

**City of Brookings:
Transportation Gap Analysis & Recommendations**

Prepared for:
The City of Brookings

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Disclaimer

The contents of this report do not necessarily represent the views or policies of the City of Brookings and are the sole responsibility of the Small Urban & Rural Transit Center, Upper Great Plains Transportation Institute and the authors.

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EXECUTIVE SUMMARY

Brookings, South Dakota, is a community of 18,802 located in east central part of the state. The city is home to South Dakota State University, the largest institution of higher learning in South Dakota, and several other large employers including Daktronics, Rainbow Play Systems, Larson, and 3M. Brookings is the county seat of Brookings County and is a regional retail and cultural center. It is also home to a number of social and medical service providers.

This report presents the findings and recommendations of a study commissioned by the City of Brookings to identify gaps between residents' personal mobility needs and existing services and to recommend actions, including opportunities to improve coordination among area service providers. The study included two meetings of an advisory group, which included representatives from the City of Brookings, public and private transportation providers, social service agencies, SDSU, Brookings Public School District, and downtown Brookings. During the first meeting, transportation needs and available services were identified. During the second meeting, areas of concern and recommendations were presented for discussion. Information gathered during these meetings was crucial to the preparation of this report.

Areas of Concern

This study did not identify any significant gaps in transportation services in Brookings. However, areas of concern such, as gaps in transportation service which may occur in the future and unrecognized opportunities to increase the social welfare through expanded or coordinated transportation service, were identified. Specific areas of concern include:

Same-day transportation to the general public is provided by Brookings Area Transit Authority (BATA) and Brookings Area Cab. Same-day transportation has traditionally been an area of significant local concern, especially for the transportation-disadvantaged population which relies heavily upon it. A new coordinated service agreement, finalized during the study, that allows BATA to provide same-day service to the general public under certain conditions, should improve system efficiency and the well-being of local residents.

Intercity bus service is provided along the I-29 corridor by Jefferson Lines. Intercity bus service is the primary mode of scheduled intercity travel in rural America.

Essential air service support in Brookings was scheduled to end on September 30, 2007. This may result in the termination of commercial air service in the community. Air service is available to the Sioux Falls Airport, which may be reached by shuttle from Brookings.

Youth and student transportation is limited in Brookings, as the Brookings Public School District provides shuttle service between schools and has few stops within city limits. Some youth programs in Brookings provide transportation, but personal transportation is also relied upon in many cases.

University transportation in the form of fixed-route service tailored to meet the unique needs of the SDSU community is not currently provided in Brookings. A recently completed study commissioned by BATA explored the issue, and work with SDSU students and administrators to implement service is continuing.

Large event transportation planning for many large events hosted by the Brookings community has not typically included the participation of community transportation providers.

Emergency planning should involve the needs and capabilities of community transportation providers, including BATA.

Signs and wayfinding is of importance because of the many first time and infrequent visitors to Brookings. Adequate signage and supporting resources are needed for individuals to plan and execute trips.

Recommendations

Based on the findings of the study, the Small Urban & Rural Transit Center makes the following recommendations to fully utilize limited local resources to improve the community's transportation system:

Establish a coordinated transportation board to oversee developments in community transportation, including changes in need and available resources, and to provide information and advice to other organizations as needed.

Provide support for same-day coordinated service provided jointly by BATA and Brookings Area Cab.

Revise city transportation funding allocation and oversight policy to

- 1) Recognize the role of private providers of transportation
- 2) Recognize coordinated service as a favorable factor in the allocation of city funds
- 3) Leverage local funds to utilize all available funding sources to fund the provision of local transportation services
- 4) Require detailed reporting concerning the provision of services by city-supported transportation providers

Study expanded fixed-route service if changes in the current service are made, especially expansion funded by and tailored to meet the needs of the SDSU community. This would include identifying any gaps in transportation service to Brookings residents as well as sources and levels of equitable local funding.

Consider the role of transportation in large event planning to ensure that existing community transportation resources are used to efficiently manage parking and congestion.

Consider the initiation of vanpool commuter services to ensure that employee commutes to Brookings' businesses are efficient and adequate to help employers attract and retain an adequate workforce.

Incorporate community transportation into emergency planning to ensure that the community transportation system's resources and needs are fully considered in the development of emergency operation plans (EOPs).

1. INTRODUCTION

Accessible transportation is necessary for the continuing health and well-being of individuals. For many individuals, trips can be planned and completed with little forethought or effort. However, for others, particularly those with physical or mental handicaps or low incomes, scheduling trips can be very difficult. In some cases, trips must be foregone, negatively affecting the individual's well-being. In response, society has regularly intervened in transportation markets through government regulation and public funding.

At the municipal level, city governments struggle to meet diverse community needs, including unmet transportation demand, with limited resources. Appropriate oversight is also necessary to ensure that funds are used as promised and that benefits can be objectively measured. These concerns must be formally addressed to develop good public policy. In the case of passenger transportation, the challenge becomes more complex as there are often multiple service providers as well as state and federal regulations which demand consideration.

Growing recognition of the importance of mobility and the limited resources available to provide passenger transportation services has led many communities to revisit how they approach the issue. The federal government, in order to ensure the most efficient use of its own resources, has initiated the United We Ride program. The United We Ride program places emphasis on coordination among transportation service providers, be they public, private, personal, or volunteer. As part of the program, tools and processes to guide local efforts have been developed. These tools and processes have been applied to communities throughout the nation with widespread success. Contemporaneously, added requirements for coordination among recipients of federal dollars have also been established.

This report presents the findings and recommendations of a study commissioned by the City of Brookings to identify gaps between transportation needs and services in the community. The study made use of established methods to identify opportunities for additional coordination of transportation services. It also serves as a plan to guide future work on coordination to accommodate ongoing changes in the community.

The original motivation for the study was a desire among members of the Brookings City Council to revisit the city's role in the provision of community transportation, including the process of allocating local funds to support transportation service providers. This issue was fully investigated during the course of the study. Background information concerning the level and type of support provided by other South Dakota communities was also compiled.

The study included two meetings of an advisory group, which consisted of representatives from the City of Brookings, public and private transportation providers, social service agencies, SDSU, Brookings Public School District and Downtown Brookings. During the first meeting, transportation needs and available services were identified. During the second meeting, areas of concern and recommendations were presented for discussion. Information collected during the advisory board meetings was complemented by personal interviews with individuals representing transportation service providers and organizations whose clients use community transportation resources.

The report begins with an overview of the City of Brookings. Current and projected demographic profiles, that includes information on transportation disadvantaged populations in Brookings, are presented. The third section presents the results of the mobility inventory, including transportation services currently available and the transportation needs of Brookings residents and visitors.

The study failed to identify any significant gaps in service. Any areas of concern that were identified are discussed in Section Four. Areas of concern are defined as areas of transportation service where gaps could develop in future years and that would benefit from regular monitoring; they also include areas where there may be opportunities to increase social welfare through expanded or coordinated transportation services. The fifth section presents recommendations to improve the existing community transportation system in Brookings.

2. COMMUNITY PROFILE

Brookings is a city with approximately 18,700 residents. It is the county seat of Brookings County, South Dakota, and is located in the east-central region of the state near the Minnesota border (see Figure 2.1). It is South Dakota's fifth largest city and is located approximately 60 miles north of Sioux Falls, the state's largest city.



Figure 2.1 South Dakota Map

Brookings serves as a regional trade center and has a vibrant business community, with nearly 20 employers that employ over 100 workers. It is the home to South Dakota State University and its 11,317 students. It is situated at the junction of U.S. Highway 14 and Interstate 29.

Brookings residents enjoy four distinct seasons, which provide for a wide variety of recreational activities. The area receives nearly 22 inches of precipitation annually. The region has a strong agricultural base, which contributes to the local economy.

This section is devoted primarily to discussions concerning demographic characteristics of Brookings' population and specifically to those subsections of the population that are typically transportation disadvantaged. These population subsections include:

- Senior citizens
- Disabled
- Low income
- Minorities
- School aged youth
- Households without automobiles

Each of these segments of the population will be discussed in detail in the following pages. It is important to note that population statistics of each of these subgroups cannot be summed to determine the total number of transportation disadvantaged individuals that live in a community. This is the case since many individuals may, in fact, fall into two or more categories. For example, one individual may be a low income, disabled senior citizen without an automobile.

It is, however, important to look at the size of each of these population subgroups. Doing so gives planners and service providers some idea of the number of area residents that may be transportation disadvantaged and in need of transit services.

In addition to the population subgroups listed above, this section will also discuss enrollment at SDSU. This discussion will focus on how these individuals are reflected in the community's overall population statistics, and any special transportation needs that may exist within that segment of the population.

2.1 Senior Citizens

Advancing age may result in an increased need for assistance related to personal mobility. As individuals age, they often become less able to provide for their mobility needs and increasingly dependent on others for related transportation.

Slightly over 12% of Brookings' residents, or about 2,245 people, are age 60 and over. As Figure 2.2 illustrates, this percentage is slightly lower than the county's 13.7% and significantly lower than the state's 18.1%.

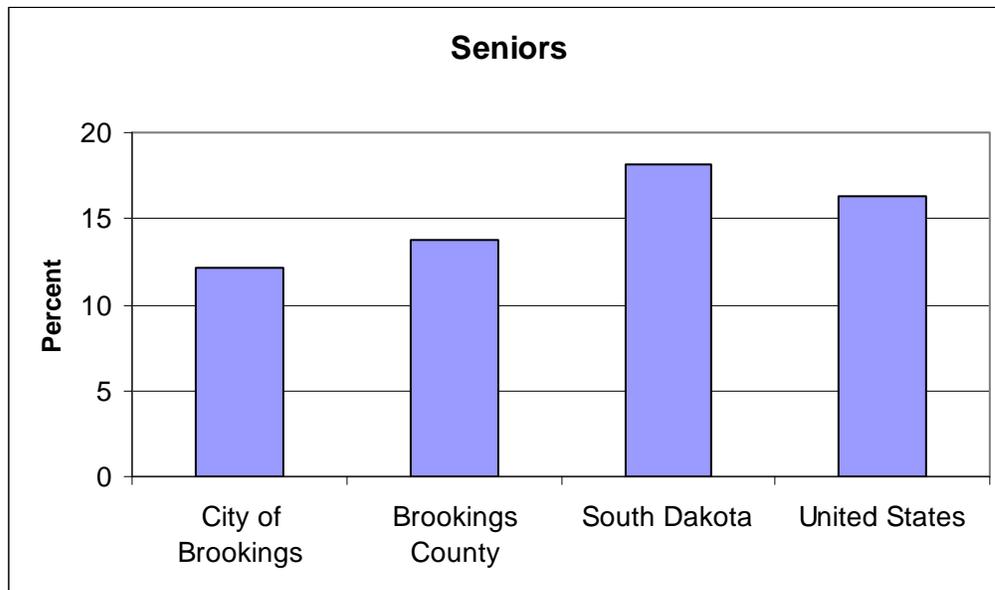


Figure 2.2 Senior Populations in City, County, State, and United States

2.2 School Aged Youth

At the other end of the age spectrum, 22% of the Brookings' population, 4,067 residents, is between ages 5 and 18. As Figure 2.3 illustrates, there is very little difference between Brookings and other comparison areas in terms of concentrations of school-aged populations.

