Comparing Public Transportation Services for Rural States in the Upper Midwest and Great Plains Region — Executive Summary

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SURCOM RESEARCH SUMMARY

Abstract

This study compares the level of public transportation services provided in North Dakota to those of the surrounding states of South Dakota, Montana, Wyoming, Nebraska, and Greater Minnesota. Separate analyses are performed for rural and urban transit. Overall, North Dakota performs well by some measures and not as well by others, but the level of service in the state is generally comparable to what is found in surrounding states. Statewide averages show how the states compare to each other, but there are significant variations within states regarding the level of service provided, for both rural and urban transit

Introduction

The objective of this research is to compare the level of public transportation services provided in North Dakota to those of surrounding states. The study focuses on North Dakota, South Dakota, Montana, Wyoming, Nebraska (excluding the Omaha metro area), and Minnesota (excluding the Twin Cities metro area). The study examines how well public transportation is serving the citizens in these mostly rural states. This involves an analysis of the level of service provided, measured in terms of geographic coverage, service availability, number of vehicles in use, and vehicle hours and miles of service; the amount of service consumed, measured in terms of ridership; the level of investment from different sources; and measures that evaluate the effectiveness and efficiency of service. The analysis also considers the varying levels of need throughout the region.

The scope of the project includes all public transportation in North Dakota, South Dakota, Montana, and Wyoming, as well as all transit in Minnesota and Nebraska excluding the Twins Cities and Omaha metro areas. This includes all rural agencies receiving section 5311 funding and small urban systems receiving section 5307 funds.

Demographic Characteristics of the Region

Rural transit agencies in the six-state region serve many highly rural areas with low population densities. While several rural counties have experienced declining or stagnant population, an aging population could indicate a significant need for transit. High percentages of older adults are found in some of the most rural counties in the region. High instances of poverty and lower vehicle ownership are found in some of the counties with high Native American populations.

Rural Transit Level of Service

North Dakota has good coverage of rural transit service, with some level of service available in each county. Other states, such as South Dakota, Nebraska, and Montana, have some counties with no service. The span of service in North Dakota is typical to that in neighboring states. Services are typically available five days a week (Figure 1) and at least five but less than 12 hours a day, though there are variations across the state. There are few areas with weekend service or with 12 or more hours of service per day. Although North Dakota has good coverage, service could be improved by expanding the hours of service or adding weekend service.

Rural and tribal ridership divided by rural population for each state for 2017-2021 is shown in

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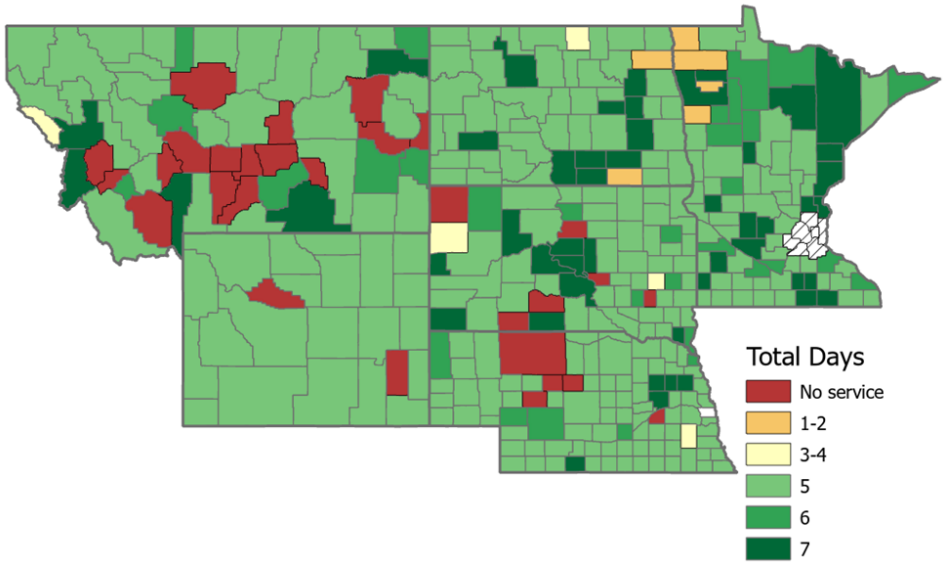

Figure 1. Days Per Week that Rural Public Transit is Available in Each County

Table 1. Ridership dropped in every state in 2020 because of the pandemic. From 2019 to 2021, ridership decreased 33% in North Dakota. Other states experienced greater declines, including Wyoming and Montana, which saw drops of 50% or more. Different states use different fiscal years for reporting data to the NTD, so year-to-year changes could differ between states based simply on which month they use as the end of the fiscal year.

