

Mobility of NDSU Faculty and Staff Transit Survey Results

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Abstract

University campuses have unique transportation requirements that may be characterized with a high concentration of trips during multiple peak periods (i.e., morning, lunch, and afternoon). These campuses are often the largest employers in small-to-medium size cities and it is therefore critical to coordinate campus mobility needs with the overall transportation system. Many colleges and universities recognize transit as an effective mode for meeting campus mobility and have developed transit systems to serve those needs. However, successful campus transit systems include several factors such as careful planning, understanding user preferences, efficient design of system services, and coordination with existing city transit service. Universities are not homogenous (i.e., enrollment levels, campus location, size of community) so they will have different needs. This paper focuses on the mobility needs of NDSU faculty and staff. It is part of a larger study that examines NDSU student mobility needs. In this paper we will present the results of an on-line survey administered in the fall of 2002 with the assistance of President Chapman. The results of this study are based on the responses of 319 faculty and staff.

NDSU employs just over 2,000 full-time faculty and staff, most of them living in the Fargo and Moorhead community area (two joint cities). Sixty-six percent of the faculty and staff live less than five miles from campus. Most of the faculty and staff reported driving their automobiles to campus. However, a large number of respondents indicated they would be willing to ride public transit to campus, particularly if it were free. Faculty and staff indicated a lack of information regarding transit so it is imperative that information be made readily available to them concerning route schedules. This report also contains information about faculty and staff experiences using public transportation as well as their expectations of public transportation. Several of the faculty and staff recognize benefits to public transportation and illustrated a genuine openness to utilizing the Metropolitan Area Transit (MAT) system that serves the Fargo-Moorhead area and more specifically the NDSU campus. It may be necessary to recommend route changes to MAT to better serve the NDSU faculty and staff with more direct routes in order to reduce travel time, making riding the bus more convenient.

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INTRODUCTION

University campuses have unique transportation requirements that may be characterized with a high concentration of trips during multiple peak periods (i.e., morning, lunch and afternoon). These campuses are often one of the largest employers in small- to medium-size cities and it is therefore critical to coordinate campus mobility needs with the overall transportation system. Many colleges and universities recognize transit as an effective mode for meeting campus mobility and have developed transit systems to serve those needs. In the United States we are aware of at least 48 colleges and universities that have some type of campus transit program. Successful campus transit systems include several factors such as careful planning, understanding user preferences, efficient design of system services and coordination with existing city transit service. Universities are not homogenous (i.e., enrollment levels, campus locations, size of community) so they will have different needs. This study examines these factors for North Dakota State University (NDSU).

North Dakota State University is a major employer in the Fargo-Moorhead area. There are approximately 2,000 faculty and staff who travel to campus nearly every day to teach, conduct research, and facilitate information exchange for North Dakota and beyond state borders. NDSU has experienced a recent surge of on-campus growth, which impacts personal mobility on campus. The growth is due to a number of factors including: 1) development of new graduate programs which draw more students and requires more faculty, 2) the development of the Technology Park on campus, and 3) the new research programs being implemented. These factors have required the expansion of the land used to house the buildings and programs requiring students and faculty to travel longer distances on campus. Further, the architecture, landscape architecture and visual arts program are scheduled to utilize buildings in downtown Fargo, requiring students and faculty to travel to off-campus sites to take and teach classes.

The growth occurring on-campus is not met without growing pains. Mobility has become a greater issue. The additional students and faculty need to travel greater distances on campus. Parking has not increased at the same rate. Parking is typically a problem for most universities, but the tremendous growth at NDSU has accentuated the problem. To address these issues, the Small Urban & Rural Transit Center (SURTC), a research program at the Upper Great Plains Transportation Institute on the NDSU campus, designed a research project. The overall project will address the transportation needs of the campus. This paper is a portion of the overall project. It contains the results of a survey conducted with the faculty and staff. There is also another paper that addresses the mobility needs of the students. The final product of this study will contain a literature review; additional methodology; the results from students, faculty and staff; conclusions and recommendations. The final report will be available this spring.