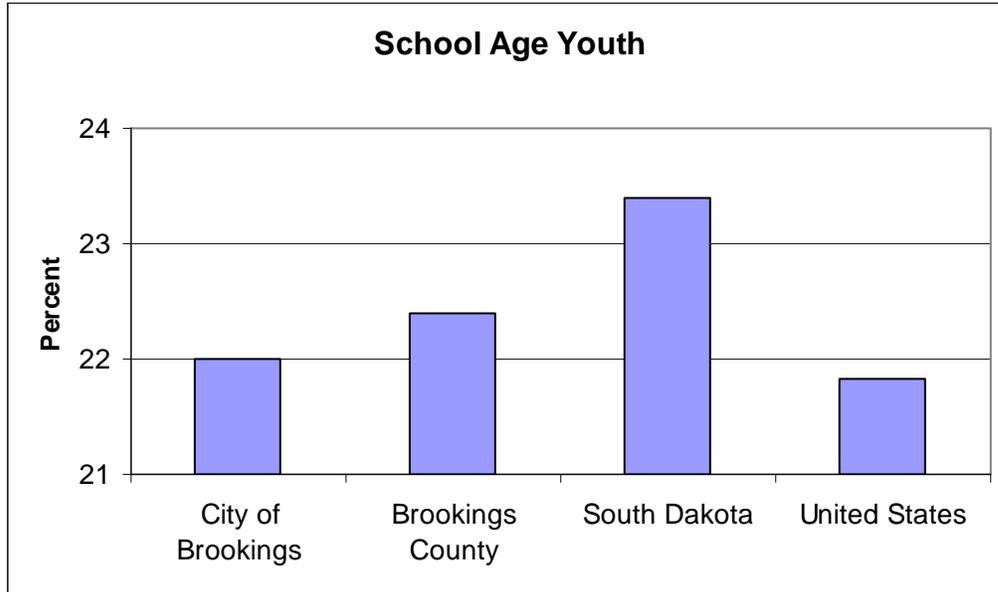


Figure 2.3 School-Age Populations in City, County, State, and United States

2.3 Disabled

U.S. Census data indicates that there were 3,988 disabled, non-institutionalized individuals age 5 and over in Brookings in the year 2000. This total represented 21.6% of the population. As Figure 2.4 illustrates, there was very little difference in population concentrations between the city and the county while corresponding populations at the state and national level were significantly higher.

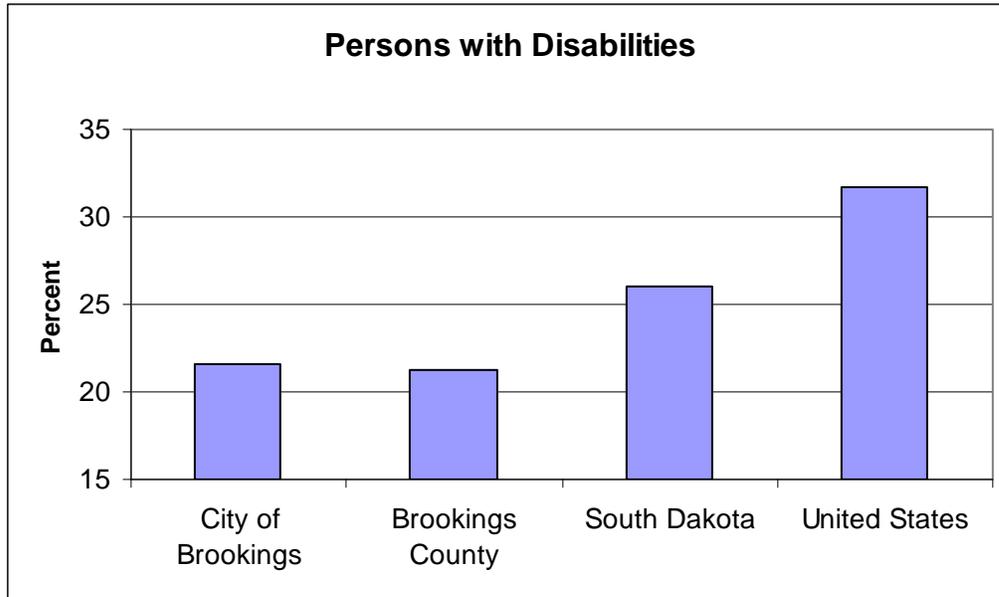


Figure 2.4 Disabled Population in City, County, State, and United States

2.4 Low Income

In the year 2000, 2,931 Brookings residents lived in a household with an income below the poverty line; and 1,347 households had incomes below the poverty line. Concentrations of low income populations, on an individual and household basis, are reported in Figure 2.5. As this figure suggests, the percentage of poverty level residents in Brookings is higher than those at the county, state, or national levels.

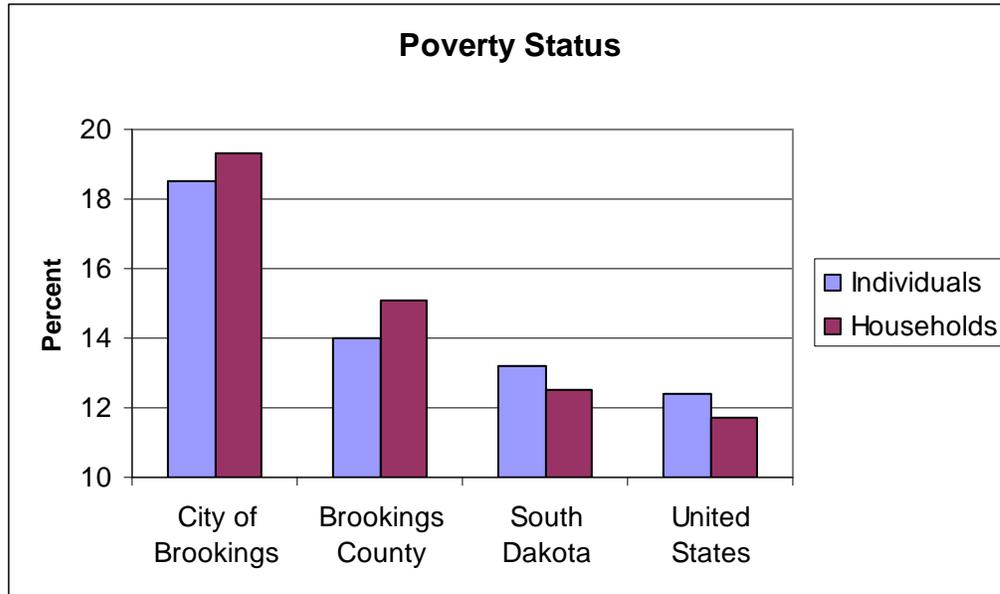
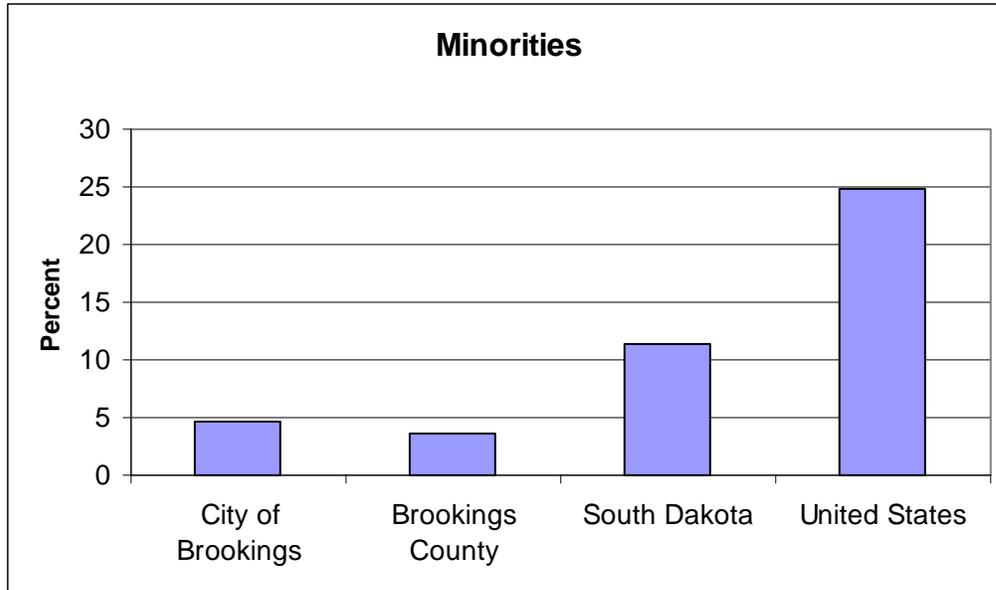


Figure 2.5 Poverty Levels – Families & Individuals in City, County, State, and United States

2.5 Minorities

Brookings and Brookings County have relatively small minority populations. As Figure 2.6 indicates, 864 of the city's residents, 4.7%, have a minority background and only 3.6%, 1,026, of the county's population is a least partly non-white. These concentrations are significantly lower than either the state or national levels.

Figure 2.6 Minority Populations in City, County, State, and United States



2.6 Households without Vehicles

U.S. Census data indicates that 5.7% of all Brookings households do not have a motor vehicle. With an average household size of 2.26 residents, there are nearly 900 residents in the city who do not have direct access to a motor vehicle. Census data also indicates that the vast majority of these individuals (88%) reside in rental property. Brookings' vehicle ownership is very similar to county and state averages, but it is significantly higher than national averages (94.3 vs. 89.7%). These statistics are summarized in Figure 2.7.

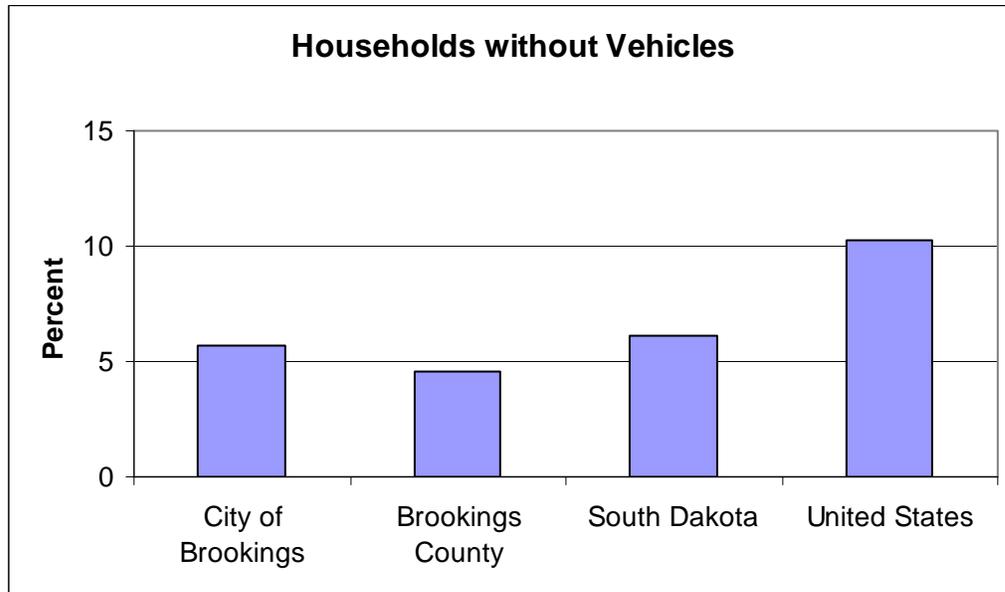


Figure 2.7 Households without Motor Vehicles in City, County, State, and United States

2.7 Summary of Transportation-Disadvantaged Populations

The preceding subsections of this section discussed what are traditionally considered to be transportation-disadvantaged segments of the general population. Table 2.1 summarizes corresponding data for both Brookings and Brookings County.

