.2%</td>
<td>99.7%</td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Total does not add to 100 percent because of rounding.

Table 4–8. Rural elders’ options if transit system had not been available for last transit trip

<table>
<thead>
<tr>
<th>Other option</th>
<th>Percent (number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would not have gone</td>
<td>38% (75)</td>
</tr>
<tr>
<td>Been driven by other relative</td>
<td>19% (38)</td>
</tr>
<tr>
<td>Driven self</td>
<td>16% (31)</td>
</tr>
<tr>
<td>Been driven by friend or neighbor</td>
<td>18% (35)</td>
</tr>
<tr>
<td>Been driven by spouse</td>
<td>1% (2)</td>
</tr>
</tbody>
</table>
Attitudes toward transit

To determine rural elders' attitudes toward regional transit systems, the elders were read a series of 12 statements concerning use of the transit system and were asked whether they agreed, disagreed, or had no opinion about each of the statements. Table 4–9 presents their responses.

The vast majority of elders who reported having taken a transit trip in the last year had generally positive attitudes about the local transit system. Ninety-three percent of transit users believed that public transit was safe, 88 percent felt that it was usually dependable, and 90 percent thought the drivers were courteous to older adults. About one in six (17 percent), however, thought that transit trips were too expensive, and about one in five indicated it was hard for them to get on and off the vehicles.

The perceived effect of transit on elders' independence was very positive. Eighty percent said that having transit services available made them feel more independent. Some did, however, express concern over the convenience of transit. Forty percent indicated that they could not make a trip when they wanted using public transit. More than one in four users reported that they had to call too far in advance to schedule a trip, and 13 percent thought public transit trips take too long.

The fact that they cannot always select whom they travel with on public transit did not seem to be a problem for most elders. Only 12 percent indicated that some of the other riders on public transit make them feel uncomfortable.

<table>
<thead>
<tr>
<th>Statement about transit</th>
<th>Agree</th>
<th>No opinion</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel public transit is safe</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>Public transit is usually dependable</td>
<td>88%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>Public transit drivers are courteous to older adults</td>
<td>90%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Public transit trips cost me too much</td>
<td>17%</td>
<td>14%</td>
<td>69%</td>
</tr>
<tr>
<td>It's hard for me to get on and off a public transit vehicle</td>
<td>22%</td>
<td>6%</td>
<td>72%</td>
</tr>
<tr>
<td>I have to call too far in advance to schedule a trip on public transit</td>
<td>27%</td>
<td>13%</td>
<td>61%</td>
</tr>
<tr>
<td>Public transit trips take too long</td>
<td>13%</td>
<td>9%</td>
<td>79%</td>
</tr>
<tr>
<td>I can't make a trip when I want using public transit</td>
<td>41%</td>
<td>21%</td>
<td>39%</td>
</tr>
<tr>
<td>Having public transit available to me makes me feel more independent</td>
<td>80%</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Some riders on public transit make me feel uncomfortable</td>
<td>12%</td>
<td>10%</td>
<td>79%</td>
</tr>
</tbody>
</table>

Table 4–9. Attitudes toward the transit system, rural Iowa elders who had used transit in the last year
We compared the attitudes of transit users regarding concern for the transportation needs of others and preference for paying a friend rather than taking transit. Two thirds of the elders who had used transit in the last year disagreed with the statement “I do not use public transit because I think there are others who need it more than I do,” versus only one fourth of nonusers (Table 4–10). Over half of the transit users compared to about one fourth of nonusers disagreed with the statement, “I would rather pay a friend or relative to drive me than take public transit.”

<table>
<thead>
<tr>
<th>Statement about transit</th>
<th>Transit users</th>
<th>Nonusers</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do not use public transit because I think there are others who need it more than I do</td>
<td>16% 18% 66%</td>
<td>24% 52% 25%</td>
</tr>
<tr>
<td>I would rather pay a friend or relative to drive me than take public transit</td>
<td>28% 19% 53%</td>
<td>28% 46% 27%</td>
</tr>
</tbody>
</table>

**Willingness to pay for more transit services**

To determine rural elders’ willingness to pay for additional transit services, we asked elders whether they would be willing to pay higher taxes to support more transit services. Twenty-six percent of elders were willing to pay $50 per year in higher taxes to have more public transit rides for elders in their area. Of those not willing to pay $50, 14 percent were willing to pay $25 per year for more transit services for elders in their area. Therefore, less than half of the rural elders were willing to pay even $25 more per year in taxes to increase the availability of transit. These “willingness to pay” responses are one indication of the relative value of additional transit services to our respondents.

**MODELING PUBLIC TRANSIT USE AND TRIP BEHAVIOR**

We developed a regression model to predict who were the most likely rural elders to use transit services. A parallel analysis was conducted to determine factors related to whether an elder took a trip during the previous day. Factors that enter into both of these analyses include demographics (age, gender, whether living alone), functional health status, driver’s license status, and mental health status.

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3 The survey revealed that only 3.5 percent (28 respondents) wanted to make a trip within the previous 14 days but were unable to due to lack of transportation.
Definition of variables

**Dependent variables:** Two distinct dichotomous dependent variables were used: a variable indicating whether the elder has ever used transit services and another indicating whether the elder took a trip the previous day.

- **Used public transit.** Elders were asked to indicate the frequency with which they use transit services. Responses ranged from never to more than once per week. These responses were recoded into a dichotomous variable with “never” recoded as zero and one or more trips recoded as one.

- **Took a trip yesterday.** Elders were asked to indicate whether they had taken a trip during the previous day, regardless of mode. The responses are coded as zero (did not take a trip) and one (did take a trip).

**Independent variables:** Seven variables were entered into the regression equation to determine factors related to transit use and trip taking on the previous day.

- **Age.** The elder’s birth date was taken from the Medicare files, and age in years was calculated based on the day when the person was drawn for the sample.

- **Functional health status.** The FASE (Functional Assessment Screening Evaluation) was used to determine the functional health status of surveyed elders. It was developed by researchers at the University of Iowa and has proven to be reliable and valid in past studies. FASE values range from one (high health status) to three (low health status).

- **Driver’s license status.** Elders were asked whether they currently hold a valid driver’s license. The responses were coded as zero (no license) and one (possess a license).

- **Automobile availability.** Elders were asked how many cars were available in their homes. This was recoded to be a dichotomous variable indicating whether or not a car was available (zero if no car was available and one if one or more cars were available).4

- **Living arrangement.** Elders were asked how many people were living in their household. This was recoded as a dichotomous variable indicating whether there were others in the household (zero if the person lived alone and one if someone was living with him or her).

- **Gender.** The gender of the elder interviewed was determined and was coded zero for females and one for males.

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4Preliminary regression analyses indicated that automobile availability was highly related to having a driver’s license and could not add additional information to the model. Therefore, automobile availability was removed from the analysis.
• **Income.** A series of questions were posed to estimate the elder’s net income for 1992.\(^5\)

• **Mental health status.** Mental health status of the elders was assessed by asking how often they felt “down in the dums” within the last month. The responses ranged from one (all of the time) to six (none of the time).

• **Geographic location.** An elder’s geographic location was coded as zero if he or she lived in a census-rural area and one if he or she lived in a transit-rural area.

**General transportation need model**

The following model was estimated using logistic regression techniques to predict use of public transit services.

\[
\text{Used public transit} = f(\text{intercept} + \text{functional status} + \text{driver’s license} + \text{gender} + \text{mental health status} + \text{living arrangement} + \text{geographic location})
\]

An adaptation of this model was used to predict whether the elder had taken a trip in the previous day. The results of these analyses are provided below.

The data analysis proceeded in three phases. First, we developed a table of descriptive statistics for the variables used in the model. Second, we developed a correlation matrix to determine whether there would be a problem with collinearity between any of the independent variables. Third, we estimated both of the logistic regression models.

Table 4–11 outlines the mean and standard deviation for all variables used in the model except automobile availability and income. The descriptive statistics indicate that the typical sample respondent had a driver’s license and was female, 80 years old, and in fairly good health. Inspection of Table 4–12 reveals that none of the independent variables is particularly highly correlated with other independent variables.

**Logistic regression analysis: public transit use**

We performed multiple logistic regression analysis to determine factors related to public transit use. The results of the logistic regression are shown in Table 4–13.

Results of these analyses indicate that having a driver’s license (odds of transit use = 0.531) and living alone (odds of transit use = 0.463) were important predictors of transit use. An odds ratio approximates how much more likely it is for a person to have taken, for example, a transit trip, if the value of driver’s license equals one. So a log odds ratio of 0.531 indicates that a person with a

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\(^{5}\)Because the rate of missing data on this variable was over 30 percent, it was eliminated.
Table 4-11. Descriptive statistics for logistic regression variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used public transit (0=no, 1=yes)</td>
<td>0.130</td>
<td>0.337</td>
</tr>
<tr>
<td>Took a trip yesterday (0=no, 1=yes)</td>
<td>0.670</td>
<td>0.471</td>
</tr>
<tr>
<td>Have a driver’s license (0=no, 1=yes)</td>
<td>0.774</td>
<td>0.419</td>
</tr>
<tr>
<td>Gender (0=female, 1=male)</td>
<td>0.374</td>
<td>0.484</td>
</tr>
<tr>
<td>Age</td>
<td>80.86</td>
<td>4.47</td>
</tr>
<tr>
<td>Living arrangement (0=alone, 1=not alone)</td>
<td>0.529</td>
<td>0.499</td>
</tr>
<tr>
<td>Geographic location (0=census-rural, 1=transit-rural)</td>
<td>0.324</td>
<td>0.468</td>
</tr>
<tr>
<td>Functional health status</td>
<td>1.327</td>
<td>0.482</td>
</tr>
<tr>
<td>Mental health status</td>
<td>5.389</td>
<td>0.989</td>
</tr>
</tbody>
</table>

Table 4-12. Correlation matrix for model variables

<table>
<thead>
<tr>
<th>Driver’s license</th>
<th>Mental health status</th>
<th>Gender</th>
<th>Age</th>
<th>Functional health status</th>
<th>Living arrangement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0000</td>
<td>-0.1457</td>
<td>0.0801</td>
<td>1.0000</td>
<td>-0.2640</td>
<td>-0.1643</td>
</tr>
<tr>
<td>-0.1457</td>
<td>1.0000</td>
<td></td>
<td></td>
<td>-0.2640</td>
<td>-0.1643</td>
</tr>
<tr>
<td>0.0801</td>
<td>-0.2640</td>
<td>1.0000</td>
<td></td>
<td>-0.2640</td>
<td>-0.1643</td>
</tr>
<tr>
<td>1.0000</td>
<td>-0.2640</td>
<td>-0.2640</td>
<td>1.0000</td>
<td>0.2570</td>
<td>-0.0595</td>
</tr>
<tr>
<td>-0.0410</td>
<td>0.2251</td>
<td></td>
<td></td>
<td>-0.1643</td>
<td>-0.0595</td>
</tr>
<tr>
<td>-0.0878</td>
<td>-0.0410</td>
<td>-0.0878</td>
<td>1.0000</td>
<td>0.2570</td>
<td>-0.0595</td>
</tr>
<tr>
<td>0.1426</td>
<td>-0.1558</td>
<td>-0.1558</td>
<td>1.0000</td>
<td>0.2570</td>
<td>-0.0595</td>
</tr>
<tr>
<td>-0.1712</td>
<td>-0.1712</td>
<td>-0.1712</td>
<td>-0.0595</td>
<td>1.0000</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-13. Logistic regression statistics predicting use of public transit

<table>
<thead>
<tr>
<th>Variable</th>
<th>Logistic regression coefficient</th>
<th>Odds of using public transit</th>
<th>Standard error of the coefficient</th>
<th>Upper bound, 95% confidence interval</th>
<th>Lower bound, 95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver’s license</td>
<td>-0.632*</td>
<td>0.531</td>
<td>0.258</td>
<td>0.882</td>
<td>0.320</td>
</tr>
<tr>
<td>Mental health</td>
<td>-0.031</td>
<td>0.970</td>
<td>0.111</td>
<td>1.205</td>
<td>0.781</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.329</td>
<td>0.720</td>
<td>0.277</td>
<td>1.239</td>
<td>0.418</td>
</tr>
<tr>
<td>Age</td>
<td>0.020</td>
<td>1.021</td>
<td>0.024</td>
<td>1.070</td>
<td>0.973</td>
</tr>
<tr>
<td>Functional health status</td>
<td>-0.170</td>
<td>0.844</td>
<td>0.241</td>
<td>1.353</td>
<td>0.526</td>
</tr>
<tr>
<td>Living arrangement</td>
<td>-0.771*</td>
<td>0.463</td>
<td>0.246</td>
<td>0.749</td>
<td>0.286</td>
</tr>
<tr>
<td>Geographic location</td>
<td>-0.238</td>
<td>0.788</td>
<td>0.249</td>
<td>1.283</td>
<td>0.484</td>
</tr>
</tbody>
</table>

*Statistically significant at the 0.05 level.
driver's license was only 53 percent as likely to have taken a trip as someone without a driver's license, all other factors held constant (see Hosmer and Lemeshow 1989, pp. 38–47). This analysis indicates in particular that an elder with a driver's license is about half as likely to use public transit as one without a driver’s license. Elders who live with someone else are approximately 54 percent less likely to use transit than those who live alone. It is interesting to note that these variables were important even when controlling for factors normally associated with greater transit use, such as age and functional health status.