In fall 2002, President Joseph Chapman sent an e-mail message to NDSU faculty and staff requesting they complete a campus transit survey developed by SURTC. The objective of the survey was to identify transportation needs of campus employees in order to better meet needs as employees travel to and from campus as well as around campus. There were approximately 695 faculty and 1,052 staff who received the e-mail notice.¹ There were 319 faculty and staff who responded to the on-line survey, providing an 18 percent survey response rate. Of these responses, approximately 40 percent indicated they are classified as faculty and 60 percent indicated their classification as staff.

The results for the faculty and staff are presented in five main sections. These sections include: 1) location questions such as distance faculty and staff live from campus; 2) current mobility issues such as access to motor vehicles; 3) campus Circulator; 4) utilization of MAT; and 5) campus accommodations for transit.

Location Results

There were six questions asked of faculty and staff categorized as “location type” questions. The questions include 1) how far they live from campus; 2) locations the respondents travel from when going to campus; 3) time periods spent on campus; 4) the number of one-way trips taken to campus each day; 5) how they most often travel to campus; and 6) how they decide on the travel mode taken.

Distance from Campus

The survey results revealed that 66 percent of the respondents live less than five miles from campus (Figure 1). A high percentage, (38 percent) live between two and five miles while nearly 34 percent of respondents live more than five miles from campus. In general, given the size of the Fargo-Moorhead area, residents who live within a five-mile radius of the NDSU campus should have access to the Metropolitan Area Transit (MAT) routes. However, residents may choose not to take transit, which was investigated in this study.

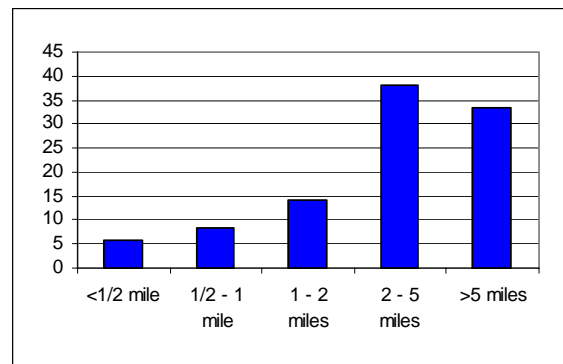


Figure 1. Distance Faculty & Staff Live from Campus.

¹Numbers acquired from Mr. James Silvernagel, Pagecenter Specialist with Information Technology and Mr. Richard Jacobson, NDSU IT Security Officer, respectively.

Locations Traveling From

The majority of faculty and staff indicated they travel from home before arriving on campus (94.04 percent). There were 3.76 percent who reported they travel from childcare locations. Since NDSU has a childcare facility on campus, it is possible that a portion of the 94.04 respondents reporting they travel from home, may drop children at the childcare facility on campus. Given the one-stop destination of home to campus, public transportation has the potential to play an important role in mode choice of faculty and staff. Certainly, faculty and staff may want to make stops after work to the supermarket, etc., which makes using public transportation more challenging. However, with proper planning, faculty and staff could reduce the number of “drive days” they take their automobile to campus and take advantage of public transportation serving NDSU. It would be beneficial for NDSU to work more closely with the Metropolitan Area Transit (MAT) to be certain that faculty and staff (along with students) have direct access to campus. SURTC attempted to gather the addresses of NDSU faculty and staff from Payroll and Human Resources, but they indicated this information was not available. We wanted to map the addresses to compare where faculty and staff live to the current MAT routes to ensure proper coverage. In addition to analyzing MAT routes, we could use the information to develop car pools for those commuting to campus. Car pools could work wonderfully for those faculty and staff who may live near one another and spend similar hours on campus. We did ask faculty and staff about the hours they spend on campus, which is presented next.