Table 2.1 Transportation-Disadvantaged Populations in Brookings and Brookings County

Population Subgroups	Brookings		Brookings County	
	2000	Percent	2000	Percent
Seniors (age 60 & over)	2,245	12.1%	3,875	13.7%
School age students	4,067	22.0%	6,308	22.4%
Low income households	1,347	19.3%	1,610	15.1%
Low income individuals	2,931	18.5%	3,562	14.0%
Disabled age 5 & over	3,988	21.6%	6,006	21.3%
Minorities (non-White)	864	4.7%	1,026	3.6%
Households without vehicles	397	5.7%	491	4.6%

Source: U.S. Census – 2000

As discussed earlier, it is important to note that the populations of the various population subgroups identified in Table 2.1 cannot be totaled to determine an area's total transportation disadvantaged population. This inability is based on the fact that many of the individuals reflected in these statistics may be in multiple subgroups. For example, an individual may be a member of a minority, elderly, low income, disabled, and without a vehicle. Adding subgroup totals could, therefore, result in double, triple, or even quadruple counting.

Table 2.2 restates the transportation-disadvantaged population data presented in Table 2.1 and compares it with state and national percentages that were reported earlier in this section.

Table 2.2 Transportation-Disadvantaged Populations – City, County, State, and United States

Population Subgroup	Brookings	Brookings County	South Dakota	United States
Seniors (age 60 & over)	12.1%	13.7%	18.1%	16.3%
School age students	22.0%	22.4%	23.4%	21.8%
Low income households	19.3%	15.1%	12.5%	11.7%
Low income individuals	18.5%	14.0%	13.2%	12.4%
Disabled age 5 & over	21.6%	21.3%	26.0%	31.7%
Minorities (non-White)	4.7%	3.6%	11.3%	24.9%
Households without vehicles	5.7%	4.6%	6.1%	10.3%

Source: U.S. Census – 2000

As Table 2.2 indicates, Brookings and Brookings County have slightly smaller senior populations than the state and nation, but their school age populations tend to mirror those at the state and national levels. Income levels appear to be relatively low in the city and county. The percentage of people with disabilities is relatively lower in the area, as is the minority population. The percentage of the population without direct access to motor vehicles is also relatively low when compared with state and national levels.

In summary, the data in Table 2.2 suggests that Brookings may have lower than average concentrations of several population groups that are typically mobility disadvantaged. Despite these lower percentages, Table 2.1 indicates there are still a significant number of local residents that may be transportation disadvantaged.

2.8 South Dakota State University Students

To this point, this section has focused on transportation disadvantaged segments of the population that are identifiable from U.S. Census data. It is important to note, however, that a significant portion of Brookings' population may be temporary in nature given the fact that they are college students who are identified as residents of other communities even though they may reside in Brookings for up to nine months per year. To this extent, some of the population estimates cited in the preceding pages may be underestimated.

With 11,317 students, SDSU is the largest institution of higher learning in South Dakota. SDSU is South Dakota's land-grant university. As such, its mission includes education, research, and outreach to the entire state. SDSU has a staff of 1,626 full-time and 495 part-time employees, and is currently experiencing rapid growth in terms of the size of its student body and research spending.

U.S. Census rules require that college students list their residence as where they live. However, miscounts of certain populations are common, especially for individuals who mistakenly claim the incorrect residence. College students are one population that experiences this phenomenon. Given the size of the SDSU student body compared with the City of Brookings, miscounts could have significant impacts.

2.9 Population Projections

To gain an understanding of future passenger transportation needs, the population of Brookings was projected at five year intervals from 2005 to 2025 using the cohort-component method. The method is covered rigorously by Smith, Taymen, and Swanson (2001) and was applied by Ripplinger in his study of North Dakota mobility needs (2006). The basic concept behind the cohort-component method is that behaviors that prevailed recently will continue in the future. For example, if 10% of females age 25 to 29 moved out of a county during the last five year period, it is expected that 10% of females in that age group in that county will do the same during the next five years. This assumption is quite strong and often erroneous. However, the results of the cohort-component method compare favorably to other methods of population projection.

In the case of Brookings, certain recent developments and current future outlooks may lead one to reasonably assume that cohort-component projections will underestimate the population of Brookings. This is plausible given the significant attraction of migrants to the community, the growth of SDSU, and the labor needs of large employers. This phenomenon could be expected to have a less significant impact on the number of transportation disadvantaged residents as they

would be less likely to move for education or employment than others. It may be worthwhile to view projections in this section as lower bounds for future values.

Brookings had a total population of 18,504 in 2000. The population was projected to have increased slightly to 18,655 in 2005 before decreasing to 16,994 in 2020. Figure 2.8 presents the projected total population of Brookings at five-year intervals from 2005 to 2025.

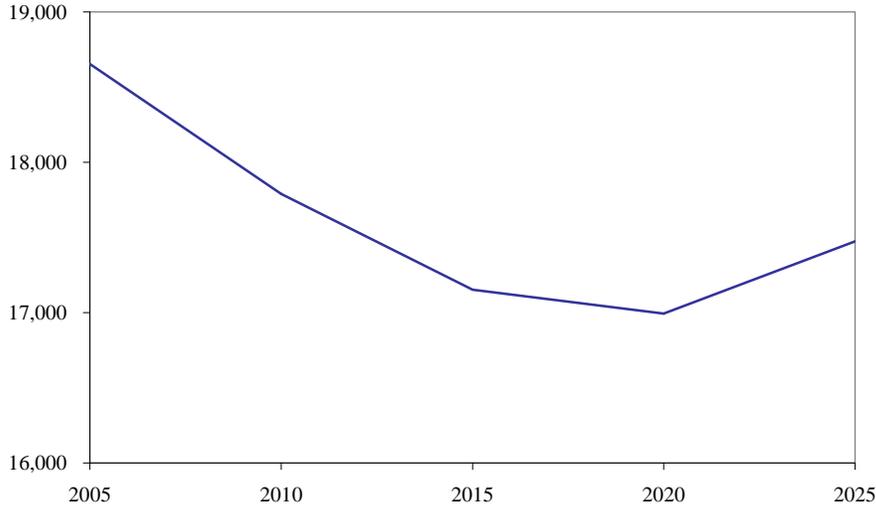


Figure 2.8 Total Population Projections, 2005-2025

Brookings population of seniors is projected to increase steadily from 2005 until 2020, growing from 2,573 to 29,42 residents. As Figure 2.9 illustrates, the projected population of Brookings seniors is expected to decline slightly during the last five years of the 2005 to 2025 period.

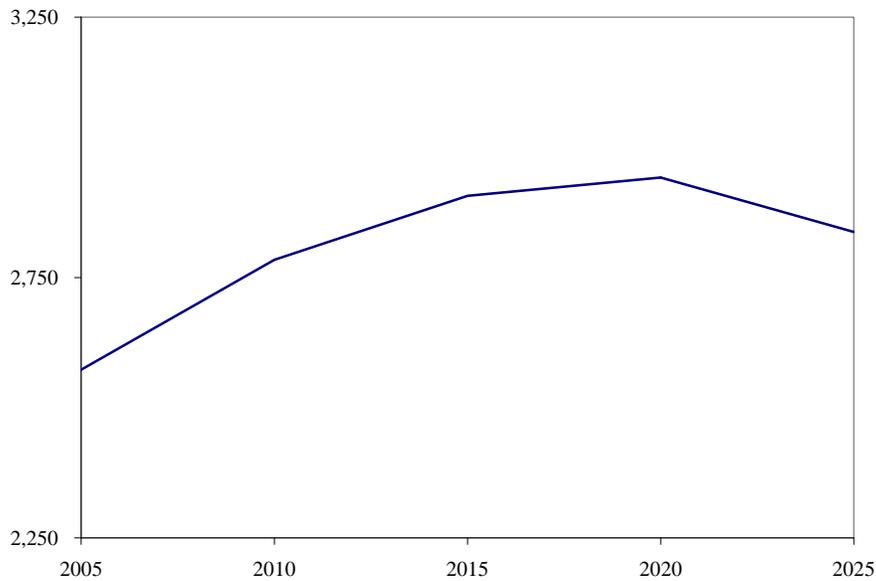


Figure 2.9 Senior Citizen Population Projections, 2005-2025

The number of mobility impaired individuals who make their residence in Brookings is projected to stay somewhat constant between 2005 and 2025, declining only slightly from 612 in 2005 to 583 in 2020. The number of mobility impaired residents of Brookings from 2005 to 2025 is presented in Figure 2.10.

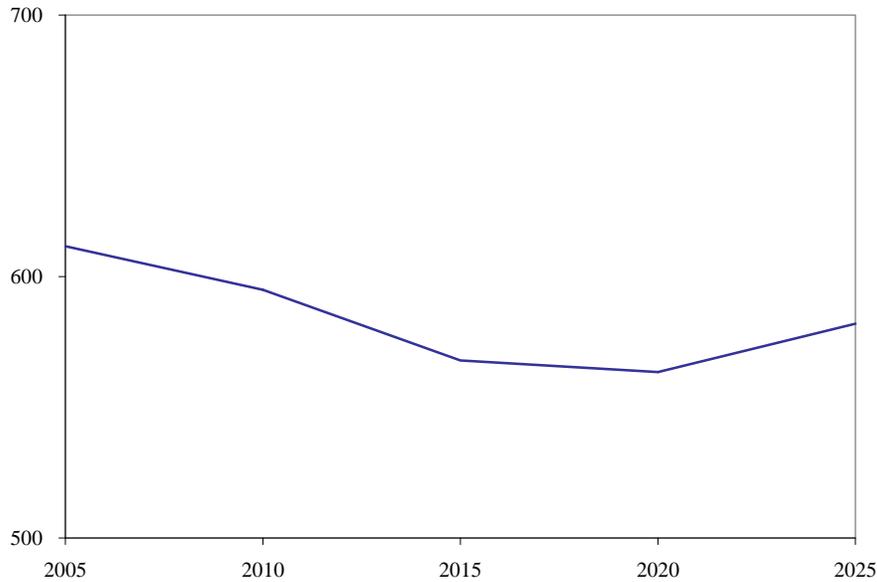


Figure 2.10 Mobility Impaired Population Projections, 2005-2025

The number of school age children, those ages 3-17, is projected to decrease slightly to 1,896 in 2010 before beginning a steady increase, reaching 2,369 in 2025. The projected number of school-age residents of Brookings is presented in Figure 2.11.