**Logistic regression analysis: trip taken during the previous day**

We used multiple logistic regression analysis to determine factors related to whether an elder had taken a trip the previous day. The results of the logistic regression are shown in Table 4–14.

Results indicate that driver’s license status and living arrangement, although important in predicting use of public transit, were not important predictors of whether an elder had taken a trip the previous day. Rather, mental health status and age were important predictors of whether an elder had taken a trip the previous day. These relationships suggest that elders who rate themselves as having been “down in the dumps” within the last month are less likely to have taken a trip than those who do not rate themselves as having been “down in the dumps.” Additionally, elders who are older are less likely to have taken a trip the previous day than those in younger age groups.

| Table 4–14. Logistic regression statistics predicting whether elder took a trip yesterday |
|-----------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Driver’s license                             | 0.274           | 1.315           | 0.205           | 1.967           | 0.880           |
| Mental health                                | 0.221*          | 1.247           | 0.081           | 1.462           | 1.065           |
| Gender                                        | -0.077          | 0.926           | 0.183           | 1.326           | 0.647           |
| Age                                           | -0.091*         | 0.913           | 0.018           | 0.946           | 0.882           |
| Health status                                | -0.021          | 0.979           | 0.172           | 1.371           | 0.699           |
| Living arrangement                           | 0.151           | 1.163           | 0.173           | 1.633           | 0.829           |
| Geographic location                          | 0.215           | 1.239           | 0.174           | 1.743           | 0.881           |

*Statistically significant at the 0.05 level.
CONCLUSIONS

Although less than 20 percent of the surveyed rural elders age 75 and over reported having used transit services in the last year, it is an important mode of transportation for those who do use transit. Rural elders who use transit are more likely to be older women living in transit-rural areas. Additionally, the reasons given for transit trips varied from those given for trips generally taken by rural elders. While the single most common general trip purpose was for social/recreational activities, the single most common trip purpose on transit was for trips to the doctor.

We also investigated the attitudes of rural elders toward transit services. Generally, rural elders who had used transit gave it high ratings in terms of safety, dependability, and courtesy. Their ratings were lower, however, with respect to convenience; one quarter indicated they had to call too far in advance.

Age and mental health status of the elder were found to be significant factors determining whether an elder took a trip outside the home. Age is a significant factor, even when controlling for whether an elder has a driver’s license. This indicates that there are factors beyond having a driver’s license (such as, perhaps fewer friends) that affect whether an elder leaves home. The mental health status of the individual is a more subtle factor, affecting interest in leaving or willingness to leave the house. Nearly one third of the elders reported feeling so “down in the dumps” in the past month that nothing could cheer them up.

Elders who did not have a driver’s license and those who lived alone were the ones more likely to have used the transit system in the last year. Driver’s license status and living arrangement both varied considerably by age and gender; older women were the least likely to have a driver’s license or to have someone living with them and were also the most likely to have used transit.
CHAPTER 5

PROVIDERS OF TRANSIT TO RURAL ELDERS

In previous chapters we focused on rural elders and their perceptions and use of transit. We now turn to an analysis of the transit services available to rural elders. The provision of transit services to rural elders in Iowa is the responsibility of both regional transit managers and directors of the regional Area Agencies on Aging (AAAs). The AAAs are responsible for providing much of the contract support for transit for rural Iowa elders, while the transit managers are responsible for decisions regarding the delivery of these services. Telephone interviews were conducted with transit managers and AAA directors to determine their perceptions regarding transit for rural elders, the focus of this chapter. Information about Iowa's 16 rural transit systems is presented in Appendix D.

AVAILABILITY OF TRANSIT SERVICES TO RURAL ELDERS

All of the transit managers and all of the AAA directors surveyed indicated that the AAA in their region funded transit services for rural elders. All of the transit managers and all but one of the AAA directors also believed that there are a significant number of rural elders who need transit services and are not now receiving them. The transit managers and AAA directors who indicated there was unmet need for transit (12 transit managers and ten AAA directors) were then read a series of possible reasons why rural elders may not be receiving transit services (Table 5-1).

Almost all of the transit managers and AAA directors reported that the lack of knowledge that transit services exist was a reason why rural elders may not be receiving transit services. In a slightly different approach to the same issue, AAA directors were asked if most rural elders are aware of local transit services.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Transit Managers</th>
<th>AAA Directors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural elders do not know that transit is available</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>It is hard for transit systems to identify riders who need service</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Transit systems are limited by a lack of funding for rural transit</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Rural elders make health care appointments without regard to transit schedules</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Transit systems have too few trained drivers</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Liability concerns for transit operators limit some kinds of trips</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Transit systems have too few appropriate buses or vans</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

NOTE: Number agreeing is out of a total of 15 transit managers and 10 AAA directors.
Those who responded were split; five agreed that most rural elders are aware of such services and four disagreed.

The next two most common reasons identified by both the transit managers and the AAA directors were the difficulty transit systems have identifying riders who need service and the limited funding for rural transit. Of slightly greater importance to the transit managers but also of importance to the AAA directors is that rural elders tend to make health care appointments without regard to transit schedules. Less frequently cited problems included the number of trained drivers, liability concerns, or the number of appropriate vans or buses available.

PRIORITIZATION OF TRANSIT RIDES

An important issue related to access is whether transit rides paid for by the Area Agencies on Aging are prioritized based on trip purpose. If AAAs or the transit agencies are allocating rides based on the purpose of the trip, this would affect the degree to which elders use the service. AAA directors and transit managers, however, did not always agree on the amount of prioritization that was occurring. For those regions prioritizing rides, the highest priority for AAA-supported rides was for health care, grocery shopping, and travel to a congregate meal site, while trips for social and recreational purposes were of lowest priority.

Five of the transit managers indicated that they were prioritizing trips paid for by the AAAs and that health care was the trip purpose given highest priority. Two of the five also indicated that grocery shopping and travel to a congregate meal site are given high priority. Two transit agencies gave lowest priority to social, recreational or travel for pleasure, while one of the five indicated that work trips, work-related business, other shopping, church or school, vacation, or trips to friends and family have low priority. Only one transit manager reported that their system prioritizes trips for the general public, just as they do rides paid for by the AAAs.

AAA directors believed that more prioritization of trips was occurring than did the transit managers. Eight of the 11 AAA directors believed transit trips for rural elders paid for by their agencies were being prioritized. All eight indicated that they gave health care trips the highest priority, while five of these also believed grocery shopping and congregate meal site trips were a high priority. One manager indicated other shopping was also given a high priority.

LEVEL OF COORDINATION

Coordination of activities between the AAAs and the transit agencies was evaluated by asking about their perception of the quality of coordination within their region. The transit managers generally felt better about the level of the coordination than did the AAAs. Thirteen of the 15 transit managers believed they had good coordination with their local AAA. Two thought their coordination was fair. The transit managers were also asked to compare their coordination with their regional AAA to their coordination with other agencies for whom they
provide transit services. Two managers thought the coordination was better than with other agencies, 12 said it was the same, and one was unsure.

By comparison, six of the 11 responding AAA directors believed the coordination with their local transit agency was good, one said it was fair to good, and three thought it was fair; one director reported that the coordination was poor. When compared to coordination with other contractors from whom they purchase services, two AAA directors thought it was better than with other contractors, six about the same, and three thought it was worse.

Flexibility in providing services under AAA contracts was of greater concern to AAA directors surveyed than to the transit managers. Seven transit managers but only one AAA director agreed with the statement “transit systems have enough day-to-day flexibility in delivering services to the rural elders under an AAA contract.” Five transit managers and nine AAA directors disagreed; two transit managers and one AAA director had no opinion.

BUDGETARY EFFECTS ON TRANSIT SERVICES

During fiscal year 1993, some of the transit systems were forced to limit or stop altogether the transit services to rural elders because of budgetary constraints. Three of the 15 transit managers and four of the ten responding AAA directors indicated that “changes were made” in the services provided to rural elders in FY 1993 because of a lack of funding in the AAA contract. Budgetary constraints for services to rural elders were not limited to the AAA contracts, however. Two transit regions also had to change their provision of services to rural elders that were not funded by AAAs because of a lack of FY 1993 funds. The relationship between AAA funding and the provision of transit services to rural elders was explored further from both perspectives.

According to the transit managers, AAA contracts are declining as a proportion of the total annual budgets of transit agencies. When asked about funding over the last two years, eight of the transit managers indicated that the proportion of their total annual budgets coming from AAA contracts declined (five declined “somewhat,” three “significantly”). Four managers said the proportion stayed about the same over the past two years, while two reported increases.

Six AAAs indicated that the proportion of their budget going to transit has remained the same, while five reported that it has increased somewhat. Any such increase must naturally compete with other services for funding.

We asked transit managers for the approximate percentage of the actual cost of rides to rural elders that was paid for by the AAA. The percentage of the total cost varied substantially from nine percent to 67 percent, with a median of 33 percent.

When asked about funding over the last five years for rural transit generally, there was not a consistent indication that funding levels have changed across the regions. In response to the statement, “funding for transit for rural elders has significantly decreased over the last five years,” seven of the 15 transit managers
and five of the 11 responding AAA directors agreed. However, seven transit managers and three AAA directors disagreed.

A majority of all respondents considered AAA funding for transit services to be important for providing services to rural elders. All but one of the AAA directors and 11 of the 15 transit managers disagreed with the statement, “if an AAA eliminated transit funding, it would not affect many rural elders.” When asked if the AAAs have a responsibility to fund transportation for rural elders, the responding AAA directors were mixed, with four saying they do have a responsibility, three saying they do not, and one indicating “no opinion.”

Regarding adequacy of payment for transit by the AAAs, all 11 AAA directors agreed with the statement that “AAAs pay their fair share of the cost of providing rural transit to the elderly.” The transit managers were mixed, however; six agreed that AAAs pay their fair share and eight disagreed. On the other hand, AAA directors did not believe that transit systems were as efficient providers of services as the transit managers reported. In response to the statement “transit systems are efficient providers of services to rural elders,” ten of the 14 responding transit managers agreed; however, only three of the nine responding AAA directors agreed.

Transit managers indicated few likely prospects for increasing funds for transit services to rural elders. Managers were read a list of six different sources of transit funding and asked what potential these sources held for expanding elderly transit services in the future (Table 5-2).

None of the six options were rated as having high potential by more than two of the transit managers. Fares and public private partnerships were attributed the most potential for increase; nine managers rated them as having either high or medium potential for growth.

Even if more money were available, there is no clear indication of whether the systems could attract more rural elderly riders. When read the statement “if funding to expand services for rural elders was available, transit systems could attract new riders,” only seven of the 15 transit managers and five of the 11 AAA directors agreed.

### Table 5-2. Funding sources and their perceived potential for expanding rural elderly transportation services in the future

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>High potential</th>
<th>Medium potential</th>
<th>Low potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA contract</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Medicaid revenue (Title 19)</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Other contracts</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Local operating subsidies</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Farebox revenue</td>
<td>2</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Public-private partnerships such as grocery shuttles</td>
<td>2</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
When asked whether “providing additional transit services to rural elders would require transit systems to provide less service to others,” five of the 15 transit managers and four of the nine AAA directors agreed that it would. This seems to indicate that some transit managers and AAA directors feel they have limited capacity which must be divided among various populations and services, at least in the short term.

CONCLUSIONS

In this chapter we examined the attitudes and perspectives of the primary funding agencies and providers of transit to rural elders, namely AAA directors and regional transit managers. Results of our survey indicate that both groups believe that there is unmet need for transit services and that elders may not be using transit services because they are not aware that such services exist. In comparing these results with the responses of elders, it is interesting to note that elders did not indicate that they had an unmet need for transit services. However, nearly half of those who had not used transit services were not aware that they were available.