Hours Spent on Campus

There are 47 percent of faculty and staff who reported being on campus before 8:00 a.m. (Figure 2). Some workers regularly arrive as early as 4:00 a.m. to take care of the university grounds and buildings. More than 90 percent of the faculty and staff indicated they are on campus between 8:00 a.m. and 4:00 p.m., and 80 percent reported still being on-campus between 4:00 p.m. and 6:00 p.m. Approximately 10 percent of the faculty and staff are on campus until 10:00 p.m. The faculty and staff who are on campus between 8:00 a.m. and 6:00 p.m. would have access to MAT, which serves the NDSU campus between the hours of 7:00 a.m. and 10:00 p.m. Further, the similar time patterns also indicate a possibility of successful car pools.

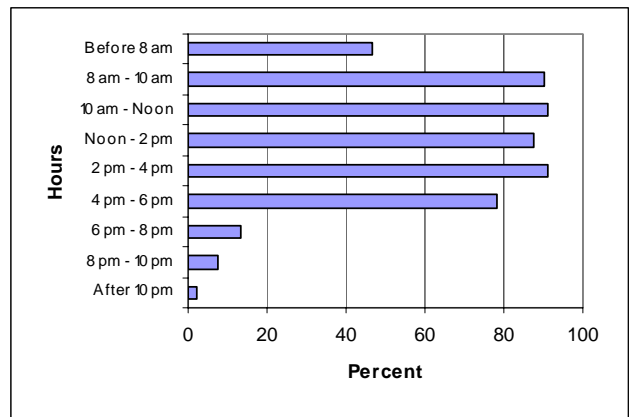


Figure 2. Times When Faculty are On Campus

Travel Mode to Campus

We asked three questions relevant to travel mode to campus. First, we asked faculty and staff how they most frequently travel to campus. Second, we asked if their travel mode changed during the winter. Third, we asked what factors influenced their travel mode choice.

It was evident faculty and staff value their independence since 91 percent reported they travel to campus by automobile (Figure 3). This number is equivalent to the number of respondents who reported they have access to a motor vehicle, so it is evident that a large number of employees use their autos to commute to campus. However, 10 percent of respondents indicated they ride their bicycle to campus and nearly 12 percent indicated they walk to campus. Given 14 percent of respondents live fewer than two miles from campus, several of them may choose to walk or ride bicycle. About 2 percent reported they ride MAT to campus (Figure 3), which is surprisingly low.

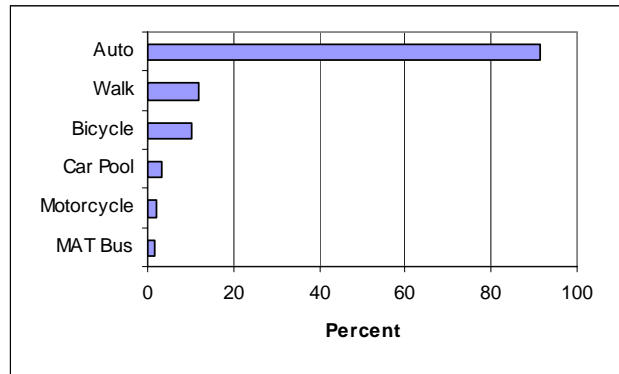


Figure 3. Travel Mode to Campus

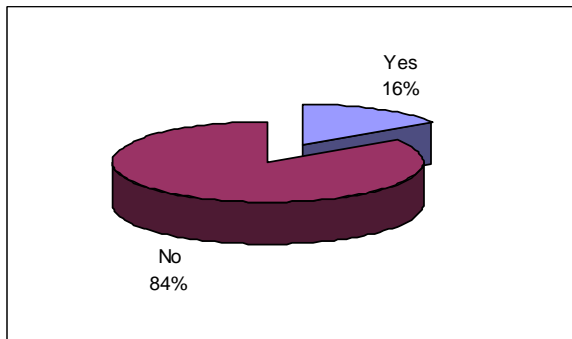


Figure 4. Change Mode During Winter

Nearly 16 percent of respondents indicate they chose a different mode of travel during the winter (Figure 4). Therefore, some of those who ride bicycles during the spring, summer and fall may opt to ride MAT or drive their automobile during the winter months. There are a number of reasons that individuals chose their mode of travel.