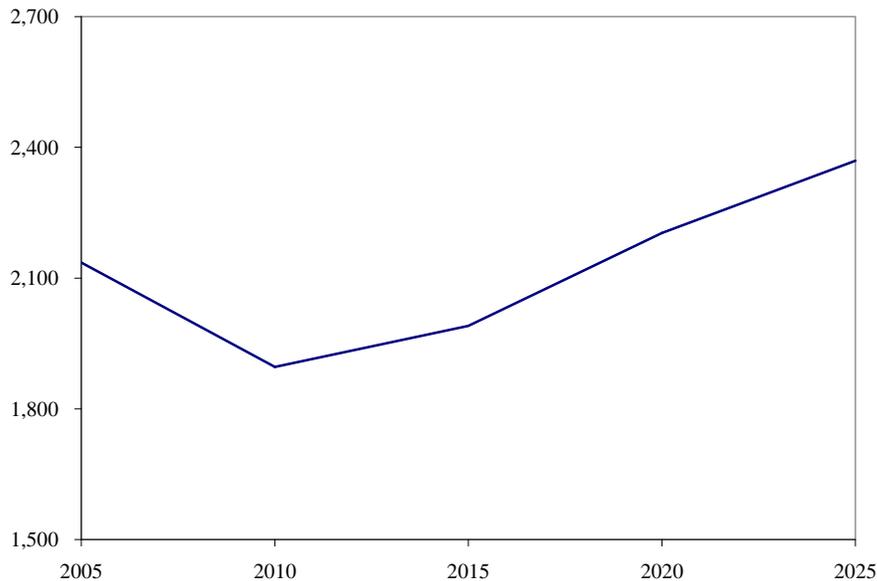


Figure 2.11 Student-Age Population Projections, 2005-2025

The number of households without vehicles is projected to remain relatively constant between 2005 and 2025. There were projected to be 396 no-vehicle households in Brookings in 2005. This number is expected to decline to 362 by 2025. Figure 2.12 presents the projected number of households without vehicles at five-year intervals between 2005 and 2025.

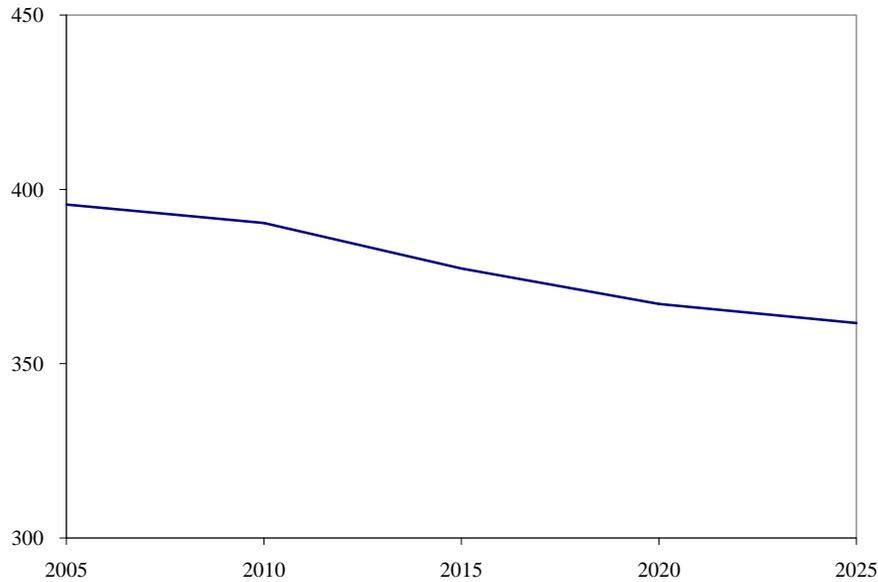


Figure 2.12 Households without Vehicles Projections, 2005-2025

2.10 References

Ripplinger, D. 2006. Projecting Changes in Mobility-Challenged Populations in North Dakota:: 2005-2025. Upper Great Plains Transportation Institute, SP-163.

Smith, S.K., J. Taymen, and D.A. Swanson. 2001. *State and Local Population Projections*. New York: Kluwer Academic.

3. MOBILITY INVENTORY

Individual personal mobility needs are normally satisfied in several ways. The means chosen to get from place to place may be dictated by a combination of factors, including age, income, disability, available alternatives, etc. The following list identifies some of the primary means of personal mobility that are available to Brookings residents:

- Automobiles
- Commercial transportation services
- Public transportation services
- School buses and other school vehicles
- Client-specific transportation services
- Ambulance and other medical vehicles
- Pedestrian and bicycle transportation

Each of these means of transportation will be discussed in the following subsections.

3.1 Automobiles

Automobiles are the primary form of transportation for most Americans. According to the 2000 Census, about 92% of all U.S households have at least one personal motor vehicle. Brookings County mirrors that national average, with approximately 93.4% of its 10,665 households having a motor vehicle.

According to the 2000 Census, 87% of Brookings’ 10,648 workers (age 16 and over) commute to work in personal vehicles and nearly 89% of these private vehicle commuters drive alone. About 8.5% of Brookings’ workers walk to work, and 2.8% work at home. Less than one-half of 1% of all workers commute via public transportation (bus or taxi). These statistics, along with comparisons for the state and nation, are presented in Table 3.1.

Table 3.3 Method of Commuting to Work Brookings, South Dakota, and United States

	Brookings	South Dakota	United States
Private Vehicle	87.0%	87.8%	88.0%
Walk	8.5%	4.5%	2.9%
Work at Home	2.8%	6.5%	3.3%
Public Transportation	0.4%	0.5%	3.3%

Source: U.S. Census – 2000

As indicated earlier, approximately 93.4% of the households in Brookings County have at least one vehicle. Conversely, approximately 6.6% of the households do not have a personal vehicle. This 6.6% equals 491 households.

Based on a county-wide average of 2.38 persons per household, it is estimated that approximately 1,169 county residents live in households that do not have a personal vehicle. Assuming that this occurrence is spread evenly across the county, it is estimated that there are approximately 766 people in Brookings who live in a household without a personal vehicle.

According to the U.S. Department of Transportation's 2001 National Household Transportation Survey, Americans average about four trips per day, and 87% of all trips are made via personal vehicle. As would be expected, persons without a drivers license tend to make the fewest trips per day – 2.6.

Based upon a population of 766 local residents who live in households without a personal vehicle and even the most conservative estimated need of 2.6 trips per day, it is estimated that local residents without motor vehicles need to make approximately nearly 2,000 trips per day.

Given the lack of direct access to a motor vehicle, these travel needs must be satisfied in some other way. Some of these trips are undoubtedly made in private vehicles that are owned by other households. In other instances, it is expected that these trips are made via one of the modal options identified at the beginning of this section. Each of these modal options will be discussed in the remaining pages of this section.

3.2 Commercial Transportation Services

Brookings residents have direct access to three forms of commercial transportation. These travel modes include local taxi service, intercity bus service, and commercial air service. Each of these travel options will be discussed in the paragraphs that follow.

Brookings Area Cab (BAC) is the primary provider of local commercial transportation service in Brookings. BAC operates a sedan and a minivan and provides traditional taxi services within the city and between Brookings and neighboring communities.

BAC operating hours are from 4:30 a.m. to 9:30 p.m. Monday, Tuesday, and Wednesday; from 4:30 a.m. to 2 a.m. Thursday, Friday, and Saturday; and from 4:30 a.m. to 4:30 p.m. on Sunday. The local fare is \$5.75 per person plus \$2 for each additional passenger up to a maximum of \$11.75 per one-destination trip. Discount fares of \$4.25 are provided to senior citizens and passengers who are unable to operate a motor vehicle. Developmentally disabled clients of the Adjustment Training Center are transported for \$4.

BAC has been under its current ownership since 1994. It is currently receiving a monthly subsidy of \$4,727 from the city. In exchange for this subsidy, the city has jurisdiction over BAC's operating hours and fares. BAC drivers are also required to submit to a background check (Behrend 2007).

Limited local taxi service is also provided by Easycab, which operates out of the neighboring community of Volga, which is approximately seven miles west of Brookings. Easycab operates Thursday, Friday, and Saturday evenings from 8 p.m. to 3:30 a.m. and provides services related primarily to late night entertainment.

In addition to these two taxi services, area residents also have access to an airport shuttle service that operates between Brookings and Sioux Falls. This service is run by GP Auto, which also operates a service station, auto tire and repair business, and car rental company.

This shuttle service runs on demand, but normally requests bookings one day in advance. The company uses up to three minivans and charges one passenger \$70 for a one-way trip and \$110 for a roundtrip. Additional passengers are transported at a rate of \$15 each for one-way travel and

\$20 each for round trips. The company reports making as few as one trip per day, but on occasion, demand may warrant as many as 15 trips per day (Hoffer 2007).

Area residents have access to two forms of intercity and interstate commercial transportation – bus and air. Local bus services are provided by Jefferson Lines. Jefferson operates in 11 states up and down the middle of the country. Brookings is served by the carrier’s route, which runs along I-29 from Kansas City to the Canadian border and northward to Winnipeg, Canada. Jefferson Line routes in the vicinity of Brookings are presented in Figure 3.1.

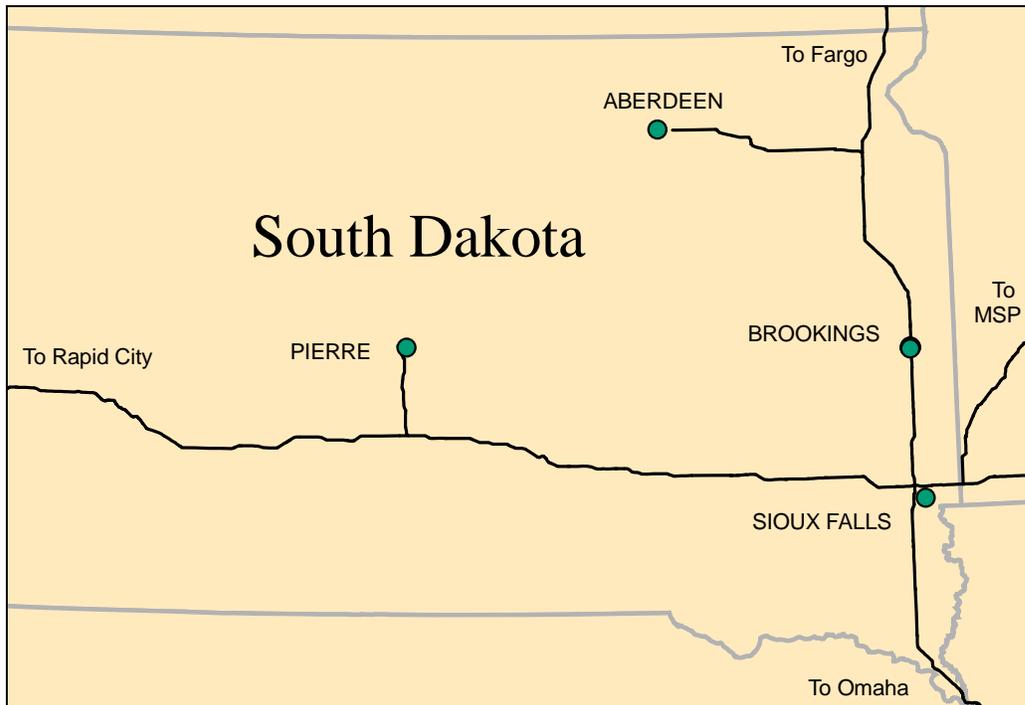


Figure 3.13 Jefferson Lines Route Map

Jefferson runs one northbound and one southbound bus daily through Brookings. Travelers wishing to travel east or west can make corresponding bus connections at either Fargo, North Dakota, or Sioux Falls, South Dakota. These and other connections provide area travelers with access to the bus services that traverse the nation.