While AAA funding is generally believed to be important for providing transit services to rural elders, the level of funding for transit services by the AAAs is generally viewed as either having stayed about the same or having declined in recent years. This corresponds with transit managers’ perception that AAA funding represents a smaller percentage of the transit systems’ budgets than in the past. Few options were given much potential for increasing funding for rural elders in the future.
Access to health care services in many rural areas of Iowa is a significant concern. Because elders account for a considerable portion of the population in rural areas and because they have greater health care needs, access to health care for rural elders is of particular importance.

As mentioned previously, how a population uses health care services is one indication of the population's access to those services. In the telephone survey, rural elders were asked a series of questions about their use of health care services including whether they had a regular source of care, the types of doctors (primary care or specialists) seen in the previous month, how far they traveled, how they got there, and how they would have gotten there if the mode of travel used had not been available. We also inquired about their use of other health care providers in the past month, and asked other non-transportation related questions about their access to health care.

MEDICAL CARE

Ninety-five percent of the elders reported that they have a regular source of medical care. This compares favorably with recently published national data from 1987 which indicate that 90 percent of the rural elders reported having a regular source of care (Taylor et al. 1993, Figure 37, p. 47). Of those rural elders with a regular source of care, the most frequent source reported (see Table 6-1) was their family physician (62 percent). The second most common regular source of care was a hospital outpatient clinic (20 percent).

<table>
<thead>
<tr>
<th>Location of regular source of care</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family physician's office</td>
<td>62%</td>
</tr>
<tr>
<td>Hospital outpatient clinic</td>
<td>20%</td>
</tr>
<tr>
<td>Community health center</td>
<td>8%</td>
</tr>
<tr>
<td>Physician specialist's office</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
</tr>
</tbody>
</table>

Fifty-five percent of rural elder respondents (n=434) had visited a physician in the month prior to the survey. Two thirds of those who had visited a physician had been to only one physician while the other third had been to at least two different physicians. Almost 80 percent (79.3 percent) of those who had been to see their physician in the last month made at least one visit to their family practice or general practice physician, while 36 percent made at least one visit to their specialist physician.
The lack of transportation very rarely was found to be a barrier to receiving health care for rural elders. Less than two percent indicated that the lack of transportation either delayed or stopped them from receiving care in the last year.

Rural elders were asked a series of questions about factors that may have limited their ability to receive health care in the past and whether any of these ever caused them to delay getting care or stopped them from receiving care. Specifically, elders were read the following statements and asked if each had caused them to delay care or stopped them from receiving care in the last year.

- You could not find a health care provider when you needed one.
- The doctor would not take Medicare patients.
- You did not know where to go at night or on the weekend for medical care.
- You could not get to your doctor during regular office hours.
- You did not know where to go for an emergency.
- You could not afford to receive the care.
- Staff at your doctor's office were discourteous.

Elders reported none of the above as significant barriers to access. No more than three percent responded that any of these delayed or stopped them from receiving care in the last year.

**DENTAL CARE**

In addition to medical care, respondents were asked a series of questions about their oral health status and dental care.

Most rural elders perceived their oral health to be generally good. Eighty percent believed that their oral health was good, very good, or excellent. Only 20 percent thought their oral health was either fair or poor.

Rural elders were much less likely, however, to have a regular source of dental care than medical care. Only 68 percent of respondents reported that they had a regular source of dental care. A much lower percentage of respondents indicated that they were regular users of dental care (Table 6–2). About 40 percent reported that they visit the dentist regularly. About one in four indicated they go to the dentist only when they have a problem or rarely.

<table>
<thead>
<tr>
<th>Frequency of visits to dentist</th>
<th>Percent</th>
<th>(number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularly (at least once a year)</td>
<td>42%</td>
<td>(332)</td>
</tr>
<tr>
<td>Occasionally</td>
<td>7%</td>
<td>(57)</td>
</tr>
<tr>
<td>Only when you have a problem</td>
<td>24%</td>
<td>(185)</td>
</tr>
<tr>
<td>Rarely</td>
<td>27%</td>
<td>(215)</td>
</tr>
</tbody>
</table>

*Table 6–2. Description of use of dental care*
Only 12 percent of the elders (n= 94) believed that they needed any dental care. Of those who believed they did need care, just about half (49 percent) were currently receiving dental care.

Approximately half of all the elders (52 percent) had been to the dentist in the past year, which is significantly higher than the 36 percent of elders age 75 and over nationally who had a dental visit in the last year (National Center for Health Statistics 1993, Table 82, p. 121). Thirty percent had not, however, been to the dentist in the past three years or more, and 15 percent had not been to the dentist for 10 years or more.

Thirty-seven percent of the elders reported that they no longer had any of their natural teeth. Edentulous elders (those without teeth) account for some of the elders not seeking care or elders not perceiving a need for dental care. Eighty-nine percent of elders without any of their natural teeth reported visiting the dentist only rarely or when they had a problem, compared to 28 percent of elders with teeth. Sixty-three percent of elders who still had their natural teeth, reported that they regularly sought dental care (about once a year).

Unlike medical care, where virtually all elders age 65 and over have insurance through the Medicare program, the vast majority of elders paid for their dental care out-of-pocket. Only six percent of elders reported having any dental insurance.

PHARMACY

In addition to medical and dental care, elders were asked about the places where they usually purchase their prescription and nonprescription drugs. Sixty percent of respondents indicated that they purchase their nonprescription over-the-counter medications at a pharmacy, 15 percent at a grocery store, three percent at a convenience store, one percent mail order, and 13 percent at some other place. Seven percent reported that they do not purchase nonprescription medications.

About half of the elders purchase their prescription medications at a different place than where they purchase their nonprescription medications. About 75 percent of the pharmacies where they purchase their prescription medications will deliver, and almost one in five elders (19 percent) have purchased prescription drugs by mail.

USE OF OTHER HEALTH CARE

To assess the broader care-seeking behavior of elders, we asked whether they had used several other types of health care providers in the previous month. Table 6–3 presents the proportion of elders who had sought care from providers other than physicians in the past month.

Optometrists were the most utilized providers in this group, with 17 percent having seen an optometrist in the past month. Nine percent had visited a chiropractor, seven percent a podiatrist and seven percent had been to a hospital emergency room.
<table>
<thead>
<tr>
<th>Provider</th>
<th>Percentage with visit last month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optometrist</td>
<td>17% (136)</td>
</tr>
<tr>
<td>Chiropractor</td>
<td>9% (72)</td>
</tr>
<tr>
<td>Podiatrist</td>
<td>7% (57)</td>
</tr>
<tr>
<td>Hospital emergency room</td>
<td>7% (52)</td>
</tr>
<tr>
<td>Mental health center</td>
<td>2% (15)</td>
</tr>
<tr>
<td>Well elderly clinic</td>
<td>1% (8)</td>
</tr>
</tbody>
</table>

### TRAVEL FOR HEALTH CARE

Travel for health care was examined from the perspective of both rural elders and transit managers. Rural elders were asked about how they traveled to receive their health care. Transit managers were asked about the frequency, types of service, and potential of future funding for travel to health care.

Trips to see a physician accounted for about four percent of all trips taken by rural elders in Iowa (see Chapter 3). Travel to see a physician is compared with travel generally by mode and driver (Table 6-4).

In general, the way elders travel to health care is similar to how they make all trips, with a few exceptions. About 90 percent of all trips (health care and all other) are taken via personal automobile. For almost 40 percent of all automobile trips to the physician, the elder is driven by someone else, whereas the elder is

<table>
<thead>
<tr>
<th></th>
<th>All trips taken yesterday (n=941)</th>
<th>Last medical trip taken (n=345)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used private automobile</td>
<td>862 (92% of all trips)</td>
<td>311 (90% of all trips)</td>
</tr>
<tr>
<td>of which, vehicle used</td>
<td>751 (87% of auto trips)</td>
<td>260 (84% of auto trips)</td>
</tr>
<tr>
<td>was from elder’s household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of which, driver was</td>
<td></td>
<td></td>
</tr>
<tr>
<td>self</td>
<td>626 (73% of auto trips)</td>
<td>189 (61% of auto trips)</td>
</tr>
<tr>
<td>spouse or partner</td>
<td>96 (11% of auto trips)</td>
<td>48 (16% of auto trips)</td>
</tr>
<tr>
<td>other person</td>
<td>140 (16% of auto trips)</td>
<td>73 (24% of auto trips)</td>
</tr>
<tr>
<td>of which,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>brother or sister</td>
<td>13 (9% of other drivers)</td>
<td>2 (3% of other drivers)</td>
</tr>
<tr>
<td>son or daughter</td>
<td>60 (43% of other drivers)</td>
<td>40 (55% of other drivers)</td>
</tr>
<tr>
<td>grandchild</td>
<td>5 (4% of other drivers)</td>
<td>2 (3% of other drivers)</td>
</tr>
<tr>
<td>friend</td>
<td>43 (31% of other drivers)</td>
<td>15 (21% of other drivers)</td>
</tr>
<tr>
<td>neighbor</td>
<td>7 (5% of other drivers)</td>
<td>6 (8% of other drivers)</td>
</tr>
<tr>
<td>other</td>
<td>12 (9% of other drivers)</td>
<td>8 (11% of other drivers)</td>
</tr>
</tbody>
</table>
driven by someone else for only about 30 percent of all trips. A greater percentage of trips to see a physician where someone other than the elder drove, were provided by family, especially children. This reliance on others (particularly the elder’s children) for travel to see a physician, may indicate that elders need additional support when traveling for health care. This support may be both physical (due to an illness or chronic condition) or emotional.

Travel to a primary care physician (general practitioner, family practitioner, general internist) was found to differ from travel to specialist physicians (Table 6–5). Elders traveling to see specialists tended to travel further, more often outside of the county or state, slightly more often by private auto, and more often with someone else driving (with that driver more likely to be a son or daughter).

Table 6–5. Travel to see a primary care or specialist physician

<table>
<thead>
<tr>
<th>Proportion of elders who:</th>
<th>Type of physician traveled to</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary care (n=344)</td>
<td>Specialist (n=129)</td>
</tr>
<tr>
<td>Travel 10 miles or less</td>
<td>69% (237)</td>
<td>40% (52)</td>
</tr>
<tr>
<td>Travel over 50 miles</td>
<td>5% (17)</td>
<td>20% (26)</td>
</tr>
<tr>
<td>Travel to a different county</td>
<td>16% (55)</td>
<td>42% (54)</td>
</tr>
<tr>
<td>Travel to a different state</td>
<td>3% (10)</td>
<td>9% (12)</td>
</tr>
<tr>
<td>Travel by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private auto</td>
<td>90% (310)</td>
<td>98% (126)</td>
</tr>
<tr>
<td>Bus</td>
<td>1% (2)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Taxi</td>
<td>2% (5)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>Transit</td>
<td>2% (7)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>Walking</td>
<td>5% (18)</td>
<td>0% (0)</td>
</tr>
<tr>
<td>other</td>
<td>1% (2)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>Drove using a household vehicle</td>
<td>84% (289)</td>
<td>80% (103)</td>
</tr>
<tr>
<td>Elder was driven by:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>61% (189)</td>
<td>45% (57)</td>
</tr>
<tr>
<td>Spouse</td>
<td>16% (48)</td>
<td>18% (23)</td>
</tr>
<tr>
<td>Brother/Sister</td>
<td>1% (2)</td>
<td>1% (1)</td>
</tr>
<tr>
<td>Son/Daughter</td>
<td>13% (40)</td>
<td>22% (28)</td>
</tr>
<tr>
<td>Grandchild</td>
<td>1% (2)</td>
<td>2% (2)</td>
</tr>
<tr>
<td>Friend</td>
<td>5% (15)</td>
<td>5% (6)</td>
</tr>
<tr>
<td>Neighbor</td>
<td>2% (6)</td>
<td>2% (3)</td>
</tr>
<tr>
<td>Other</td>
<td>3% (8)</td>
<td>5% (6)</td>
</tr>
<tr>
<td>Proportion of other drivers who live outside household*</td>
<td>89% (108)</td>
<td>91% (63)</td>
</tr>
<tr>
<td>Proportion who made compensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In money</td>
<td>21% (15)</td>
<td>20% (9)</td>
</tr>
<tr>
<td>In another form</td>
<td>15% (11)</td>
<td>15% (7)</td>
</tr>
</tbody>
</table>

*That is, drivers other than the elder or a spouse.
As with medical care, the lack of transportation was not an important reason for elders not seeking dental care. Less than one percent reported that the lack of transportation had delayed or stopped them from going to the dentist in the last year. In comparison to medical trips, 64 percent of elders said they had to travel less than ten miles to reach their dentist. Only 3.4 percent said they had to travel more than 50 miles to see their dentist. Only one percent reported that the lack of transportation had ever delayed or stopped them from seeking dental care.