The faculty and staff's reasons are presented next.

Convenience, time and parking availability are the greatest factors that influence the mode choice of faculty and staff (Figure 5). The question on the survey asked faculty and staff to indicate the level of importance each of the factors had on influencing mode choice to and from campus. It is not surprising that nearly 100 percent of the respondents indicated that convenience was very important, important, or at least somewhat important. Time (97 percent) and parking availability (96 percent) were also high in influencing mode choice to and from campus. The cost of the vehicle and the cost of parking were viewed as very important and important by 51 percent and 49 percent, respectively. The high level of importance of convenience, time and parking availability exemplifies the suggestion made earlier to map the addresses of faculty and staff in order to better coordinate with the MAT routes as well as identify car pool

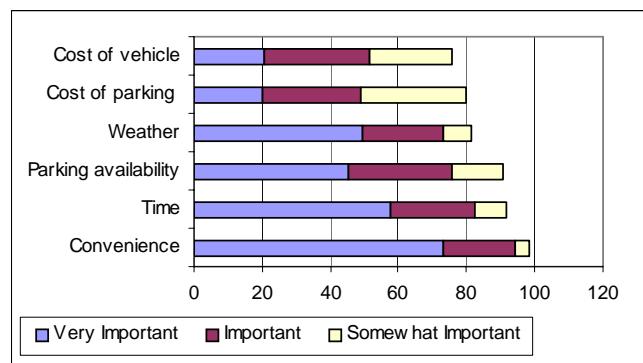


Figure 5. Influences on Mode of Travel

opportunities. Of course, the number of daily trips individuals make to and from campus can play a major role in their decision to take MAT or car pool.

Number of Daily Trips to Campus

Only about 20 percent of faculty and staff make multiple trips to campus. Nearly 80 percent reported two one-way trips to campus, which equates to one round trip to and from campus. Using public transportation or riding in car pools would be more accommodating for those faculty and staff making one round trip to and from campus.

Current Mobility

We asked questions to gain insight into faculty and staff current mobility. This section contains the responses to questions about access to motor vehicles, ownership of parking permits, attitudes toward parking convenience and cost.

Access to Vehicle and Parking

Most of the faculty and staff surveyed have access to a vehicle (92 percent) (Figure 6). This accessibility may seem imperative to some faculty and staff. They may need access to an automobile in case of emergencies such as ill children, etc. Addressing these emergencies without an automobile can be difficult so it is understandable why some faculty and staff rely on their autos. Further, some faculty teach courses certain hours of the day allowing time to run errands during their day, making their auto even more appealing. Nearly 93 percent of the faculty and staff indicated they own a parking permit (Figure 6), which is slightly higher than the number who indicated they have a vehicle.

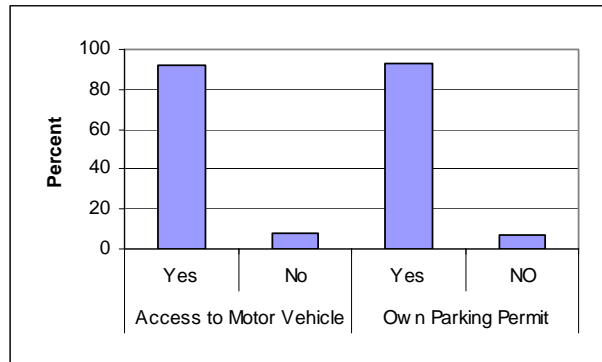


Figure 6. Faculty and Staff with Vehicle Access and Parking Permit

We probed to learn how faculty and staff felt about the convenience and cost of parking on campus. We asked them to rate both parking convenience and parking costs. They could rate them as either very good, good, neutral, poor or very poor. For reporting purposes, we combined very good and good, and also very poor and poor. Nearly 43 percent of the faculty and staff feel parking convenience on campus is very good or good while 25 percent feel that parking convenience is very poor or poor, with 31 percent being neutral (Figure 7). The individuals who perceive parking convenience as poor may park a great distance from their building or experience over-crowding in their lot, making it difficult to find a parking spot.