Brookings area residents also have access to the nation’s air passenger network via the Brookings Regional Airport. Local air service is provided by Great Lakes Airlines, with daily service to and from Pierre, the state capital, with continuing service to Denver and beyond. Service is available twice daily Monday through Friday and once per day on weekends. A round-trip ticket to Denver with a Saturday night stay costs approximately \$422. The Brookings Days Inn and Staurolite Inn & Suites provide shuttle service to and from the Brookings Airport.

Local air travelers also have the option of traveling to Sioux Falls to access air service. The Sioux Falls Regional Airport is located near the intersection of I-29 and I-90, approximately 55 miles from Brookings. Sioux Falls Regional Airport is served by six airlines and has non-stop service to Minneapolis-St. Paul, Chicago, Denver, Cincinnati, Las Vegas, Orlando, Atlanta, and Salt Lake City. A round-trip ticket to Denver with a Saturday night stay costs approximately \$354.

Passenger rail service is an option for many travelers in the United States. There are, however, no passenger rail service options available in South Dakota. To access rail service, Brookings residents must travel either 190 miles north to Fargo, North Dakota or 235 miles south to Omaha, Nebraska. The Fargo Empire Builder route provides service to points, such as Chicago, Minneapolis, Seattle, and Portland while the Omaha California Zephyr route serves major cities, including Chicago, Denver, and San Francisco.

3.3 Public Transportation Services

As indicated in the preceding section, Brookings City Cab, a for-profit business, provides traditional taxi services in Brookings. Additional local transportation services are provided by Brookings Area Transit Authority, Inc. (BATA), a non-profit corporation that provides demand response, dial-a-ride services to Brookings residents and to the nearby communities of Volga and White. Volga is located approximately 7 miles west of Brookings and White is approximately 16 miles northeast.

BATA provides service to the general public. The authority's operating hours for demand-response service were recently expanded and are now available from 7:30 a.m. to 10 p.m. Monday through Saturday and from 7:30 a.m. to 6 p.m. on Sundays. Reservations for demand-response service must be made one day prior to the day that service is required for members of the general public. Riders with accessibility limitations may schedule same-day trips. Fares are \$2 per one-way ride. For riders age 60 and over, the \$2 fare is suggested but not mandatory; these riders asked to contribute what they can afford.

BATA operates a fleet of 13 vehicles, 10 of which are handicap accessible. One vehicle is a 43-passenger bus and two are minivans; eight are 16-20 passenger buses and two are 10 passenger units. BATA is a Medicaid service provider.

In addition to local demand-response service in Brookings, BATA vehicles travel to Volga on Tuesdays and White on Thursdays and provide transportation from those communities to Brookings and back. Most related trips are for medical appointments and shopping.

BATA vehicles routinely travel from Brookings to Sioux Falls on Mondays. Riders typically make this 60-mile trip to access medical services and to make travel connections. Additional trips to Sioux Falls and Watertown, which is located 50 miles north of Brookings, are made upon request based on availability.

During the 2006-07 school year, BATA initiated a Safe Ride program in conjunction with the student association at SDSU. This program operates from 10 p.m. to 2:30 a.m. Thursday, Friday, and Saturday during the school year and runs over a service route which covers major student residential areas and the downtown area. Safe Ride provided approximately 5,500 one-way rides during its inaugural year. The service will be provided again during the 2007-08 school year (Schweitzer 2007).

BATA initiated fixed-route service in Brookings in early July. Since then, stop locations have changed once in response to ridership and customer phone requests. Additional modifications of the service are expected to be made as needed. Ridership reached 17 for the week of August 6. The route is operated between 8:30 am and 5:00 pm Monday, Wednesday, and Friday. The one-way fare is \$1 for all riders.

On July 6, 2007, BATA entered into an agreement with BAC that allows it to provide same-day service to the general public under certain circumstances. The process of trip assignment allowed under the agreement is presented in Figure 3.3. Upon notification of availability by BAC, BATA is required to assign trips for riders without accessibility limitations to the cab. Under all other circumstances, BATA is able to provide same-day service. The agreement allows BATA to avoid non-compete conditions related to its federal funding as described in 49 USC Section 5323 (a)(1)(B) and Federal Transit Administration Circular C 9030.1C while providing expanded transportation service to the Brookings community.

Brookings Mobility Management Center: Same Day Trip Assignment Function



Objective: to assign same day trips to the appropriate service provider and afford Brookings Taxi the right of first refusal.

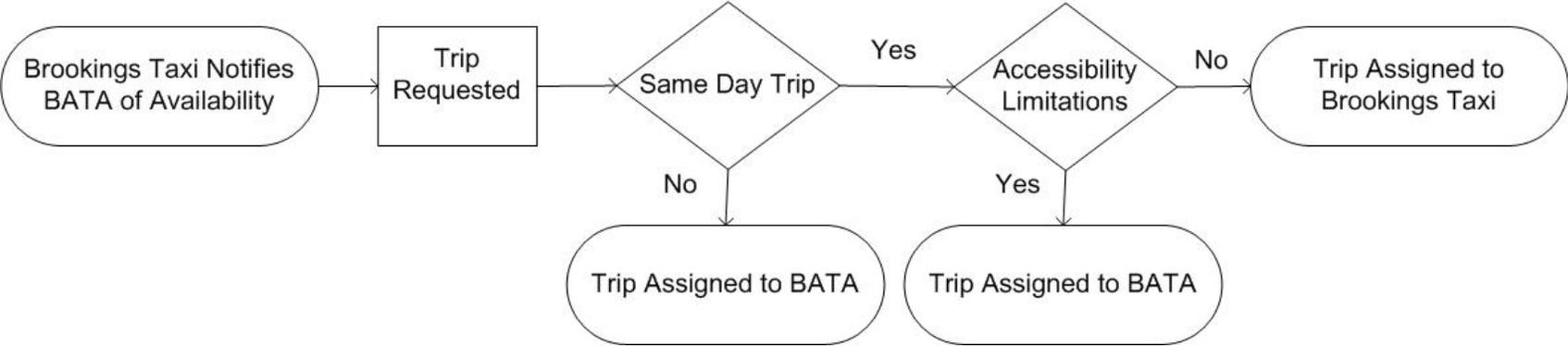


Figure 3.14 BATA Same Day Trip Assignment

In 2006, BATA vehicles traveled a total of 140,570 miles and provided 97,451 one-way rides. Rider characteristics and ride types are summarized in Tables 3.2 and 3.3. As Table 3.2 indicates, youth trips account for the vast majority (47%) of BATA's rides. The other 53% of BATA's rides are somewhat evenly distributed among elderly, disabled, and the general public.

Table 3.4 Ridership Characteristics Brookings Area Transit Authority

Characteristic	Rides	Percent
Elderly	15,611	16.7%
Disabled	13,471	14.4%
Youth	43,819	47.0%
General Public	20,428	21.9%
Total	93,329	100.0%

Source: South Dakota Department of Transportation

Concerning trip purposes, Table 3.3 indicates that social/recreation and education trips accounted for over 58% of BATA's trips. Employment is the next-highest trip purpose and accounts for over 18% of all trips. Shopping is the fourth-highest trip purpose (12%) while medical and nutrition trips account for 7.9% and 3.3% of all trips, respectively.

Table 3.5 Ride Types Brookings Area Transit Authority

Trip Purpose	One-Way Rides	Percent
Medical	7,344	7.9%
Employment	17,037	18.3%
Nutrition	3,111	3.3%
Social/Recreation	29,028	31.1%
Education	25,574	27.4%
Shopping	11,235	12.0%
Total	93,329	100.0%

Source: South Dakota Department of Transportation

BATA has an annual operating budget of approximately \$384,000 and collects about \$60,000 in fares. BATA's operating deficit is financed with federal, state, and local funding support. Federal support comes primarily from the Federal Transit Administrations 5311 program, which is administered by the South Dakota Department of Transportation. This support totaled over \$206,500 in 2006.

Local support for 2006 was approximately \$127,500. Local monies were derived from sources, including Brookings County, United Way, Medicaid, and contracts for service. State support totaled nearly \$40,900 in 2006. In 2006, BATA began receiving financial support from the city of Brookings.

BATA also serves as a ticketing agent for Jefferson Lines. In this capacity, BATA sells bus tickets and provides prospective passengers with related route and fare information. Area residents can use BATA to travel to and from Jefferson Lines local depot.

3.4 School Buses and Other School Vehicles

The Brookings public school district encompasses the city of Brookings and the surrounding area. The district has approximately 2,750 K-12 students. The district operates three elementary schools, one middle school, and one high school, all of which are in the city of Brookings. Two small, church-run private schools might open in Brookings in the near future. Both of these schools will be grade schools.

The school district operates nine rural bus routes which transport rural students to and from school each day. The district strives to limit one-way travel times to 60 minutes or less. As these buses enter the city, they travel to the nearest school, drop students off, and then travel to other schools to drop off other students who attend those various schools.

The district does not operate any in-town bus routes. Rural route buses will, however, transport in-town students from one school to another. Students may, therefore, travel to a nearby school and ride a bus to one of the district's other campuses. These riders must, however, make their own travel arrangements to get to a nearby school in order to ride a bus to another district school. Reverse travel arrangements are available at the end of each school day.

In addition to these nine rural route buses, the district also operates two special needs buses, which transport students between schools and to various local activities during the school day. These buses are 9-12 passenger vehicles and are handicap accessible.

The district also owns and operates five activities school buses and one motor coach, which are used to transport students to out of town extra curricular activities. One of these vehicles is handicap accessible (Lucas 2007).

3.5 Client-Specific Transportation Services

ADVANCE operates 29 vehicles to serve its developmentally disabled clientele. It provides support to seven group homes and two apartment complexes. It also provides assistance to many individuals who live independently (Franklin). ADVANCE can provide transportation services to its clients for a lower per-trip cost than BATA due to lower labor costs and benefits from vehicle ownership.