TRANSPORT SYSTEM'S ROLE IN TRANSPORTATION TO HEALTH CARE

The frequency with which elders are transported for health care under AAA contracts varied significantly between and among the transit managers and the AAA directors. Transit managers' reports of rural elders' health care trips on transit ranged from ten percent to 95 percent of all trips provided under the AAA contract, with a median of 43 percent. Among the AAA directors, the percentage of transit trips for health care varied from ten percent to 65 percent with a median of 33 percent. Five transit managers and five AAA directors did not know what percentage of trips were for health care.

To further evaluate the transit system's role in transporting rural elders for health care, the transit managers were asked a series of questions about their involvement in travel for health care (Table 6-6).

Most trips provided by the transit systems are within their regional boundaries. Four systems indicated that they never transport elders outside their region, and only three go outside their region once a week. Transportation to the University of Iowa Hospitals and Clinics is variable, depending on the region. Two systems

<table>
<thead>
<tr>
<th>In general, when transporting rural elderly to health care, how often would you say that you:</th>
<th>All the time</th>
<th>Once a week</th>
<th>Once a month</th>
<th>Once a year</th>
<th>Never</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport rural elders outside your region other than to University Hospitals in Iowa City</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Transport rural elders to University Hospitals in Iowa City</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Transport rural elders and get reimbursed under the Medicaid (Title 19) program</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Transport rural elders and other client groups together in the same vehicle</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Transport rural elders across state lines</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Transport rural elders into areas served by fixed-route transit systems within your region, into the city</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>
travel there all the time and two travel once a week, but seven never travel there. Few systems utilize Medicaid funds for transportation to health care.

To investigate the perceptions of transit managers regarding potential sources of funding for transit services provided to rural elders, we read a list of funding sources and asked them to rate the potential of each as a source of new revenue in the future (Table 6–7).

<table>
<thead>
<tr>
<th>Funding source</th>
<th>High potential</th>
<th>Medium potential</th>
<th>Low potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA contact</td>
<td>1</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Medicaid revenue</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Other contracts</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Local operating subsidies</td>
<td>2</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Farebox revenue</td>
<td>2</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Public-private partnerships such as grocery shuttles</td>
<td>2</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Among transit managers, few (no more than two) rated any given source as having "high potential." Transit managers as a group give the highest number of "low potential" ratings to AAA contracts and Medicaid. Farebox revenue, local operating subsidies and public–private partnerships were rated as having "medium potential" by almost half of the transit managers.

**CONCLUSIONS**

Almost all rural elders reported having a regular source of medical care and this source of care was most often a general physician. They did not as frequently report a regular source of dental care, however, and were less likely to have seen a dentist even when they felt they needed treatment. Elders reported few barriers to receiving health care, including lack of transportation.

Most elders traveled to receive health care in private autos, just as they did for most of their general travel. For ten percent more of the health care trips, however, elders were driven by someone else, usually another family member. The average distance traveled to receive primary care was shorter than for trips to a specialist.

The frequency of rural elders' transit trips for health care varied significantly from region to region. Most trips to health care providers were within the transit region. Few systems utilize funds from the Medicaid (Title 19) program, and transit managers did not perceive a high potential for increasing future funding of health care trips.
CHAPTER 7
POLICY IMPLICATIONS

The principal goal of this study has been to assess the current and likely future need for transit services among rural Iowa elders. Two key findings suggest that there may be an increasing need for transit in the future. First, Iowa’s population is aging: Iowans age 85 and over are the fastest growing sector, as well as the mostly likely to use transit. Second, Iowa’s population is becoming more urban. As children increasingly opt to move to the city and as spouses pass away, rural elders (particularly the very old) experience a decrease in family support.

Conversely, as Iowa’s population (including elders) becomes increasingly more urban, the total need for rural transit services may decrease. Additionally, today’s elders are increasingly mobile. Quite likely, more elders have driver’s licenses and vehicles available to them than did elders in the past. This increased mobility has resulted in a generalized change in the pattern of transit use by elders in Iowa. Where in the past, most transit systems were designed around travel to the congregate meal site, elders are now requesting transportation from the regional transit systems to many other locations.

Regarding current use of transit, one in seven elders surveyed indicated that he or she had used the regional transit system at least once in the last year. Significantly fewer had used transit for a trip the previous day or had used transit on a regular basis. Therefore, the transit systems serve a relatively small proportion of all rural elders in Iowa. Frequency of use or percentage of the population served, however, may not be an adequate reflection of the value of the regional transit systems. For those elders who use the system, transit plays an important role in their ability to travel and remain independent. Over one third of the elders indicated that if transit had not been available when they last used it, they would not have been able to make the trip at all. Eighty percent of elders also indicated that having the transit option made them feel more independent.

Providing rural transit services to elders, though, is inherently inefficient, particularly for travel to receive health care. Health care appointments are established for the convenience of the health care client and the provider, not the transit systems. For elders living in isolated rural areas, it is often difficult to coordinate their travel with other riders, and there is significant down time while waiting for the elder to receive care. A natural conflict then arises for policymakers between spending scarce resources on rural transit, a valuable but sometimes inefficient service to a relatively small number of elders and providing other social services to a larger population of elders on a more efficient basis.

Area Agencies on Aging (AAAs) are faced with paying increased costs for transit services from a budget that may not be increasing fast enough to meet those
costs. Other social services, such as homemaker services or adult day care, may also compete with transportation for scarce AAA resources. This competition may result for a number of reasons, including an increasing demand for other services from rural elders, or the ability of an AAA to serve a larger proportion of their constituency by providing services other than transit. Of course, some of these alternative programs, such as adult day care, may also require transporting the elder to the day care site. Conflicting priorities for the AAAs are already apparent in regions that indicated budget shortfalls in allocations for rural elder transit services last fiscal year.

There are also serious conflicts related to the provision of transit services. Transit system managers have to decide the level of service for rural elders versus the capacity given to contracted groups such as Head Start or sheltered workshop programs and the service mandates associated with these programs. They also have to decide between serving rural elders in isolated areas and serving those residing near the region's larger communities.

Transit managers indicated little potential for increasing funds allocated to rural elders' transit. Additionally, a smaller percentage of some transit regions' budgets are coming from AAA funds, a trend which could have a negative effect on rural elder transit. The distribution of transit system resources for any client (e.g., rural elders or Head Start children) is related to how much funding is available at the local level and how much of that funding has been mandated for services to specific populations (e.g., mentally retarded and developmentally disabled children and adults). As transit systems negotiate contracts with their client groups, the local revenue available is often matched with a percentage of the regional transit system's federal (Section 18) and state (STA formula) revenue. These percentages are determined regionally by the transit system's policy board. The result is that if more money is available from the regional AAAs for transit services, for example, then there will be more state and federal matching dollars available for rural elder transit in that region. Unfortunately, the opposite is also true. In regions where AAA money for transit is decreasing, the amount of state and federal dollars available for rural elder transit may also be decreasing.

Conflicting priorities for limited resources have led some of the regional transit systems to prioritize the services they provide to rural elders under the AAA contract, especially for health care trips. This practice may have improved access to health care services for rural elders and helped make trips to the doctor the single most common reason elders used transit. The availability of transit for health care thus contributed to a situation where less than two percent of elders indicated that they delayed or canceled a health care trip in the last year because of a lack of transportation.

We know that there are issues other than transportation that affect elders' mobility and independence. In particular, survey results suggest that the mental health status of elders was a significant factor in whether they took a trip outside their home. An unexpected negative consequence of prioritizing transit trips for health care might be a corresponding decrease in the availability of social,
recreational, or shopping trips. This could in turn negatively affect rural elders' mental well-being. Increasing the availability of transit for trips other than those for health care could allow elders to meet people outside their home, remain more independent and provide a buffer against becoming homebound or institutionalized. One option for accomplishing this objective would be to improve the coordination of trips for elders who might like to travel socially with those traveling to receive health care. The social traveler might be billed to the AAA at a reduced rate if there is unfilled capacity on that trip. Efforts to improve the independence of rural elders corresponds with the intentions of many health care reform proposals to increase home and community-based services and reduce costly institutional care.

While the total future demand for transit services among rural elders is unclear, the value of transit services received by rural elders lies in transit’s ability to keep elders independent and improve their access to health care. Policymakers are likely to face increasingly difficult decisions as they prioritize scarce resources for an increasingly larger aging population in Iowa. As these decisions are made, transit service and its value to those who receive it will be an important consideration.
APPENDIX A

SAMPLE DESCRIPTION: TELEPHONE SURVEY OF RURAL IOWA ELDERS

The sample was drawn from a list of all Iowans age 75 and over, provided by the Health Care Financing Administration (HCFA). HCFA administers the Medicare program, which provides health insurance coverage for almost everyone age 65 and over in the United States. The database used in this study is designed to pay claims but was released to us for research purposes. The HCFA database contains names and addresses, birth dates, and a variety of information regarding medical claims. We requested the name, address, county of residence, gender and birth date of each Iowan on the enrollee list. We used this information to draw the sample for the telephone survey of rural elders; age and birth date information was retained for the analysis.

SAMPLE SELECTION PROCESS

A random sample of 1,600 rural elders age 75 and over was selected from the 125,271 rural elders that comprise the HCFA database of Medicare-eligible Iowans. Ninety of the 1,600 elders were nursing home residents or in the care of others; their names were eliminated from the sampling frame. An additional 23 elders were excluded from the sample because they had addresses in cities with fixed-route systems.

Computerized records and telephone books were used to locate the telephone numbers of the remaining 1,487 individuals. This was a difficult process because women were often listed under the first names of their husbands or children. To ensure the best match, we first matched each sample individual's name with the name under which the telephone was listed. If there was no direct match, we searched for similar first initials. If no initials matched, we searched and matched on address. If no name, initial, or street address could be matched, we excluded that person from the sample. Using this process, telephone numbers were located for 1,168 of the 1,487 persons.

As we began the telephone interviews, it became clear that calling 1,168 individuals would not result in the desired number of completed interviews; we realized that some respondents would be unable to participate because they were ill, were residing in a long-term care facility, or had passed away. Therefore, a second sample was drawn. Of the 3,300 rural elders within the second sample, 178 were excluded because their residence was a nursing home, they were being cared for by others, or they were living in a city with a fixed-route system. Telephone numbers were located for 2,424 of the remaining 3,122 individuals. Thus, the total sample finally consisted of 3,592 elders for whom telephone numbers were available.

The primary limitations of this sampling design are: 1) it does not include persons age 75 and over who are not covered by Medicare (e.g., those covered by railroad insurance) and 2) telephone numbers for older women were more difficult to find, which resulted in a slight bias within the sample. To determine the extent of bias in our final sample, we consulted Bureau of the Census data.
on the number of urban and rural elders in each Iowa county for 1990. We concluded that our final sample was comparable to the population of all Iowa rural elders based on age and gender distribution (Bureau of the Census 1992).

**DATA COLLECTION**

Telephone interviews were performed with those individuals who consented to speak with an interviewer. A copy of the questionnaire we used is included as Appendix B. The process took place from June through August 1993. Two weeks before the interviews began, elders were sent a letter from HCFA explaining the study and assuring them that their Medicare benefits would not be affected if they did not wish to participate. The letter also informed them that an interviewer from the University of Iowa would be calling, and provided the names and numbers of the investigators. Elders with questions were encouraged to call collect to receive information regarding the study.

Approximately two weeks after the letters were sent, interviewers from the University of Iowa Social Science Institute began making calls. The format of each interview allowed time for the interviewer to give a brief description of the study, identify himself or herself, and ask a series of questions designed to address the elder's mobility, recent trip-making behavior, use of transit, attitudes toward transit, recent health care utilization, functional health status, and demographic data. The average length of each interview was 20 minutes. The interview format was the same for both the random sample of elders age 75 and over and the oversampled transit users. Only those persons age 75 and over who were residing within the community were asked to complete the interview, and we did not allow other household members to substitute for the elder chosen in the sampling process.

**RESPONSE RATES**

The 3,592 telephone numbers were called until 800 respondents were recruited into the first sample. To complete 800 interviews, 1,603 numbers were attempted. Of these, 465 were dropped from the study due to nonworking numbers, illness, or residence in a long-term care facility. The remaining 1,138 numbers resulted in 800 completed interviews, 259 refusals by the respondent, 54 refusals by someone in the household other than the respondent, 14 busy or no-answers, and 11 incomplete interviews. The final response rate for the survey was 800 out of a potential 1,138, or 70 percent. The remaining 1,989 numbers were used to obtain a sample of 113 transit users. Response rates for this group are very difficult to determine because they were screened early in the interview to eliminate non-transit users. We have no reason to believe, however, that the response rate among transit users would be different from the response rate for the first sample.