Because of the ridership decreases, many performance measures, such as operating cost per trip or trips per vehicle revenue mile (VRM) or vehicle revenue hour (VRH), were worse during the pandemic. Nationally, there had been a decreasing trend in transit ridership in both urban and rural areas during the years prior to the pandemic, and then ridership dropped substantially in 2020. Regionally, the decreasing trend prior to the pandemic was not as evident. There had been some decreases in some states, along with year-to-year variations, but overall, rural transit ridership had been fairly stable. Whether ridership will rebound to previous levels following the pandemic, and how long it takes for that to occur, is uncertain. The decrease in ridership could partly be explained by reductions in service levels, as shown by the decreases in VRM and VRH in 2020. However, these decreases were not as great as the ridership declines, and service levels began to rebound in 2021.

Level of service in each state can be compared by analyzing the per capita quantity of service supplied and consumed. The quantity of service supplied is shown by the per capita VRM and VRH. As shown in Table 2, North Dakota provides a relatively high level of VRM and VRH per capita compared to surrounding states. During the 2017 -2021 period, it had the highest VRM per capita and among the highest VRH per capita. However, this did not translate into a high level of ridership per capita. Compared to North Dakota, ridership per capita is higher in South Dakota, Minnesota, and Montana, though it is lower in Nebraska and Wyoming (if the two large systems in Wyoming serving a resort area and a university are not included).

Areas with low population densities and long travel distances often require additional vehicle miles and hours of service to provide the same number of trips. This can explain why a state such as Minnesota, with its higher population density, can have greater ridership per capita while providing fewer VRM and VRH per capita. On the other hand, South Dakota and Montana are also very rural states, but they have higher ridership levels per capita. However, even though South Dakota and Montana have higher total ridership per capita, per capita ridership varies substantially within these states. There are some areas in South Dakota and Montana that have high per capita ridership but other areas that have ridership levels lower than anywhere in North Dakota, including

Table 1. Rural and Tribal Transit Ridership Per Capita, 2017-2021

	2017	2018	2019	2020	2021
North Dakota	1.30	1.37	1.36	1.07	0.87
South Dakota	2.42	2.27	2.01	1.27	1.42
Montana	1.90	1.76	1.83	1.39	0.88
Wyoming	4.45	4.59	4.59	3.02	1.86
Wyoming (exc. START, UW)[a]	0.87	0.89	0.83	0.63	0.53
Nebraska	0.74	0.69	0.67	0.52	0.45
Minnesota	1.82	1.87	1.83	1.38	0.99

[a]Southern Teton Area Rapid Transit (START) and the University of Wyoming are excluded because they are high-ridership systems that skew the averages.

Table 2. Rural and Tribal Transit Per Capita Service Supplied and Consumed, Average 2017-2021

	Vehicle Revenue Miles Per Capita	Vehicle Revenue Hours Per Capita	Ridership Per Capita
North Dakota	7.23	0.49	1.20
South Dakota	7.03	0.49	1.88
Montana	5.65	0.36	1.56
Wyoming	5.76	0.46	3.70
Wyoming (exc. START, UW)[a]	3.43	0.28	0.75
Nebraska	3.63	0.22	0.62
Minnesota	6.07	0.40	1.58

[a]Southern Teton Area Rapid Transit (START) and the University of Wyoming are excluded because they are high-ridership systems that skew the averages.

areas with no service. There tends to be more variation within states than between states, and individual agencies can significantly influence the state averages. Figure 2 shows how rural ridership per capita varies across the region. Further analysis is needed to understand variations in per capita ridership.

Per capita investment levels in North Dakota are similar to those in South Dakota and Minnesota and greater than the levels in other states. Minnesota provides a much higher level of state funding per capita, but per capita state funding is higher in North Dakota than other states. North Dakota also has a similar number of vehicles per capita as South Dakota, and more vehicles per capita than other states. A higher number of vehicles per capita may be needed in states with low population densities, where agencies serve large areas.

Operating cost per VRM and per VRH is similar in North Dakota to surrounding states, but because of a lower number of trips per VRM and per VRH, operating cost per trip is higher. Again, trips per VRM and per VRH are expected to be lower in rural areas with longer travel distances and a greater geographic dispersion of trip origins and destinations. Trips per VRM and per VRH are much higher in Wyoming because of two large systems that serve a concentrated demand, one being a resort area and the other a university. If these two systems are excluded, trips per VRM and VRH in Wyoming are much lower and are similar to those in North Dakota. It is interesting that trips per VRM and per VRH are significantly higher in South Dakota and Montana than in North Dakota. This difference may require additional analysis to understand.

Urban Transit Level of Service

Overall, the quality of urban transit service in North Dakota is similar to that in surrounding states, although higher levels of transit service are provided in some urban areas across the region. A summary of statewide measures is provided in Table 3. Greater Minnesota provides a much higher number of trips per capita and a greater quantity of service than the other states in the region. Montana also provides more trips per capita than North Dakota. North Dakota provides a similar number of trips per capita as South Dakota, while providing more vehicle miles and hours of service per capita.