There is a high degree of coordination between ADVANCE and BATA. ADVANCE regularly relies on BATA to provide service to its clients when it is unable to do so. BATA also provides transportation to employees working at Larson Manufacturing. Individuals living independently make more regular use of BATA than other ADVANCE clients. Larry Franklin, an ADVANCE employee, is a member of the BATA board of directors and is able to represent ADVANCE in this capacity.

ADVANCE and BATA work jointly to procure vehicles for ADVANCE's fleet. ADVANCE provides the 20% local match required for purchase of vehicles. ADVANCE is responsible for the cost of vehicle maintenance and operation, while BATA is able to count rides delivered for state reporting.

The Brookings Boys & Girls Club provides after school, evening, and weekend programming for area youth. The club has been operating out of a facility in downtown Brookings. The school district provided a significant amount of related after-school transportation. The club is in the

process of relocating its facilities. Negotiations are currently underway with Brookings Public Schools to provide transportation to its new center for after-school programs (Lucas 2007).

Vocational Rehabilitation Services tailors solutions to meet its clients' unique transportation needs on an individual case basis. Assistance may include purchasing trip tickets for use with BATA or the BAC. In some circumstances, financial support is provided to cover part of the cost of the operation of a personal vehicle (Raabe 2007).

3.6 Ambulance and Other Medical Vehicles

Ambulance services in Brookings are provided by Brookings Hospital. The service maintains four ambulance vehicles and provides emergency and non-emergency transfers and local and long-distance transport services. It is estimated that 90% of the service's out-of-town transports involve trips to Sioux Falls, the region's largest medical center.

The ambulance service does not provide non-ambulance transportation services to hospital patients. These individuals are responsible for arranging for their own transportation.

There are three medical clinics in Brookings and several chiropractic clinics. None of these facilities provide transportation services to their patients (Schoepf 2007).

3.7 Pedestrian and Bicycle Transportation

Walking and bicycling can be very viable and efficient forms of transportation, but usage is dependent on a number of factors, including the distances involved, available facilities such as sidewalks and bike paths, an individual's physical condition, and weather. Brookings, with a surface area of approximately 12 square miles and a relatively flat terrain, is well configured to promote pedestrian and bicycle transportation. Weather extremes may, at times, inhibit walking and bicycling, but the climate is generally conducive to non-motorized commuting several months per year.

As indicated earlier, Census data indicates that 8.5% of the commuters in Brookings County report that they walk to work. For Census purposes, this category includes bicycling. Brookings County's level of participation in this means of commuting is considerably higher than is reported in either South Dakota or the nation, where such reports reflect participation levels of 4.5% and 2.9%, respectively.

3.8 References

Behrend, Brooks. 2007. *Telephone Interview*. Brookings Area Cab, Brookings, South Dakota. May 30.

Franklin, Larry. 2007. *Telephone Interview*. ADVANCE, Brookings, South Dakota. August 9.

Hoffer, Lori. 2007. *Telephone Interview*. GP Auto, Brookings, South Dakota. May 30.

Lucas, David. 2007. *Telephone Interview*. Brookings Public School District, Brookings South Dakota. May 29.

Raabe, Jerry. 2007. *Telephone Interview*. South Dakota Department of Rehabilitative Purposes, Brookings, South Dakota. August 8.

Schoepf, Jim. 2007. *Telephone Interview*. Brookings Ambulance Service, Brookings, South Dakota. May 23.

Schweitzer, Brenda. 2007. *Telephone Interview*. Brookings Area Transit Authority, Inc., Brookings, South Dakota. May 29.

4. TRANSPORTATION ISSUES & POTENTIAL SERVICE OPPORTUNITIES

This section identifies opportunities for improving Brookings' community transportation system. While the study failed to identify any significant gaps in service, certain areas merit ongoing attention. These areas include the possible evolution of gaps in transportation service where gaps and opportunities exist to increase social welfare through expanded or coordinated transportation services.

Prior to discussing specific opportunities, background information on the coordination of community transportation services is presented. The intent is to provide the reader with an understanding of this transportation concept. The issue of coordination is especially important in the case of Brookings where a novel coordinated effort between BATA and BAC shows promise of greatly increasing the welfare of system users. An understanding and appreciation for the effort required to establish and maintain coordinated services provide motivation for local support.

4.1 Coordinated Transportation

Methods to increase the level of coordination among community transportation providers and the benefits of coordination are not new. However, there has been a recent reemphasis on the issue as the cost of passenger transportation service has increased. The importance of the issue is evident by the leading role and effort committed by the federal government, especially since the issuance of Executive Order 13330 by President George W. Bush in 2004. The executive order recognizes:

- 1) The critical role of transportation
- 2) The negative impact of many federal and state rules and restrictions on service
- 3) The fragmented, underutilized, or unavailability of many community transportation systems
- 4) The need for a responsible, seamless, comprehensive, and accessible community transportation system for mobility dependent populations

Executive Order 13330 mandated the creation of the Interagency Transportation Coordination Council on Access and Mobility. This council includes the nine cabinet members and the Commissioner of Social Security. In response, the Secretary of Transportation developed two initiatives, United We Ride and Mobility Services for All Americans, to meet the challenges identified. The United We Ride program focuses on coordination, while Mobility Services for all Americans is focused on the use of technology to improve service delivery. The United We Ride program has identified best practices in coordination, developed tools for coordinated transportation planning, and organized resources for training and technical assistance.

Burckhardt, Koffman, and Murray (2003) present the general concepts behind coordination, strategies for increasing coordination, and the benefits and industry-wide impacts of coordination in TCRP Report 91: Economic Benefits of Coordinating Human Service Transportation and Transit Services. The report defines coordination as "working together with people from different agencies and backgrounds." It can take a number of forms and may include one or more of the primary functions of community transportation providers: planning, procurement, maintenance, operations, and marketing. An important point identified by the authors is that coordination is a political process and may involve conflicts over power, resources and control.

Strategies for coordination include generating new revenues by providing services to new markets, contracting with other agencies to provide services to their current clientele, and coordinating dispatching. Local benefits include increased sources of funding, increased efficiency, increased mobility, and secondary economic benefits. Summing the local benefits to find industry-wide impacts of coordination quickly enter into the hundreds of millions of dollars.

Burckhardt, Nelson, Murray, and Koffman (2004) identify three components of coordination in TCRP Report 101: Toolkit for Rural Coordinated Transportation Services:

- 1) A strategy for managing resources
- 2) A sharing of power, responsibility, management, and funding
- 3) A process involving power and control over resources

Coordination is defined as a political process where two or more organizations work together in the delivery of their services. Potential benefits include access to additional funds and funding sources, higher quality, more efficient service, enhanced mobility for community members, and more visible transportation services.

In some regards, coordination of transportation services is easier to conduct in relatively small communities where the transportation needs and relationships among representatives of transportation providers and others are more personal. In some cases, there are fewer service providers, thereby making joint agreements easier to attain. As described in Section 3, BATA coordinates its service in conjunction with other public and private entities in the community. Its new agreement with BAC is a unique approach to coordination which demonstrates the general attributes identified in TCRP Reports 91 and 101.

4.2 Transportation Issues

While this study found no significant gaps in transportation service, certain issues merit ongoing attention as the transportation needs of the Brookings community evolve. Eight issues have been identified. Most focus on specific community transportation services. Two, however, focus on related issues of emergency planning and mitigation and signage.

4.2.1 Same-Day Transportation

Same-day transportation for the general public has traditionally been provided by BATA and BAC. BATA is limited by federal regulations, which require that private transportation service providers, such as BAC, be allowed to provide service to the maximum extent possible. As a result, BATA has focused on providing same-day trips to riders with accessibility issues, riders that BAC is unable to accommodate. This situation has caused great consternation among many members of the Brookings community who are unhappy that they cannot use BATA for same-day trips.

One of the original goals of this study was to identify possible solutions to this issue. However, the new coordination service agreement between BATA and Brookings Area Cab allows for BATA to provide same-day service under conditions described in Section 3. The agreement, plus the ongoing coordination efforts involving BATA, ADVANCE, and other local organizations, and the newly initiated fixed-route service will result in a greatly enhanced community transportation system and a more efficient use of resources.

4.2.2 Intercity Bus Service

Intercity bus remains an essential mobility service in rural America (FTA). Although the number of cities served has fallen from 15,000 to 4,300 locations since 1982, 89% of America's rural population is still served by long-distance bus service. Intercity bus service remains "the dominant mode of scheduled intercity travel for most rural residents" (Brown). There is no evidence that the level of intercity bus service along the Interstate 29 corridor provided by Jefferson Lines will change in the near future.

4.2.3 Essential Air Service

The objective of Essential Air Service (EAS) is to ensure that small communities continue to have access to air service following deregulation of the industry in the late 1970s. This is achieved by providing service providers with financial subsidies (GAO). Funding is currently provided to 104 airports in the continental United States. Brookings, as a recipient of EAS funding, received \$1,212,400 in October 2006. The current rate agreement is scheduled to end September 30, 2007 (US DOT 2007). Brookings' eligibility for continued EAS assistance is in jeopardy due to per-passenger subsidies in excess of \$200, the federally mandated maximum level (US DOT 2006).

Studies of the economic impact of air service in communities similar to Brookings give some insight into its value. Augusta, Maine, a city of 18,560 residents, is located 55 miles from the nearest medium-sized airport, Portland International. Brookings is comparable in size to Augusta and is located approximately 55 miles from Sioux Falls Airport.

A study by Wilbur Smith Associates estimated the direct economic impact of commercial airline access at Augusta State Airport was \$1.3 million per year, with an additional \$3 million in secondary impacts. Commercial air service at Augusta is estimated to be responsible for creating 54 jobs. The airport had just over 5,000 boardings in 2006. It must be noted that the model used to estimate the economic impact took into account local and state characteristics, which likely vary significantly from those in Brookings.

A lack of air service usually does not determine business location, retail or manufacturing, but is viewed as a relative disadvantage by rural businesses. Gale and Brown found that 51% of rural manufacturers felt that airport access was a problem. Firms that do significant amounts of business outside of their local area reported more concern about the issue than other businesses.

It should be noted, however, that airport shuttle service is available between Brookings and Sioux Falls. Several local businesses reportedly utilize this service to access more frequent flights and lower fares that may be available in Sioux Falls.

4.2.4 Youth and School Transportation

The Brookings Public School District's provision of shuttle services between schools and limited pickups within city limits is a relatively unique situation. These services are, however, available only during the school year and on school days. Conversely, a large number of youth programs are available year-round. Many are provided by the Brookings Boys and Girls Club and the Brookings Parks and Recreation Department.

The responsibility for transportation of many Brookings' students and youth falls on parents and guardians. There may be significant social benefits associated with providing or expanding community transportation services to this group of residents.

4.2.5 University Transportation

Many university communities have characteristics, including high population densities, land use, and travel patterns, which make them amenable to the provision of transit services. However, not all university communities have transit service that specifically target students, faculty, and staff. Brookings is currently one such community.