Demographic information for elders who were interviewed was compared to information for the original sample of rural elders. These comparisons indicate that the interviewees did not differ significantly from the original sample on age, gender, or transit region of residence.
APPENDIX B
SURVEY OF THE TRAVEL NEEDS OF RURAL IOWA ELDERS

INTRODUCTION

1. Hello! This is [state full name] and I’m calling from the University of Iowa Public Policy Center. Is [insert name] available?

2. You are one of a select group of older Iowans we are interviewing regarding transportation needs, in particular the need for transportation to receive health care. A few weeks ago you should have received a letter from Medicare or the Health Care Financing Administration indicating that we would be contacting you to complete this interview which should take only about 15 minutes.

Your participation is voluntary and completely confidential. Your Medicare benefits will not be affected in any way. Also, if we come to any question that you don’t wish to answer, just tell me and we can move on to the next question.

If you have a few minutes, I would like to begin.

1. continue
2. refused
3. too ill/ language barrier

3. Blank question

DRIVING DATA (SECTION A)

First, I would like to ask you a question about motor vehicles owned or used by your household.

4. How many licensed vehicles were owned, or available for regular use by members of this household during the last two weeks?

______ number of vehicles

Now, I would like to ask you a few questions about your driving.

5. Are you a licensed driver?

1. yes [go to Q6]
2. no [go to Section B, Q8]
8. don’t know [go to Section B, Q8]
9. refused [go to Section B, Q8]

6. Are you restricted to driving only during the day?

1. yes
2. no
8. don’t know
9. refused
7. Are you restricted to driving only within a certain distance from your home?
   1   yes
   2   no
   8   don’t know
   9   refused

TRAVEL DAY (SECTION B)

Now I have some questions about ALL the trips you took yesterday. For these questions, a trip is anytime you went from one address to another by car, bus, walking, bicycling, or some other means.

For example, if you leave home, stop at the store, and then return home that would be two trips—one to the store and one from the store to home.

**Q8 through Q10 can be repeated as necessary (up to Q20)**

8. Did you go anywhere yesterday?
   1   yes
   2   no [go to Section C, Q66]
   8   don’t know [go to Section C, Q66]
   9   refused [go to Section C, Q66]

Please tell me everywhere you went yesterday. That is, tell me about any trips that you took from the time that you got up. Remember, we want to know about any time you went from one place to another for any purpose.

9. Where did you go first yesterday?

________________________________________________________________________

10. When you left [answer to Q9], where did you go next?
    1   home
    2   other __________________________________________________________________

Q9-Q20 allow for up to 12 trip destinations to be listed

**When all trips have been listed, say:**

21. While I read the trips I have listed, please think back to yesterday and tell me if there were any trips you might have forgotten.

**Repeat questions 8 through 10 until all trips have been listed**

**When all trips have been listed and verified and additional trips added if reported, continue.**
Now I have a few questions about each trip.

**[If first trip to home]**

22. You told me the first place you went was home. What was the main reason you were away from home?

1. At work
2. Work-related business
3. Grocery shopping
4. Other shopping
5. Other family or personal business
6. School
7. Church
8. Doctor
9. Dentist

**[If first trip NOT to home]**

23. Blank question.

24. You told me the first place you went was [destination]. Did this trip begin at home?

1. Yes
2. No
3. [If no more trips, go to section C, Q66]
4. Don’t know
5. Refused

*Point may be returned to after Q26 or Q30*

25. What was the main purpose of the trip to [destination]?

1. At work
2. Work-related business
3. Grocery shopping
4. Other shopping
5. Other family or personal business
6. School
7. Church
8. Doctor
9. Dentist

**Appendix B**
26. How did you get to [destination]? That is, what means of transportation did you use for this trip?

1. Private Auto (incl. station wagon, van or truck)
2. RV or motor home
3. Motorcycles
4. Moped/motorized bicycle
5. Bus
6. Taxi
7. Transit Vehicle (incl. bus, van or auto)
8. Airplane
9. Bicycle
A. Walk
B. Other (specify) ____________
C. Refused

If response is between 1 and 4, continue, otherwise return to Q25 for next trip.

27. Was a household vehicle used on this trip?
[Mark NO if no vehicles reported Q4]

1. yes
2. no
8. don’t know
9. refused

28. Who drove on this trip?

1. respondent [go to Q25]
2. spouse/partner [go to Q25]
3. brother/sister
4. son/daughter
5. grandchild
6. friend
7. neighbor
8. other (specify) ____________
9. don’t know/refused

29. Does this person live in your household?

1. yes
2. no
8. don’t know
9. refused

30. Did you pay this person for the ride or compensate them for example with a meal?

1. yes—paid with money
2. yes—with food or other compensation
3. no
8. don’t know
9. refused

Return to Q25 for next trip. Repeating questions for up to 12 trips through Q65.
TRANSIT TRIPS (SECTION C)

Now I have some questions about your use of public transit. By public transit I mean buses, public vans, or taxis.

66. Which of the following statements BEST describes your use of public transit in the last year? Would you say you use public transit:
   1. more than once a week
   2. about once a week
   3. about once every two weeks
   4. about once a month
   5. a few times a year
   6. about once a year
   7. never [go to Q74]
   8. don’t know
   9. refused

67. How many trips did you make using public transit in the last 14 days?
   ______ trips

I’m now going to ask you some questions about your most recent trip on public transit.

68. What was the main purpose of this trip?
   1. At work
   2. Work related business
   3. Grocery shopping
   4. Other shopping
   5. Other family or personal business
   6. School
   7. Church
   8. Doctor
   9. Dentist
   A. Vacation
   B. Visit friends or relatives
   C. Pleasure driving/along for the ride
   D. Other social or recreational
   E. Go back home
   F. Other (specify) ________
   G. Refused

69. How many miles did you have to travel to this place?
   ______ miles

70. Was your destination in a different county or state?
   1. yes—different county, [go to Q71]
   2. yes—different state
   3. no
   8. don’t know
   9. refused

71. Specify county ________
72. Did you pay for this trip out of your own pocket?
   1 yes
   2 no
   8 don’t know
   9 refused

73. If this source of transportation were not available, how would you have gotten there?
   1 drive self
   2 driven by spouse
   3 driven by other relative
   4 driven by friend or neighbor
   5 public transit
   6 other
   7 would not go at all
   8 don’t know
   9 refused

   go to Q76

74. Is there a public transit system in your area?
   1 yes
   2 no [go to Q88]
   8 don’t know
   9 refused

75. Are you eligible to use public transit?
   1 yes
   2 no
   8 don’t know
   9 refused
I'm now going to read you a list of statements about public transit. For each statement, please tell me whether you agree, disagree, or have no opinion about the statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>76. I can't make a trip when I want to using public transit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>77. Some riders on public transit make me feel uncomfortable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>78. Public transit drivers are courteous to older adults</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>79. I feel public transit is safe</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>80. Having public transit available to me makes me feel more independent</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>81. Public transit trips cost me too much</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>82. It's hard for me to get on and off a public transit vehicle</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>83. Public transit trips take too long</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>84. I do not use public transit because I think there are others who need it more than I do</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>85. Public transit is usually dependable</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>86. I would rather pay a friend or relative to drive me than take public transit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>87. You have to call too far in advance to schedule a trip using public transit</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

88. Would you be willing to pay $50 per year in higher taxes to have more public transit rides provided to older adults in your area?
   - 1 yes
   - 2 no [go to Q90]
   - 8 don’t know
   - 9 refused

89. Would you be willing to pay $25 per year in higher taxes to have more public transit rides provided to older adults in your area?
   - 1 yes
   - 2 no
   - 8 don’t know
   - 9 refused
UNMET NEED (SECTION D)

90. In the last 14 days, how many trips have you wanted to take outside your home but have been unable to because you did not have transportation?

_____ number

I'm going to ask you about each of the trips you were unable to take because of a lack of transportation.

Q91 through Q96 can be repeated as necessary (up to Q102)

91. For the FIRST [repeat for n=1 to all] of these trips, what was the main purpose?
   1. At work
   2. Work related business
   3. Grocery shopping
   4. Other shopping
   5. Other family or personal business
   6. School
   7. Church
   8. Doctor
   9. Dentist
   A. Vacation
   B. Visit friends or relatives
   C. Pleasure driving/along for the ride
   D. Other social or recreational
   E. Other (specify)_____________
   F. Refused

92. Was this in a different county or state?
   1. yes—different county, [go to Q93]
   2. yes—different state
   3. no
   8. don't know
   9. refused

93. Specify county ________________

94. Was this a trip you wanted to take on the weekend?
   1. yes [go to Q96]
   2. no
   8. don't know
   9. refused

95. Was this a trip you wanted to take before 5:00 in the afternoon?
   1. yes
   2. no
   8. don't know
   9. refused
96. Why couldn’t you get there?
   1. the person who usually takes me was not available
   2. my car broke down
   3. the transit system was not available
   4. other transit related reason (specify ________________)
   5. non transit related reason
   6. don’t know
   7. refused

Return to Q91 for next unmet need

TRAVEL TO HEALTH CARE (SECTION E)

For the next set of questions I will be asking you about where and how often you received different types of health care over the last month.

103. Do you currently have a regular source of medical care, that is a place that you visit regularly, or could turn to if you had a medical problem?
   1. yes
   2. no [go to Q105]
   8. don’t know
   9. refused

104. What kind of place is the main place where you usually go for care?
   1. community health center
   2. family physician’s office
   3. specialist’s office (physician)
   4. a hospital outpatient clinic
   5. in a hospital emergency room
   6. a mental health center/clinic
   7. a chiropractic clinic
   8. a well-elderly clinic
   9. home health care
   A. dental office
   B. other (specify ________________)
   C. don’t know
   D. refused

105. In the past month, how many doctors have you seen for medical care?
   1. did not see a doctor in the past month [go to Q131]
   2. one
   3. more than 1 doctor [go to Q107]
   8. don’t know
   9. refused
106. Was this a general practice or family practice doctor, that is a doctor who sees people for many different problems?
1 yes
2 no [go to Q118]
8 don’t know
9 refused

107. Was one of these doctors a general practice or family practice doctor, that is a doctor who sees people for many different problems?
1 yes
2 no [go to Q118]
8 don’t know
9 refused

Please answer the next set of questions thinking about the last time you went to see this doctor.

108. How many miles did you have to travel to this place?

_____ miles

109. Was this in a different county or state?
1 yes—different county [go to Q110]
2 yes—different state
3 no
8 don’t know
9 refused

110. Specify county ____________

111. How did you get to this doctor’s office? That is, what means of transportation did you use for this trip?

1. Private Auto (incl. station wagon, van or truck)
2. RV or motor home
3. Motorcycle
4. Moped/motorized bicycle
5. Bus
6. Taxi
7. Transit Vehicle (incl. bus, van or auto)
8. Airplane
9. Bicycle
A. Walk
B. Other(specify)___________
C. Refused

112. Was a household vehicle used on this trip?
1 yes
2 no
8 don’t know
9 refused
113. Who drove on this trip?
   1 respondent [go to Q116]
   2 spouse/partner [go to Q116]
   3 brother/sister
   4 son/daughter
   5 grandchild
   6 friend
   7 neighbor
   8 other (specify)____________________
   9 don't know/refused

114. Does this person live in your household?
   1 yes
   2 no
   8 don't know
   9 refused

115. Did you pay for this trip with a ride or compensate them?
   1 yes—paid with money
   2 yes—with food or other compensation
   3 no
   8 don't know
   9 refused

116. If this source of transportation were not available, how would you have gotten there?
   1 drive self
   2 driven by spouse
   3 driven by other relative
   4 driven by friend or neighbor
   5 public transit
   6 other
   7 would not go at all
   8 don't know
   9 refused

117. Within the last year, has the lack of transportation ever delayed or stopped you from going to this place?
   1 yes, stopped
   2 yes, delayed
   3 no
   8 don't know
   9 refused

If more than one doctor visited go to Q119.
118. Was this doctor a specialist?
   1. yes [go to Q120]
   2. no [go to Q121]
   8. don’t know
   9. refused

119. You mentioned that you visited more than 1 doctor this past month. Was one of the doctors you visited a specialist, that is, a doctor that treats people for a specific problem such as heart trouble or arthritis?
   1. yes
   2. no
   8. don’t know
   9. refused

120. How many times did you see this doctor in the past month?
   ________ times

Please answer the next set of questions thinking about the last time you went to see this doctor.