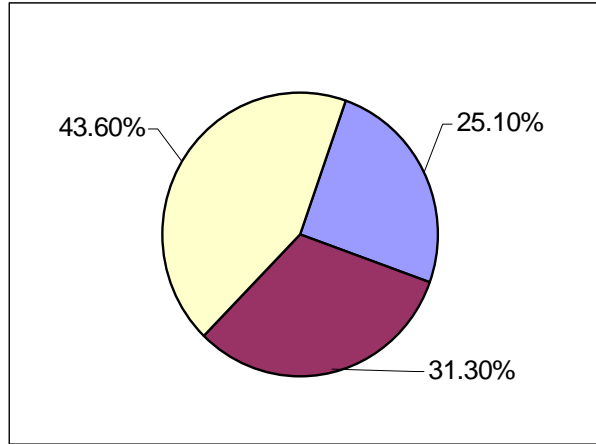


Figure 7. Parking Convenience

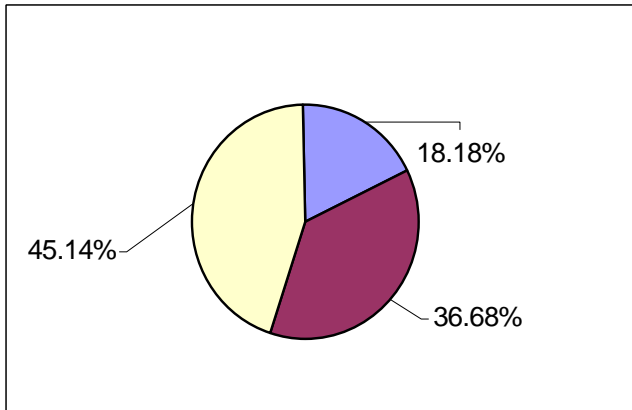


Figure 8. Parking Cost

Forty-five percent of the respondents viewed parking costs as very good or good while 18 percent felt parking costs are very poor or poor, and 31 percent viewed them as neutral (Figure 8). Parking permits at NDSU cost \$60 annually, which is relatively inexpensive compared to other campus parking that can cost more than \$400 annually.² There are some mixed feelings with regard to parking convenience and costs. Some good planning on the part of NDSU in regards to transit could potentially reduce the demand for parking. Some individuals may be enticed to ride public transportation or car pool, particularly if there is convenient service for them. This is further justification for mapping where faculty and staff

live, and trying to develop the best MAT routes to serve their residential areas. This shift would help reduce the demand for parking and address problems of over-crowded lots (e.g., PP).

² Dr. James Miller. *Transportation on College and University Campuses: A Synthesis of Transit Practice*. TCRP Synthesis 39, Transportation Research Board – National Research Council. National Academy Press, Washington, D.C., 2001.

Campus Circulator

The NDSU campus Circulator is in its second year serving the campus. It serves the campus to move students, faculty and staff between the T-Lot, the Technology Park, the Wellness Center and the Memorial Union/Library area. We asked the faculty and staff some questions to determine if they are making use of the Circulator or if they have suggestions to modify the service to better meet their needs.