A recently completed study, commissioned by BATA, focused on the feasibility of fixed-route service at SDSU (Ripplinger 2007). It found significant, wide-spread support among students, faculty, and staff for such service, including the use of student fees to provide funding. Service targeting the SDSU community would likely require student financial support as well as matching federal funds,

The study recommended that BATA continue its efforts to implement fixed-route service focused on meeting the transportation needs of the SDSU community. A phased approach to new service, with a minimum initial sustainable level of service, was also recommended. The minimum level of service would focus on service on and near campus during the academic year. This minimum level of service would provide limited service to the Brookings community.

The study also recommended that any new fixed-route service be coordinated with existing transportation services and that a more uniform system to meet the needs of all Brookings residents be considered in the future. Additional information is available in the BATA/SDSU report.

BATA is currently working with the SDSU community and others to implement fixed-route service. Student and administrative support for the service, as well as approval of the South Dakota Board of Regents, is necessary for commencement of service. On an accelerated schedule, initial service would begin no earlier than Fall 2008.

4.2.6 Large Events

Brookings hosts a number of large events each year. Many, including athletic competitions involve SDSU while others, such as the Brookings Summer Arts Festival, are community-wide events. Involving Brookings' community transportation providers in the event planning process may result in better utilization of resources. One possibility would include providing off-site parking and shuttle service to event locations. This would reduce the demand for limited parking space and reduce the amount of congestion.

4.2.7 Emergency Planning and Mitigation

Community transportation resources can play a vital role in emergency mitigation. Service providers can play specific roles, including evacuation and the transportation of emergency workers, volunteers, and supplies. Successful emergency mitigation usually requires significant planning prior to the occurrence of events, and related operations are typically outlined in emergency operation plans (EOPs). Organizations need to develop processes, reach agreements,

and gain understanding of others' capabilities to successfully manage responses to emergency events.

Resources to assist in emergency planning have grown in recent years. TCRP Report 86: Public Transportation Emergency Mobilization and Emergency Operations Guide is a resource available to those involved in public transportation. The report includes the process to be followed in developing an emergency operation plan for public transportation providers.

4.2.8 Signs and Wayfinding

Wayfinding is a field of study related to the ability of residents and visitors to safely and efficiently reach their intended destination. Successful wayfinding relies on the effective use of signs and maps that focus on users' needs and abilities. Wayfinding is of particular importance in Brookings as the community welcomes tens of thousands of visitors each year. Many of these individuals visit the community infrequently or do so for the first time.

Effective wayfinding depends on three processes: information processing, decision making, and execution (KRW, Inc.). Information processing depends on an individual's perception and cognition; signs must be noticed and understood. Travel plans must then be developed and successfully executed. Wayfinding focuses on the needs of individuals and takes into consideration physical and cognitive impairment. For trips to be successfully completed, individuals who are visually impaired, blind, hearing impaired, deaf, mobility impaired, and illiterate may have needs which change.

One example of wayfinding in Brookings involves executing trips to downtown Brookings. Reaching downtown Brookings from Interstate 29 can be challenging for many individuals. Trips must be made across the length of the community with little assistance in the form of signs along the way. The same shortcoming in signage is also present for many other trips to the downtown area along different routes.

In the context of transit, concepts from the field of wayfinding apply to the establishment and signing of transit stops or facilities. Appropriate signage is required to ensure that a transit system is accessible to individuals with physical or mental impairments. Assistance in this area is presented in TCRP Report 12: Guidelines for Transit Facility Signing and Graphics.

4.3 Potential Service Opportunities

Given Brookings' transportation needs and existing services, two potential service opportunities show significant promise for improving the wellbeing of residents and visitors. The areas of opportunity include expanded fixed-route transit service and vanpool operations. These subject areas are discussed in the following two subsections of this section.

4.3.1 Expanded Fixed-Route Service

The Brookings community possesses a number of attributes that make it amenable to fixed-route service including the presence of South Dakota State University, several large employers, and limited pupil transportation within Brookings city limits. BATA's new fixed-route service which consists of a single route and is designed primarily to address the needs of existing clientele. A more robust level of service, atypical for a small urban community with approximately 20,000

residents, may be not only feasible, but optimal in terms of using societal resources for the delivery of transportation service.

A precise design for future transit service was not developed as a part of this study. What could be expected is year-round, community-wide service something far beyond the scope of BATA's newly initiated single route. Service would likely include significant levels of service to SDSU to meet the needs of students and others. Service to commercial areas, including Downtown Brookings, 6th Street, and 22nd Avenue would also seem likely. Service to residential areas in south Brookings along arterial streets could be provided throughout the day or service could be limited to peak morning and late afternoon commute times. Service might also be provided to the location of large employers, including those on the east side of I-29.

Three routes serving off-campus portions of Brookings were generated for demonstrative purposes for the SDSU transit study and are presented here with the same intent. The Eastside Route would provide service to the SDSU campus, peripheral parking areas, nearby apartments, Wal-Mart, the Brookings Hospital, Hy-Vee, and the Brookings Mall. A map of the Eastside Route is presented in Figure 4.1.

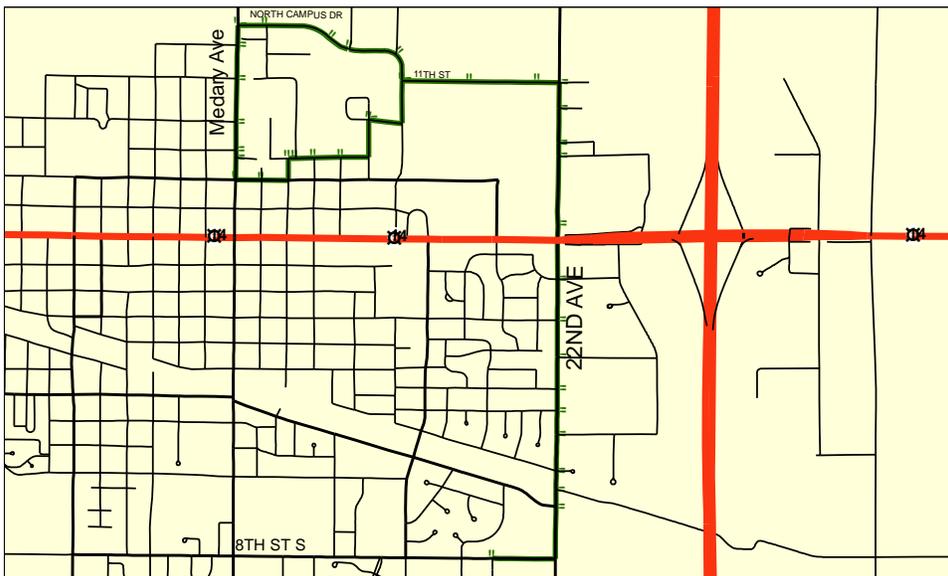


Figure 4.1 Eastside Route Map

A Downtown Route would provide service to the SDSU campus, nearby apartments, downtown Brookings, the Brookings Public Library, the Brookings County Courthouse, Hy-Vee, and the Brookings Mall. A map of the Downtown Route is presented in Figure 4.2.

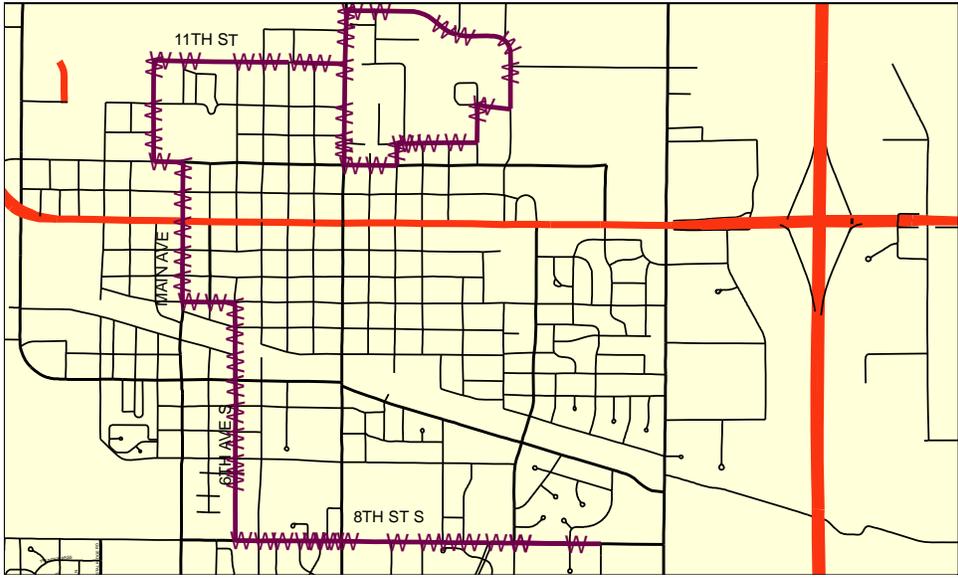


Figure 15.2 Downtown Route Map

The Central Route provides service to the SDSU campus, apartments, and commercial properties on 6th Street. A map of the Central Route is presented in Figure 4.3.



Figure 4.3 Central Route Map

The cost of robust city-wide service would likely exceed \$1 million annually. In addition to student fees and federal funding sources, local funds would also likely be necessary to provide a robust level of service. The amount needed would be dependent on the level of service provided and contributions by other entities. Dedicated local funding for public transportation is often generated by property or sales taxes.

4.3.2 Vanpooling

Brookings is home to several large employers including SDSU, Daktronics, 3M, Larson, and Rainbow Play Systems. Travel patterns resulting from fixed employee work schedules and the rising cost of personal transportation are favorable for fixed-route and van pool service. The latter is especially intriguing, given the number of employees at these locations who commute from outside the Brookings city limits.

Vanpool service may be organized and operated by individuals or employers or be provided under contract with third parties, including local and state units of government. Liability issues and a desire by individuals and employees to make long-term commitments to providing service has led to a recent increase in the number of vanpools owned by third parties (Mielke 2006).

Employers and employees are the primary beneficiaries of vanpool service. Employers benefit from being able to recruit and retain employees from a larger labor pool. Secondary benefits from vanpool service include reduced air and noise pollution, traffic congestion, and parking needs.

Federal tax benefits are available to both employers and employees who travel by vanpool to the workplace. This may be done by reducing the employees' taxable income or by the employer purchasing or providing vanpool service for the benefit of their employees. Additional information concerning vanpool operations is available in a 2006 SURTC report, *Vanpooling in North Dakota: Feasibility and Operating Scenarios*.

4.4 References

Balog, J.N., Boyd, A., Caton, J., Bromley, P.N., Strongin, J.B., Chia, D. and K. Bagdonas. *Public Transportation Security*. Vol. 7, *Public Transportation Emergency Mobilization and Emergency Operations Guide*. TCRP Report 86. Washington, D.C.: Transit Cooperative Research Program.

Brown, D.M. 2005. Rural Transportation at a Glance. Agriculture Information Bulletin, No. 175. Washington, D.C.: Economic Research Service. United States Department of Agriculture.