121. How many miles did you have to travel to this place?
   ________ miles

122. Was this in a different county or state?
   1. yes—different county [go to 123]
   2. yes—different state
   3. no
   8. don’t know
   9. refused

123. Specify county ____________

124. How did you get to this doctor’s office? That is, what means of transportation did you use for this trip?
   1. Private Auto (incl. station wagon, van or truck)
   2. RV or motor home
   3. Motorcycle
   4. Moped/motorized bicycle
   5. Bus
   6. Taxi
   7. Transit Vehicle (incl. bus, van or auto)
   8. Airplane
   9. Bicycle
   A. Walk
   B. Other(specify)___________
   C. Refused

TRANSPORTATION OF RURAL ELDERS AND ACCESS TO HEALTH CARE

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125. Was a household vehicle used on this trip? *(Mark NO if no vehicles reported in Q4)*

1. yes
2. no
8. don't know
9. refused

126. Who drove on this trip?

1. respondent *[go to Q129]*
2. spouse/partner *[go to Q129]*
3. brother/sister
4. son/daughter
5. grandchild
6. friend
7. neighbor
8. other (specify) ____________
8. don't know
9. refused

127. Does this person live in your household?

1. yes
2. no
8. don't know
9. refused

128. Did you pay this person for the ride or compensate them?

1. yes—paid with money
2. yes—with food or other compensation
3. no
8. don't know
9. refused

129. If this source of transportation were not available, how would you have gotten there?

1. drive self
2. driven by spouse
3. driven by other relative
4. driven by friend or neighbor
5. public transit
6. other
7. would not go at all
8. don’t know
9. refused

130. Within the last year, has the lack of transportation ever delayed or stopped you from going to this place?

1. yes, stopped
2. yes, delayed
3. no
8. don’t know
9. refused
In the past month, how many times did you go to

131. a hospital emergency room for medical care? ____ times
132. a mental health center or clinic for medical care? ____ times
133. a chiropractic clinic for medical care? ____ times
134. a well elderly clinic for medical care? ____ times
135. a podiatrist or foot doctor for medical care? ____ times
136. an optometrist or eye doctor for medical care? ____ times

I am going to read you some potential problems which may affect a person’s ability to receive health care. For each one, please tell me if it has not affected you, delayed your care or has stopped you from getting care within the last year.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Did not affect you</th>
<th>Caused you to delay getting care</th>
<th>Stopped you from getting care</th>
<th>Not applicable/not in Medicare</th>
</tr>
</thead>
<tbody>
<tr>
<td>137. You could not find a health care provider when you needed one.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>138. The doctor would not take Medicare patients.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>139. You did not know where to go at night or on the weekend for medical care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>140. You did not have transportation to medical care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>141. You could not get to your doctor during regular office hours.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>142. You did not know where to go for an emergency.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>143. You could not afford to receive the care.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>144. Staff at your doctor’s office was discourteous.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>
The following questions are about your use of dental services

145. Do you currently have a regular source of dental care, that is, someone you visit regularly, or could turn to if you had a dental problem?
   1 yes
   2 no
   8 don’t know
   9 refused

146. Would you describe yourself as someone who:
   1 visits the dentist regularly (at least once a year)
   2 visits the dentist occasionally
   3 visits the dentist only when you have a problem
   4 rarely visits the dentist
   8 don’t know
   9 refused

147. Do you need any dental care at this time?
   1 yes
   2 no [go to Q149]
   8 don’t know
   9 refused

148. Are you currently being treated for your needs at this time?
   1 yes
   2 no
   8 don’t know
   9 refused

149. When was your last dental visit?
   1 within the past 12 months [go to Q152]
   2 1-2 years ago
   3 3-5 years ago
   4 6-10 years ago
   5 more than 10 years ago
   8 don’t know
   9 refused

150. Why have you not gone to the dentist in the past year?
   1 I have not needed care
   2 I could not afford it
   3 I may have needed care but I didn’t get around to it (not a priority)
   4 I did not have any transportation
   5 I was afraid to go to the dentist
   6 other

151. Other ___________________
152. How far do you have to travel to the dentist?

_______ miles

153. Within the last year, has the lack of transportation ever delayed or stopped you from going to the dentist?
1 yes, stopped
2 yes, delayed
3 no

154. Do you have any of your own natural teeth?
1 yes
2 no
8 don't know
9 refused

155. In general would you say your dental health is:
1 excellent
2 very good
3 good
4 fair
5 poor
8 don't know
9 refused

156. There are many health issues that are important to the lives of senior citizens, such as diabetes, hearing and vision problems. Compared to all those other issues, how important do you think dental health is to older people?
1 very important
2 somewhat important
3 not important
8 don't know
9 refused

157. Do you have any dental insurance coverage?
1 yes
2 no
8 don't know
9 refused
The following questions are about how you receive any medications that you may need.

158. Where do you usually purchase nonprescription medications (such as aspirin or hydrocortisone)?
   1 pharmacy
   2 grocery store
   3 convenience store
   4 mail order
   5 other
   6 don’t buy nonprescription medications [go to Q161]

159. How far is this place from your home?
    _______ miles

160. In what town is that place located?
    ____________________________ town

161. What pharmacy do you usually use for the purchase of your prescription drugs?
    1 ____________________________ pharmacy
    2 I do not purchase prescription drugs [go to Section F, Q169]

162. Name of Pharmacy __________________

163. Would this pharmacy deliver to your home?
    1 yes
    2 no
    8 don’t know
    9 refused

164. If they purchase prescription drugs at a different location than nonprescription drugs, please ask:

165. How far is this place from your home?
    _______ miles

166. In what town is that place located?
    ____________________________ town

167 Have you ever purchased your prescription drugs by mail?
    1 yes
    2 no
    8 don’t know
    9 refused
HEALTH STATUS (SECTION F)

For this group of questions, please think about your abilities. Though you may not have time in your day to do the things I will list, we would like you to think in terms of your ability to do these things if you did have the time. For each activity, please indicate whether you would have no trouble, some trouble or a lot of trouble doing each activity today if you had the time to do it.

<table>
<thead>
<tr>
<th>Activity</th>
<th>None</th>
<th>Some</th>
<th>A lot</th>
</tr>
</thead>
<tbody>
<tr>
<td>169. Walking one mile</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>170. Doing housework</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>171. Taking your medication</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>172. Handling your money</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>173. Eating</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>174. Peeling an apple</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>175. Dressing and undressing</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>176. Running the length of a football field</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>177. Getting to places within walking distance</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>178. Shopping for groceries or clothes (if you had to)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

179. How often, during the past month, have you felt so down in the dumps that nothing could cheer you up?

- 1 all of the time
- 2 most of the time
- 3 a good bit of the time
- 4 some of the time
- 5 a little of the time
- 6 none of the time
- 8 don't know
- 9 refused
DEMOGRAPHICS (SECTION G)

Finally, I have a few questions about you. In order to classify your household for statistical purposes, we would like to know the general range of your family income, that is the family living with you, for 1992 before taxes. This figure should include salaries, wages, pensions, dividends, interest, and all other income.

180. Was it under $20,000 or over $20,000?
   1. under $20,000.
   2. exactly $20,000. [go to Q181]
   3. over $20,000. [go to Q182]
   8 don't know [go to Q185]
   9 refused [go to Q185]

181. Was it under $10,000 or over $10,000?
   1. under [go to Q185]
   2. exactly $10,000. [go to Q185]
   3. over [go to Q185]
   8 don't know [go to Q185]
   9 refused [go to Q185]

182. Was it under $30,000 or over $30,000?
   1. under [go to Q185]
   2. exactly $30,000. [go to Q185]
   3. over
   8 don't know [go to Q185]
   9 refused [go to Q185]

183. Was it under $40,000 or over $40,000?
   1. under [go to Q185]
   2. exactly $40,000. [go to Q185]
   3. over
   8 don't know [go to Q185]
   9 refused [go to Q185]

184. Was it under $50,000 or over $50,000?
   1. under
   2. exactly $50,000.
   3. over
   8 don't know
   9 refused
185. What is the highest grade of school or year of college you have completed?
   1. First Grade A. 10th Grade
   2. 2nd Grade B. 11th Grade
   3. 3rd Grade C. 12th Grade
   4. 4th Grade D. 1 Year of college
   5. 5th Grade E. 2 Years of college
   6. 6th Grade F. 3 Years of college
   7. 7th Grade G. 4 Years of college
   8. 8th Grade H. don't know/refused
   9 9th Grade

186. Did you get a high school diploma/pass a high school equivalency test?
   1 yes
   2 no
   9 don't know/refused

187. What is the highest degree that you have earned?
   1 Bachelors
   2 Masters
   3 Ph.D.
   4 Professional [e.g., MD, JD, RN, PHARM.D, DDS]
   5 none
   9 don't know/refused

188. How many family members, NOT including yourself, currently live with you? Please count all children and adults.
   _______ number

189. How many non-family members currently live with you? Once again please count all children and adults.
   _______ number

190. What is your marital status? Are you
   1 married 4 never married
   2 widowed 8 don't know
   3 divorced 9 refused

191. Do you own or rent your current home?
   1 own home or condominium 8 don't know
   2 rent home or condominium 9 refused
   3 senior housing

That concludes our interview—thank you for taking the time to speak with us today.
APPENDIX C

1993 SURVEY OF REGIONAL TRANSIT SYSTEM MANAGERS AND DIRECTORS OF AREA AGENCIES ON AGING

A telephone survey of transit managers and directors of Iowa Area Agencies on Aging (AAAs) was conducted during July and August 1993. Directors and managers were asked questions regarding the policies and funding history of the transit systems and how transit systems and AAAs coordinated. They were also asked general questions regarding their prospects in the future. The survey presented here is that given to the transit managers. Slightly different wording was used for the AAA Directors. Questions that were asked only of the transit managers are indicated in the text. City indicates any place inside a region with a population over 2,500.

* * *

Interviewer: Confirm following information after making contact

Phone number to call:  manager, of system, serving region, at phone

What is today's date:  August ______, 1993

Time:  _________ am / pm

Notes:

This survey is part of a study by the University of Iowa Public Policy Center regarding health care transportation for rural elderly in Iowa. Information from this survey will be combined with the results of a survey of rural Iowans aged seventy-five and over and with a similar survey of AAA directors to determine if a lack of transportation is indeed a substantial barrier to improved health care accessibility.

Please confirm the following information:

Your Name:  manager

Your Title:  ______________________

The name of the system you manage:  system

Your system serves region:  region
All the questions in this survey pertain to service that you provide to rural elders. By rural, we mean elders who live outside city or cities in region.

I would like to start by asking you a few questions about the transit services you provide for rural elders under contract with an Area Agency on Aging.

1. Do you provide rural elderly transportation funded either wholly or in part by a Area Agency on Aging?
   
   Yes ☐ No ☐ (Go to 7)

2. Do you prioritize certain trip purposes over others for rural elders riding under a AAA contract?

   Yes ☐ No ☐

2a. Which trip purposes do you give highest priority to?

<table>
<thead>
<tr>
<th>Type</th>
<th>Yes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Work trips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Work related business</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Shopping for groceries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Other shopping</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Other family or personal business</td>
<td></td>
<td></td>
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<tr>
<td>F. Church or school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Travel to the doctor or dentist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Vacation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Trips to visit friends or relatives</td>
<td></td>
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</tr>
<tr>
<td>J. Travel for pleasure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Other social or recreational activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L. Congregate meal site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2b. How do you actually give high priority to trips for these purposes?

________________________________________
________________________________________
________________________________________
________________________________________
2c. Which trip purposes do you give lowest priority to?

<table>
<thead>
<tr>
<th>Type</th>
<th>Yes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>E. Other family or personal business</td>
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<tr>
<td>F. Church or school</td>
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<tr>
<td>G. Travel to the doctor or dentist</td>
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<tr>
<td>H. Vacation</td>
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<td>L. Congregate meal site</td>
<td></td>
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</tr>
</tbody>
</table>

2d. How do you actually give low priority to trips for these purposes?

__________________________________________________________________________

__________________________________________________________________________

3. Would you rate the level of coordination between your organization and the AAA(s) in your region as good, fair or poor?

<table>
<thead>
<tr>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

4. Would you rate your coordination with the AAA as better, about the same or worse than your coordination with other local agencies for whom you provide service?

<table>
<thead>
<tr>
<th>Better</th>
<th>Same</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
5. Did you at any point in FY 1993 limit services to rural elders riding under a AAA contract because of a lack of funding, either on your part or on the part of the AAA?