With a few modifications, we may entice the faculty and staff to ride the Circulator. Sixty-one percent reported familiarity with the campus Circulator, but only eight percent reported using it (Figure 9). Faculty and staff certainly may not need to use the Circulator as much as students do, however, they may be able to take advantage of it more often. Faculty and staff working in the Technology Park may prefer to jump in their vehicle and go off-campus for lunch yet they could easily take the Circulator, which stops near the Memorial Union, for lunch or to attend meetings elsewhere on campus. Several faculty and staff wrote in comments they did not know the schedule of the Circulator nor the route. More faculty and staff may begin to ride the Circulator with some additional marketing such as flyers introducing the service and making the routes and schedules readily accessible. The route and schedule is on the NDSU Web page, however, a more direct link or banner would draw attention to the service.

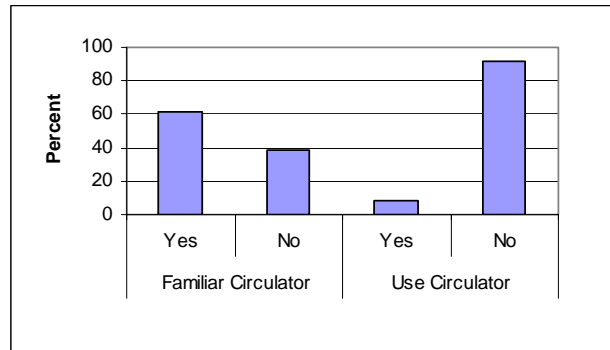


Figure 9. Faculty and Staff Familiar With or Using the Circulator

Sixteen percent of the respondents indicated they would like the Circulator to stop at additional on-campus locations. These locations mentioned include: Alumni Center, Arby's, Architecture Building, NDSU Downtown, Old Main, Skills & Technology Training Center (on 19th Avenue) and parking lots.

Faculty and staff were also asked how long they would be willing to wait for the Circulator and 60 percent reported they would wait for seven minutes while 30 percent reported they would wait for up to 10 minutes. The willingness of faculty and staff to wait declines after 10 minutes. However, five percent are willing to wait up to 15 minutes (Figure 10). In general, many people can walk to many locations on campus within 10 minutes; therefore, they will not want to wait long for the Circulator. It is important to meet the expectations and needs with a short wait time for the next round of the Circulator. Last year the Circulator route took approximately 10 minutes. However, the route was expanded and the time frame expanded to approximately 15 minutes. This is longer than faculty and staff indicated they are willing to wait for the Circulator.

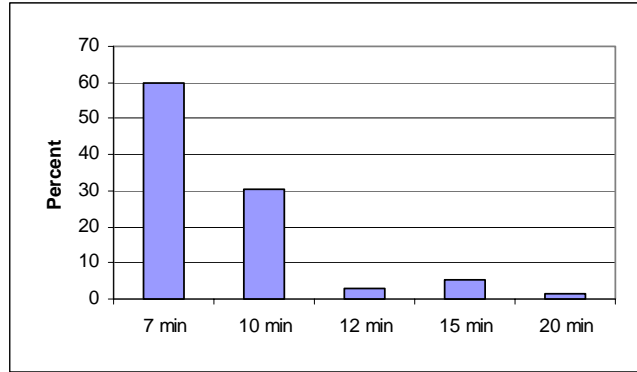


Figure 10. Time Faculty and Staff are Willing to Wait for Circulator

Distance Willing to Walk Given Temperature

We asked faculty and staff the distance they are willing to walk in above freezing temperatures and below freezing temperatures. The numbers varied substantially. In above freezing temperatures 32 percent were willing to walk between 0.25 to 0.50 miles and 36 percent were willing to walk between 0.5 to one mile (Figure 11). However, when temperatures plummet to below freezing 59 percent of respondents are willing to walk less than 0.25 miles. Certainly the Circulator seems to have more appeal during the winter months when the temperatures can be below freezing for weeks and even months.