Burckhardt, J.E., Koffman, D. and G. Murray. 2003. Economic Benefits of Coordinating Human Service Transportation and Transit Services TCRP Report 91. Washington, D.C.: Transit Cooperative Research Program.

Burckhardt, J.E., Nelson, C.A., Murray, G. and D. Koffman. 2004. Toolkit for Rural Coordinated Transportation Services. TCRP Report 101. Washington, D.C.: Transit Cooperative Research Program.

Essential Air Service, Changes in Passenger Traffic, Subsidy Levels, and Air Carrier Costs. Statement of John H. Anderson, Jr, Director Transportation Issues, Resources, Community and Economic Development Division. 2000. Washington, D.C.: Governmental Accounting Office.

Gale, F. and D. Brown. 2000. How Important is Airport Access to Rural Businesses? *Rural America*, September.

KRW, Inc. 1996. *Guidelines for Transit Facility Signing and Graphics*. TCRP Report 12. Washington, D.C.: Transit Cooperative Research Program.

Mielke, J. 2006. Vanpooling in North Dakota: Feasibility and Operating Scenarios. Fargo, N.D.: Upper Great Plains Transportation Institute DP-174.

Miller, J.H. 2001. Transportation on College and University Campuses. TCRP Synthesis 39. Washington, D.C.: Transit Cooperative Research Program.

Reeder, R..J. and C. Wanek. 1995. The Importance of Local Airports to Rural Businesses. In *Rural Development Strategies*, edited by D.W. Sears and J.N. Reid. Chicago: Nelson-Hall Publishers.

Ripplinger, D. Forthcoming. Campus Transit Development Planning: A Case Study. Fargo, N.D.: Upper Great Plains Transportation Institute SP-189.

U.S. Department of Transportation. US Subsidized EAS Report. http://ostpxweb.dot.gov/aviation/X-50%20Role_files/070401nonalaska.htm (accessed July 24, 2007).

U.S. Department of Transportation. Order Selecting Carrier and Establishing Subsidy Rates. http://dmses.dot.gov/docimages/pdf97/408703_web.pdf (accessed July 24, 2007).

Wilber Smith Associates, Inc. 2007. The Economic Impact on Air Service in Maine. <http://www.maine.gov/mdot/aviation/pdf/economicimpacts.pdf> (accessed July 24, 2007).

5. RECOMMENDATIONS

This section presents study recommendations. These recommendations are based on the findings of the study, including information gathered during meetings of the advisory board and interviews with representatives of local organizations. Most of the recommendations are for the City of Brookings, including recommended changes in policy and actions to be taken; other recommendations are for transportation service providers and local businesses. These recommendations include

- Establish a coordinated transportation board
- Provide support for same-day, coordinated transportation service
- Revise city transportation funding allocation and oversight policy
- Study expanded fixed-route service
- Consider the role of transportation in large event planning
- Consider vanpool operations
- Incorporate community transportation into emergency planning

5.1 Establish a Coordinated Transportation Board

It is recommended that a coordinated transportation board be established in Brookings. A coordinated transportation board would provide a venue for ongoing discussions on issues, such as existing and evolving transportation needs and the generation and allocation of available resources in Brookings. Board membership should include transportation providers and other stakeholders in the community such as those who served on the advisory board for this study. Possible participants might include

- ADVANCE
- Brookings Health System
- City of Brookings
- Committee for People with Disabilities
- Brookings Area Cab
- Brookings Area Transit Authority
- Brookings Public School District
- East Central Mental Health
- Department of Vocational Rehabilitation
- Downtown Brookings
- South Dakota State University Student Association
- South Dakota State University Administration

The focus of the board would be to identify opportunities for improved efficiency as measured by increased levels of service or decreased cost, especially through coordination among transportation providers in Brookings. The board could provide oversight and evaluate the success of coordinated transportation efforts as well as provide advice and information to other organizations on a regular or as-needed basis. This report and other resources available from the national United We Ride program could be used to guide the coordinated transportation board.

Initial meetings of the coordinated transportation board would be held to determine its mission, objectives, and duties. Once established, the board would meet on an as-needed basis, at least semiannually.

5.2 Build Support for Same-Day, Coordinated Service

It is recommended that state and local organizations educate themselves on the mechanics of the coordinated effort between BATA and BAC and provide commensurate political and financial support as warranted. An understanding of the agreement is necessary to provide appropriate oversight for transportation services funded by public sources. Support could include promotion of the service and its benefits to the community and the provision of funds to cover part of the cost of the service. Financial support could involve the use of existing City of Brookings transportation funds or federal funds managed by the South Dakota Department of Transportation. Funds could be provided to support part of the cost of all services provided by BATA and BAC or to cover administrative, capital, and operating costs directly related to the coordinated service.

Marketing of the new service is important given the complexity of trip assignment. Riders need to understand that their trip may be delivered by either BATA or BAC depending on system conditions. Dedicating funds to market the new service would likely have an immediate, positive impact on ridership.

5.3 Revise Existing City Transportation Funding Allocation and Oversight Policy

Given the increased cost of transportation and demand for service, local financial support for community transportation services in Brookings is in demand. Properly developed policy will ensure that limited resources are efficiently used. It is recommended that the City of Brookings revise its current transportation funding and oversight policies. With respect to the application and allocation of local funds, four concepts should be incorporated:

PRIVATE ENTERPRISE-The City of Brookings should recognize the concerns of private transportation providers. It should avoid providing financial assistance to governmental bodies that provide service in direct competition with private providers and encourage private sector participation in service provision to the maximum extent feasible. Private transportation providers should be invited to participate in all transportation planning efforts sponsored by the city. (This language corresponds with existing federal requirements for recipients of federal funds. BATA, the only current recipient of federal funds, is required to comply with similar requirements.)

COORDINATION-The City of Brookings should require information on existing and planned coordinated efforts by applicants for city transportation funds. To ensure that the greatest level of service is provided for the funding allotted, allocations of city transportation funds should be based, in part, on the level of coordination exhibited by applicants.

(This language aligns city policy with the nationally recognized importance of coordination and its impact on the efficient use of resources to deliver transportation services.)

LEVERAGE OF FUNDS-The City of Brookings should, to the maximum extent possible, leverage city funds to serve as a match for monies from other sources. The city should base its transportation funding allocation, in part, on the intended use of funds as described in the annual applications. The city should provide extra weight to applications for city funds that will be used to leverage other funds. (This could include federal capital and operating grants for which both BATA and BAC qualify.)

REPORTING-The City of Brookings should require reporting of services delivered following the end of each funding period. The information requested should include hours of service, rides provided, actual use of allocated city funds, and coordinated service. The reporting of information and its reliability should be a factor in the allocation of city transportation funds.

Communication between the city and regular recipients of transportation funds should be open to ensure that its budgeting process takes into account significant changes in the level or type of service provided by applicants. A coordinated transportation board, whose creation is presented as the study’s first recommendation, could evaluate proposals for funds and provide recommendations to the Brookings City Council regarding funding allocation.

The level of funding provided by the City of Brookings should reflect local needs and resources. There is also much to be learned from what other similar-sized communities are doing in South Dakota and elsewhere.

Table 5.1 presents information on the use of local funds to support transportation services in eight similar South Dakota communities in 2007. Of the eight communities listed, only Brookings provides direct financial assistance to a private transportation provider, BAC. The City of Mitchell sets aside funds for taxi service, which is provided by Palace Transit, the city-run public transportation agency. The local private taxi company in Aberdeen receives federal 5311 funds under its contract with Aberdeen Ride Line, the local public transportation agency. The \$55,733 provided by the City of Brookings for 2007 was greater than the total amount of local support for transportation for all cities with the exception of Pierre.

Table 5.1 2007 City Support for Transportation in South Dakota

City	Population	Taxi	City Support	Owner	Public Transportation	City Support	Owner
Aberdeen	24,071	Y	-	Private	Y	\$ 47,000	Non-profit
Brookings	18,802	Y	\$ 55,733	Private	Y	\$ 25,000	Non-profit
Huron	10,909	Y	-	Private	Y	-	Non-profit
Mitchell	14,857	Y	\$ 21,183	City	Y	\$ 30,935	City
Pierre	14,095	N	-	-	Y	\$ 89,000	Non-profit
Vermillion	9,862	N	-	-	Y	\$ 7,500	Non-profit
Watertown	20,526	Y	-	City	Y	\$ 40,700	Non-profit
Yankton	13,767	Y	-	Private	Y	\$ 25,000	Non-profit

As Table 5.1 illustrates, support for public transportation providers varied widely. The City of Huron provided no funds for 2007, while the City of Pierre provided approximately \$89,000. The City of Brookings provided \$25,000 for BATA in 2007.

BATA and BAC provide important transportation services to the community. It is recommended that the city maintain existing levels of financial support to each organization, in the near term, to ensure continuity of transportation service in the community. Changes in transportation needs and local resource availability should be revisited regularly. Changes in total spending and related allocations among service providers should be made when appropriate.

5.4 Study Expanded Fixed-Route Service

It is recommended that the City of Brookings stay informed of any changes in fixed-route transit service in the community. If changes do occur, especially service targeting the SDSU community, a study on the issue should be commissioned. The study should focus on gaps between transportation needs and services, particularly fixed-route service. This is of particular importance if the new fixed-route service is funded by and tailored to meet the needs of SDSU students. This would likely result in gaps in service to Brookings residents during academic breaks or for riders with trip destinations which do not align with students' destinations. The study would also need to identify what level of local, non-university-funding would be equitable and what revenue sources might be available and most appropriate. A study on expanded fixed-route service could build upon this study and the SDSU study commissioned by BATA.

5.5 Consider Role of Transportation in Large Event Planning

It is recommended that large event organizers and transportation providers in Brookings explore opportunities for transportation service during events. At a minimum, transportation providers, such as BATA and BAC, and event organizers should discuss needs and service alternatives. If mutual interest in service is present, additional discussions should be held to identify the type and level of service needed. If necessary, plans should be developed and formal agreements executed.

5.6 Consider Vanpool Services

It is recommended that the community explore the feasibility of initiating commuter vanpool operations. This could include ensuring that individual employers have the information necessary to evaluate the feasibility of initiating or otherwise promoting vanpool services for their employees. Alternatively, the city or a local civic organization could arrange for an informational meeting to be held with employers and potential vanpool service providers, be they public or private.

5.7 Incorporate Community Transportation into Emergency Planning

It is recommended that community transportation be specifically incorporated into emergency operation plans (EOPs) within the City of Brookings if this is not already the case. This could include reviewing existing emergency operation plans for inclusion of transportation resources, including vehicles, communications technology, and capabilities in the local inventory, and the development of processes and agreements among various agencies and transportation providers. Alternatively, an emergency operation plan could be developed for BATA. An EOP of this type would focus on BATA's needs and capabilities during an incident. A process for preparing an emergency operating plan for a public transportation agency is described in TCRP Report 86: Public Transportation Emergency Mobilization and Emergency Operations Guide.