   Yes—Transit ☐  Yes—AAA ☐  Yes—Other ☐  No ☐

6. In the last two years, would you say that the proportion of your total annual budget coming from your AAA contract has?

   Check one  Options
   
   A. Stayed about the same
   B. Increased somewhat
   C. Increased significantly
   D. Decreased somewhat
   E. Decreased significantly

Questions 6a through 8 asked only of Transit Managers.

6a. Approximately what percentage of the cost of rides provided under your AAA contract is paid by the AAA (exclusive of project income)?

   ________%

   Now I would like to ask you a few questions about rural elderly transit rides you provide to the general public. In other words, these are trips by rural elders that are NOT funded in any part by a AAA contract.

7. Do you have policies that favor certain trip purposes over others for general public rural elderly riders?

   Yes ☐  No ☐  (Go to 7e)
7a. Which trip purposes do you give highest priority to?

<table>
<thead>
<tr>
<th>Type</th>
<th>Yes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Work trips</td>
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<td>J. Travel for pleasure</td>
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<tr>
<td>K. Other social or recreational activities</td>
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<td></td>
</tr>
<tr>
<td>L. Congregate meal site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

7b. How do you actually give high priority to trips for these purposes?


7c. Which trip purposes do you give lowest priority to?

<table>
<thead>
<tr>
<th>Type</th>
<th>Yes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Work trips</td>
<td></td>
<td></td>
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<tr>
<td>L. Congregate meal site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7d. How do you actually give low priority to trips for these purposes?


7e. Do you favor certain groups of general public rural elderly, such as the disabled, in providing rides?

Yes ☐ No ☐

8. Did you at any point in FY 1993 limit services to the general public rural elderly due to a lack of funding?

Yes ☐ No ☐

The following questions address rural elders' use of transit to receive health care. Please answer these questions for all trips by rural elders, whether funded by a AAA contract or not.

9. About what percentage of the rides that you provide for the rural elderly would you say are for travel to receive health care?

__________ %

Questions 10 and 11 asked only of Transit Managers.

10. In general, when transporting rural elderly to health care, how often would you say that you:

<table>
<thead>
<tr>
<th></th>
<th>All the time</th>
<th>Once a week</th>
<th>Once a month</th>
<th>Once a year</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport rural elders outside your region other than to University Hospitals in Iowa City</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Transport rural elders to University Hospitals in Iowa City</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Transport rural elders and get reimbursed under the Medicaid (Title 19) program</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Transport rural elders and other client groups together in the same vehicle</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Transport rural elders across state lines</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Transport rural elders into areas served by fixed-route transit systems within your region, into city</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
11. Now I am going to read a list of funding sources for transit services. Please tell me whether the following funding sources have a high, medium or low potential for paying for expanded rural elderly transportation services in the future.

<table>
<thead>
<tr>
<th>Source</th>
<th>High potential</th>
<th>Medium potential</th>
<th>Low potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA contact</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Medicaid revenue</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Other contracts</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Local operating subsidies</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Farebox revenue</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Public-private partnerships such as grocery shuttles</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

In this final section, we have a number of questions about rural elders’ needs for and use of public transit in Iowa. Please answer these questions in terms of what you perceive is the situation in Iowa as a whole, not just your region.

12. Do you believe there are a significant number of rural elders who need transit services and are not now receiving them, for whatever reason?

Yes ☐ No ☐ (go to 13)

12a. Please tell me if you believe any of the following are important reasons why rural elders may not be receiving transit services. (Y or N)

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rural elders do not know that transit is available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural elders make health care appointments without regard to transit schedules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transit systems are limited by a lack of funding for rural transit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transit systems have too few appropriate buses or vans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transit systems have too few trained drivers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liability concerns for transit operators limit some kinds of trips</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is hard for transit systems to identify riders who need service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Do you know of other reasons why rural elders may not be able to receive transit services?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If Yes, note below</td>
</tr>
</tbody>
</table>

Appendix C
13. I am now going to read some statements about transit for rural elders. Please tell me if you agree or disagree with each of these statements, or have no opinion.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree</th>
<th>No Opinion</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAs pay their fair share of the cost of providing rural transit to the elderly</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Transit systems have enough day-to-day flexibility in delivering services to the rural elderly under a AAA contract</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Funding for transit for rural elders has significantly decreased over the past five years</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>If funding to expand services for rural elders was available, transit systems could attract many new riders</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Transit systems are primarily for those rural elders and disabled with limited transportation options</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>If a AAA eliminated transit funding, it would not affect many rural elders</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Health care trips for rural elders are more difficult to provide than other trips for this client group</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Providing additional transit services to rural elders would require transit systems to provide less service to others</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Transit systems are efficient providers of services to rural elders</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>AAAs have a responsibility to fund transportation for rural elders*</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Transportation is not as important an issue for rural elders as it was ten years ago*</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Most rural elders are aware of the transit systems in their area*</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

*Asked only of AAA Directors.

**Question 14 asked only of Transit Managers.**

14. In your opinion, what percentage of the total cost of a transit trip provided under a AAA contract should be paid by the AAA (exclusive of project income)?

_____ %

Can you suggest anything that could be done to improve transit’s ability to serve rural elders’ needs for health care transportation?

Thank you for taking part in this survey. We would like to send you a copy of the final report for this project when it is completed.
APPENDIX D
REGIONAL TRANSIT SYSTEMS IN IOWA

Rural public transportation in Iowa is provided by organizations that serve 16 multi-county regions. An organization in each region is responsible for providing transportation services for the elderly, handicapped and other groups. This regional transit provider can directly supply services or contract with other organizations to carry passengers on a contract basis.

Figure D–1 shows the 16 transit regions in Iowa, together with the number of elders age 75 and over in the rural parts of each region. The number of rural elders age 75 and over varies from just over two thousand in Region 8 (the three-county region around Dubuque) to seven thousand in Region 7 (the seven-county region around Waterloo).

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of elders age 75 and over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region 1</td>
<td>4943</td>
</tr>
<tr>
<td>Region 2</td>
<td>6127</td>
</tr>
<tr>
<td>Region 3</td>
<td>6431</td>
</tr>
<tr>
<td>Region 4</td>
<td>4319</td>
</tr>
<tr>
<td>Region 5</td>
<td>4756</td>
</tr>
<tr>
<td>Region 6</td>
<td>6514</td>
</tr>
<tr>
<td>Region 7</td>
<td>7037</td>
</tr>
<tr>
<td>Region 8</td>
<td>2280</td>
</tr>
<tr>
<td>Region 9</td>
<td>2882</td>
</tr>
<tr>
<td>Region 10</td>
<td>6011</td>
</tr>
<tr>
<td>Region 11</td>
<td>5017</td>
</tr>
<tr>
<td>Region 12</td>
<td>3016</td>
</tr>
<tr>
<td>Region 13</td>
<td>6255</td>
</tr>
<tr>
<td>Region 14</td>
<td>4639</td>
</tr>
<tr>
<td>Region 15</td>
<td>6154</td>
</tr>
<tr>
<td>Region 16</td>
<td>3363</td>
</tr>
</tbody>
</table>

Figure D–1. Transit regions in Iowa and number of rural elders age 75 and over in each region, 1990

SOURCES: Iowa Department of Transportation Air and Transit Division (1991a); Bureau of the Census (1992, Table 77).

Iowa moved to a regional transit system in the mid-1970s to ensure consistency of service throughout the state, to reduce overlapping provision of service, and to mandate coordination of service. By mandate of the Iowa Legislature, a single public transportation provider was established in each region (Iowa Code chapter 601J). The Iowa Department of Human Services is prohibited from purchasing
services from any social service provider that has been denied a certificate of compliance in accordance with the Chapter. The Act stated that

Any organization, state agency, political subdivision, and public transit system, except public school transportation, receiving federal, state or local aid to provide or contract for public transit services or transportation for the general public and specific client groups, must coordinate and consolidate funding and resulting service, to the maximum extent possible, with the urban or regional transit system (Iowa Code section 601J.1, p. 4464).

Chapter 601J requires that the local governments served by each region determine the level of funding and service. Each regional transit system may be organized to suit local needs provided the Iowa Department of Transportation (DOT) judges that certain criteria are being met. These criteria include:

- elimination of duplicative administrative costs, policies and management;
- efficient resource utilization;
- elimination of duplicative transportation services;
- development of transportation services to serve both the general public and the transportation disadvantaged;
- protection of private transportation providers' rights;
- coordination of regional public transportation planning;
- efficient capital equipment and facilities management; and
- improved transit personnel training.

Because Iowa Code has not mandated a fixed model for how regional providers are to be structured, the 16 regional providers are not identical. In terms of institutional organization, regional providers tend to be either independent organizations or subsidiaries of other service providers. In 1991, six of the systems were subsidiaries of other organizations, typically part of a regional agency such as a Community Action Program (CAP) agency or a Council of Governments (COG). One system in the state, the Southern Iowa Trolley (Area XIV), is a subsidiary of the local Area Agency on Aging (AAA). The remaining ten systems are independently governed.

Regional providers also differ in that some provide services directly, whereas others contract with other systems for services. Although most providers that contract do so with only one other system, some regional providers act as brokers, serving primarily as a conduit for state and federal funding and contracting with a number of independent agencies to provide transportation services. In a few areas, the regional provider is a direct provider as well as a buyer of services from others.
PUBLIC TRANSPORTATION FUNDING

A summary of the FY 1993 quarterly reports for the 16 transit regions in Iowa was obtained from the Iowa Department of Transportation (Iowa DOT), Air and Transit Division. Quarterly reports are submitted to the Iowa DOT each quarter by each of the transit regions and are aggregated at the Iowa DOT into a single spreadsheet file. The FY 1993 summary was used to compare the regional transit systems on the following characteristics:

- sources of revenue including direct revenue (contracts and farebox) and governmental support (federal, state and local tax);
- operating characteristics including vehicle miles, ridership, operating revenue, and operating expenses; and
- operating performance including cost per ride, cost per hour, riders per vehicle-mile, and miles per vehicle.

Regional public transportation in Iowa is financed by a combination of federal, state, and local funds. Some of these funds are intended to provide rural public transportation per se; others are intended to improve older Americans' mobility, for example, and thus provide funding indirectly to transit providers.

Federal programs

The federal government has a number of programs that provide funds directly to organizations that operate transportation services for elders in Iowa. A number of these programs are designed for transportation providers, and are administered through the Iowa DOT.

The Urban Mass Transportation Act of 1964, as amended, authorizes funding for nonmetropolitan public transit providers. The federal government provides capital and operating assistance by formula to these transportation providers through the Section 18 program; all 16 regional transit providers and 13 small urban systems in Iowa qualify (Iowa Department of Transportation Air and Transit Division 1991b, p. V-3). The Iowa DOT allocates these Section 18 funds between the state’s regional and small urban providers; allocations are based on the amount of each group’s nondedicated revenues such as state assistance and local tax support. Within each group of providers, Section 18 funds are allocated by ridership and revenue miles. In addition to their formula allocation, systems are eligible to apply for discretionary capital funds. A portion of the state allocation is set aside for planning and capital (Iowa Department of Transportation Air and Transit Division 1991b, p. V-5).

The federal government provides funds for capital projects and equipment through a number of programs. Funding for capital projects for private, nonprofit organizations that provide public transportation services is given through the Section 16(b)(2) program, also of the Urban Mass Transportation Act of 1964 (COMSIS Corporation 1990, p. VII.3). Section 3 funds provide federal funding for capital purchases, including buildings and equipment as well as transit vehicles. Funding for this program comes from the proceeds of one cent of the federal...
motor fuel tax. Section 3(a)(1)(C) provides grants on a competitive basis for special capital projects that implement new technology or innovative service techniques (Iowa Department of Transportation Air and Transit Division 1991b, p. V-3). Section 8 provides funds for transit planning. These funds are distributed by the Iowa DOT to the Councils of Governments in Iowa, who prepare the annual planning documents for the regional transit systems (Iowa Department of Transportation Air and Transit Division 1991b, p. V-4). All federal capital programs fund 80 percent of the total capital cost (Iowa Department of Transportation Air and Transit Division 1991b, p. V-1).

Contracts

The federal government also provides funds to many social service agencies to provide transportation for elders, Head Start students, sheltered workshop clients, and other groups. Many of these agencies purchase transportation services from regional transit providers. Thus, these federal funds become contract revenue for transit providers, and federal decisions about funding levels of these programs affects the overall level of federal funding for public transportation. Contract revenue accounted for approximately 52 percent of total revenue for Iowa’s regional providers in FY 1993 (see Table D-1).