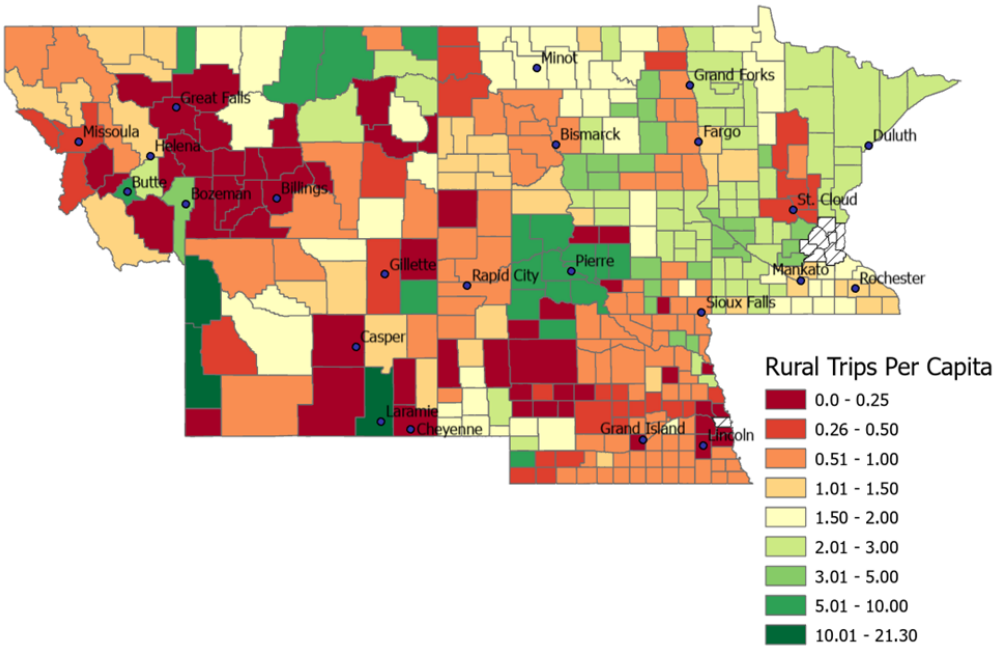

Figure 2. Annual Rural Transit Ridership Per Capita, by County or Region, Averaged 2017-2021

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Table 3. Summary of Urban Transit Measures, 2017-2021 Average

	Per Capita Ridership	Per Capita VRM	Per Capita VRH	Operating Cost Per Trip	Trips Per VRM	Trips Per VRH
North Dakota	5.5	9.7	0.79	10.99	0.56	6.91
South Dakota	5.3	7.9	0.69	11.27	0.66	7.55
Montana	9.8	9.2	0.70	7.15	1.06	14.01
Wyoming	2.9	7.2	0.60	11.66	0.40	4.80
Nebraska	6.4	6.6	0.49	6.44	0.98	12.95
Greater Minnesota	15.1	16.0	1.19	8.42	0.93	12.56

Analyzing individual agencies shows significant variation across the region. Duluth stands out as providing a much higher number of trips per capita and a greater quantity of service. Agencies in St. Cloud, Rochester, and Missoula also rank highly in terms of ridership and service quantity per capita. The system in Missoula is shown to be the most efficient in terms of cost per trip and trips per VRM or VRH.

While the system in Fargo does not rank among the top systems according to these metrics, it performs reasonably well, with metrics placing it among the middle tier of agencies in the region. The systems in Grand Forks and Bismarck also perform reasonably well by some metrics, such as per capita VRM or VRH. However, the system in Bismarck ranks among the lowest in some metrics, such as per capita ridership, cost per trip, and trips per VRM or VRH. The lower levels of ridership in Bismarck and the lower efficiency measures are due to the system having a greater focus on its demand-response service.

Operating expenditures per capita is a measure of investment in transit. The systems in Minnesota, particularly those in Duluth, St. Cloud, and Rochester, as well as the transit agency in Missoula, have a much higher operating budget per capita compared to the other systems in the region. As a result, these agencies provide a higher level of service and generate more trips per capita.

Service frequency, span of service, and geographic coverage are measures of fixed-route service quality that were analyzed in this study. Among the agencies studied, those in Duluth and Missoula had the greatest coverage, with the highest percentage of residents living within 0.25 miles of a bus stop. Grand Forks was also found to have good coverage.

Conclusions

Statewide averages show how the states compare to each other, but there are significant variations within states. The higher-performing agencies and regions can be used as benchmarks for improving service. While the study shows how states, regions, and individual urban agencies rank, it does not prescribe desired or needed levels of service. If a state or agency ranks highly, it does not necessarily mean that all the needs are being met or that there is no need for improvement. Rather, the study helps show where the needs are being met more successfully and where there is greater need for improvement. Results can be used by the states to evaluate the level of service being provided and to identify investment needs.