The most important federal program that provides funds for transportation to social service agencies in Iowa is directed at older Americans and children in the Head Start program. Title IIIB of the Older Americans Act of 1965, as amended, provides funding for transportation services that serve the needs of elders. These funds are provided to local Area Agencies on Aging (AAAs), who may use these funds to purchase transportation services from regional transit providers (COMSIS Corporation 1990, p. VII.6). Federal funds accounted for 47 percent of AAA expenditures in FY 1991 (Iowa Department of Elder Affairs 1991, p. 18). The Head Start program, which provides preschool programs for low income children, also provides funds to transport these children to and from school.

A number of other federal programs also indirectly finance public transportation. The Social Services Block Grant program, authorized in the Omnibus Budget Reconciliation Act of 1981, provides funds to states for community-based social service activities. The State of Iowa spent $429,533 on transportation using this program in 1991 (Iowa Department of Human Services 1993, p. 12). The Job Training Partnership Act also provides funds to transport clients to training sites.

Such contracts are very important for regional transit providers because they represent a guaranteed stream of revenue that is reasonably stable over time. As such, they allow transit systems to plan more effectively and to help increase ridership through the year. Moreover, at over $6 million in FY 1993, these contracts were the biggest single source of revenue for rural transit systems.
State funding

The Iowa DOT’s Air and Transit Division oversees Iowa’s regional public transit providers and disburses state and federal assistance. Public transportation planning is conducted annually by the sixteen Councils of Governments in Iowa, each of which is responsible for its regional transportation provider. The Iowa DOT provides funding for the preparation of the Transit Development Plans required of each transit system as a condition for state and federal funding.

### Table D-1. Sources of revenue for Iowa’s regional transit systems, 1993 (dollars)

<table>
<thead>
<tr>
<th>Region</th>
<th>Direct</th>
<th>Governmental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contracts and other*</td>
<td>Farebox</td>
</tr>
<tr>
<td>1</td>
<td>395,059</td>
<td>56,322</td>
</tr>
<tr>
<td>2</td>
<td>369,596</td>
<td>55,651</td>
</tr>
<tr>
<td>3</td>
<td>465,803</td>
<td>42,543</td>
</tr>
<tr>
<td>4</td>
<td>335,605</td>
<td>37,029</td>
</tr>
<tr>
<td>5</td>
<td>249,982</td>
<td>84,994</td>
</tr>
<tr>
<td>6</td>
<td>84,701</td>
<td>23,299</td>
</tr>
<tr>
<td>7</td>
<td>735,787</td>
<td>8,248</td>
</tr>
<tr>
<td>8</td>
<td>269,262</td>
<td>71,155</td>
</tr>
<tr>
<td>9</td>
<td>572,083</td>
<td>28,527</td>
</tr>
<tr>
<td>10</td>
<td>472,633</td>
<td>181,282</td>
</tr>
<tr>
<td>11</td>
<td>641,056</td>
<td>139,434</td>
</tr>
<tr>
<td>12</td>
<td>308,055</td>
<td>63,183</td>
</tr>
<tr>
<td>13</td>
<td>371,707</td>
<td>66,850</td>
</tr>
<tr>
<td>14</td>
<td>268,897</td>
<td>25,987</td>
</tr>
<tr>
<td>15</td>
<td>321,470</td>
<td>22,292</td>
</tr>
<tr>
<td>16</td>
<td>143,674</td>
<td>13,216</td>
</tr>
<tr>
<td>Total</td>
<td>6,005,370</td>
<td>920,012</td>
</tr>
</tbody>
</table>

**SOURCE:** Summary of FY 1993 Quarterly Statistical Reports to Iowa DOT, provided by Iowa DOT Air and Transit Division. These figures exclude any service provided within a city by the regional transit system for an urban transit system.

*Total of transportation contracts and non-transportation contracts from the Quarterly Statistical Report. Includes all funds received from organizations such as AAAs in exchange for transportation services or for non-transportation services.

†Includes Section 18, and 16(b)2 funds but does not include indirect funds, such as the Title 3b funds that the AAAs use to purchase transportation services.

‡STA funds from the State Transit Assistance formula.

§Operating subsidy provided by local units of government. It does not necessarily come in the form of a property tax levy, it may simply be an amount allocated from the general fund.
The State of Iowa provides State Transit Assistance (STA) funds for transit systems operating within the state. STA funds come from five percent of the sales tax levied on automobiles and automobile accessories, and from miscellaneous funds as designated by the legislature. The total amount of funding is first allocated between urban and regional systems based on total revenue miles of service provided by each group of systems. For regional providers, the funds are then allocated based on the previous year's locally determined income, cost per rider and cost per revenue mile. Local determined income is defined as total operating expenses less federal and state operating subsidies (Iowa Department of Transportation Air and Transit Division 1991b, p. V-7).

STA funds made up about 24 percent of the total revenue for all regional transit providers in FY 1993. Table D–1 shows the sources of revenue for each regional provider in 1993. State funds also comprised 60 percent of all direct governmental funds provided to regional transit systems.

STA formula funds may be used to cover transit operations, maintenance, administration or capital costs. The first $300,000 of STA funds are designated as a reserve for special projects. Projects funded by this reserve are selected on a competitive basis by the Air and Transit Division, based on annually published focus areas. In FY 1993, the focus areas were:

- implementation of ADA requirements,
- rehabilitation of revenue vehicles, and
- private sector involvement in service provision (Iowa Department of Transportation Air and Transit Division 1991b, p. V-F).

Local funding

Local funding for public transportation comes from a number of sources. All but two systems receive a direct subsidy from the counties they serve. Iowa authorizes cities and counties to establish a property tax levy (currently up to a maximum of 95¢ per $1,000) to provide direct subsidy for public transportation within their jurisdictions (Iowa Code section 384.12[10]). Systems also receive revenue from contracts with local social service agencies who purchase transportation services. The Iowa Department of Elder Affairs reports that 15 percent of its Aging Network expenditures come from local support (Iowa Department of Elder Affairs 1991, p. 18).

The amount received by each regional provider from local sources varies considerably more than that received from either state or federal transit assistance programs. Table D–1 shows that local support varied from as low as zero to just over $300,000 in 1993. Some of the regions with no direct local tax support receive contracts for provision of service, so direct comparisons between the regions are not easily drawn.

Systems receive farebox revenue for transportation provided to the general public. Farebox revenue does not include the “suggested donation” fares that
elderly riders may contribute if they are carried under an AAA contract. Such donations go back to the AAAs, who may use them to purchase additional transportation services.

Regional transit systems also receive money for incidental services, such as charter rental to local groups. Incidental service is service not open to the general public and is therefore not eligible for Section 18 subsidy. To ensure that federally-funded vehicles are primarily used by the general public, the Iowa DOT limits such incidental service to 20 percent of vehicle use. According to Iowa DOT figures, in FY 1991, 1.7 percent of rides were provided as incidental service.

**CHARACTERISTICS OF REGIONAL TRANSIT PROVIDERS**

Iowa’s regional transit systems provided about four million trips in FY 1993 (see Table D-2). The 16 systems vary considerably in scale. The number of vehicles operated by each system varies from 21 to 88, and vehicle-miles of service varies from about one third of a million miles to one and a half million miles.

<table>
<thead>
<tr>
<th>Region</th>
<th>Vehicles</th>
<th>Vehicle miles</th>
<th>Ridership</th>
<th>Operating revenue</th>
<th>Operating expense</th>
<th>Cost per ride</th>
<th>Cost per hour</th>
<th>Vehicle-mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>36</td>
<td>618,032</td>
<td>194,282</td>
<td>685,618</td>
<td>619,870</td>
<td>$3.19</td>
<td>$13.85</td>
<td>0.31</td>
</tr>
<tr>
<td>2</td>
<td>54</td>
<td>758,070</td>
<td>325,391</td>
<td>829,723</td>
<td>842,373</td>
<td>2.59</td>
<td>13.72</td>
<td>0.43</td>
</tr>
<tr>
<td>3</td>
<td>51</td>
<td>856,004</td>
<td>334,819</td>
<td>856,583</td>
<td>860,180</td>
<td>2.57</td>
<td>20.12</td>
<td>0.39</td>
</tr>
<tr>
<td>4</td>
<td>47</td>
<td>920,322</td>
<td>197,723</td>
<td>668,882</td>
<td>628,349</td>
<td>3.18</td>
<td>12.48</td>
<td>0.21</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>576,735</td>
<td>244,036</td>
<td>598,642</td>
<td>552,221</td>
<td>2.26</td>
<td>15.84</td>
<td>0.42</td>
</tr>
<tr>
<td>6</td>
<td>21</td>
<td>459,617</td>
<td>100,526</td>
<td>309,677</td>
<td>332,281</td>
<td>3.31</td>
<td>10.82</td>
<td>0.22</td>
</tr>
<tr>
<td>7</td>
<td>46</td>
<td>867,765</td>
<td>184,749</td>
<td>1,227,032</td>
<td>1,094,348</td>
<td>5.92</td>
<td>17.76</td>
<td>0.21</td>
</tr>
<tr>
<td>8</td>
<td>22</td>
<td>530,778</td>
<td>190,630</td>
<td>497,721</td>
<td>444,063</td>
<td>2.33</td>
<td>16.61</td>
<td>0.36</td>
</tr>
<tr>
<td>9</td>
<td>57</td>
<td>657,134</td>
<td>171,170</td>
<td>794,409</td>
<td>676,622</td>
<td>3.95</td>
<td>15.80</td>
<td>0.26</td>
</tr>
<tr>
<td>10</td>
<td>88</td>
<td>1,245,840</td>
<td>318,880</td>
<td>1,007,009</td>
<td>1,508,489</td>
<td>4.73</td>
<td>18.70</td>
<td>0.26</td>
</tr>
<tr>
<td>11</td>
<td>67</td>
<td>1,162,098</td>
<td>479,584</td>
<td>1,441,502</td>
<td>1,448,895</td>
<td>3.02</td>
<td>18.89</td>
<td>0.41</td>
</tr>
<tr>
<td>12</td>
<td>35</td>
<td>750,022</td>
<td>314,206</td>
<td>621,390</td>
<td>629,822</td>
<td>2.00</td>
<td>14.75</td>
<td>0.42</td>
</tr>
<tr>
<td>13</td>
<td>40</td>
<td>771,329</td>
<td>226,183</td>
<td>730,565</td>
<td>605,809</td>
<td>2.68</td>
<td>17.38</td>
<td>0.29</td>
</tr>
<tr>
<td>14</td>
<td>26</td>
<td>499,202</td>
<td>155,514</td>
<td>443,441</td>
<td>442,967</td>
<td>2.85</td>
<td>16.52</td>
<td>0.31</td>
</tr>
<tr>
<td>15</td>
<td>30</td>
<td>557,793</td>
<td>174,684</td>
<td>549,008</td>
<td>531,015</td>
<td>3.04</td>
<td>19.01</td>
<td>0.31</td>
</tr>
<tr>
<td>16</td>
<td>23</td>
<td>331,435</td>
<td>75,806</td>
<td>321,670</td>
<td>303,848</td>
<td>4.01</td>
<td>19.23</td>
<td>0.23</td>
</tr>
<tr>
<td>Total</td>
<td>683</td>
<td>11,562,186</td>
<td>3,688,183</td>
<td>$11,582,872</td>
<td>$11,521,152</td>
<td>$3.12</td>
<td>$16.43</td>
<td>0.32</td>
</tr>
</tbody>
</table>

**SOURCES:** Vehicles data from Iowa Department of Transportation Air and Transit Division (1991b); other data from FY 1993 Quarterly Statistical Reports provided by the Iowa DOT Air and Transit Division. These figures exclude any service provided within a city by the regional transit system for an urban transit system.
Ridership on the smallest system is below one hundred thousand trips and is nearly half a million trips on the largest. These differences in size are reflected in the revenue and expenses for each system.

Table D–2 also shows how the systems compare on some measures of productivity. The 16 regions operate in different parts of Iowa; some regions are more urban than others. Many of the agencies that regional transit systems carry people to are organized differently across the state. For example, one region may have a centralized congregate meal site while another might have several smaller, dispersed sites. These different institutional arrangements dictate the kind of transit service that must be provided. The trip patterns of each region’s residents and the fleet compositions also vary greatly. The cost per ride varied from about $2 to almost $6, the cost per vehicle-hour from about $11 to $20, and the rides provided per vehicle-mile from about 0.21 to 0.43.
REFERENCES


Transportation of Rural Elders and Access to Health Care was prepared for the Midwest Transportation Center by the University of Iowa Public Policy Center. The Public Policy Center is an interdisciplinary research unit dedicated to the scholarly examination of social and economic policy alternatives.