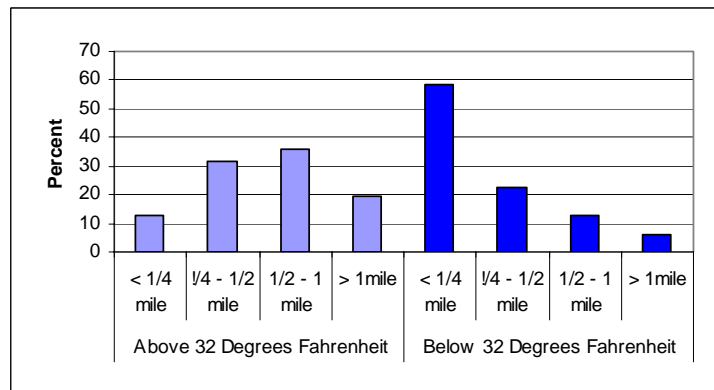


Figure 11. Distance Willing to Walk Given Temperature

Utilization of MAT

A number of questions were asked to discern how faculty and staff viewed public transportation. We wanted a better understanding of their perceptions of the benefits of public transit, and if they had ever ridden public transportation. We asked those who had ridden the MAT system in Fargo-Moorhead about their experiences. We also asked what important characteristics they value about public transportation, what factors may discourage them from riding MAT and how long they are willing to wait for MAT.

Benefits of Public Transportation

Faculty and staff were asked to identify what they believed were the benefits of public transportation on campus. They believed there were a number of benefits, which are illustrated in Figure 12. The top benefits include: reduced parking demand (77 percent); reduced traffic congestion (75 percent); and environmental concerns (46 percent). From their responses, a good transit planning and marketing campaign would seem to entice them to public transportation and reduce the parking demand.

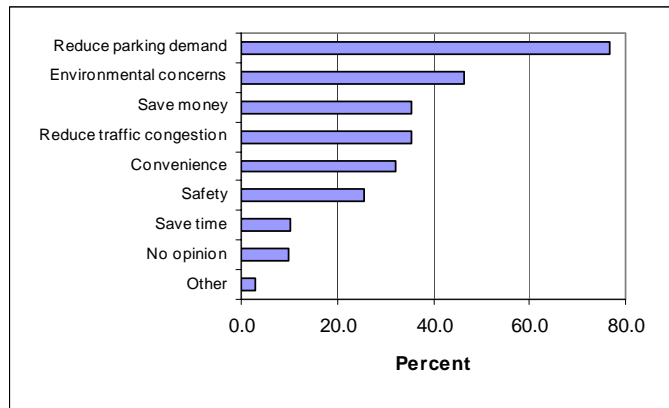
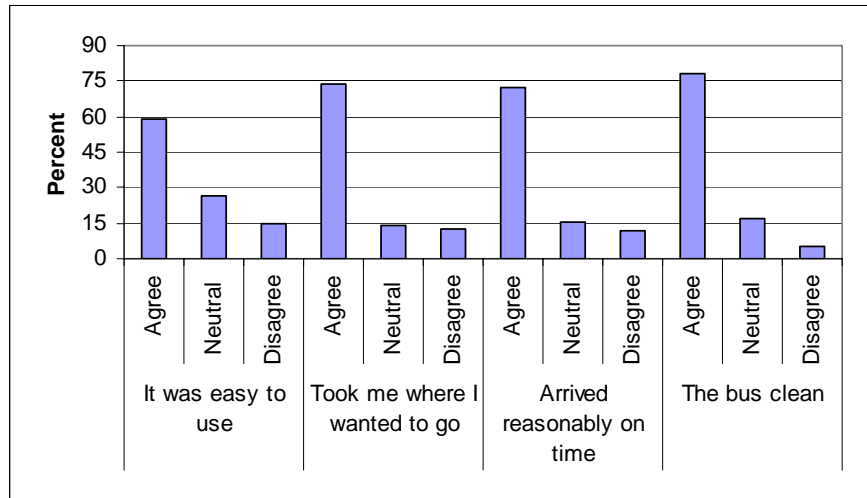


Figure 12. Benefits to Riding Public Transit

Experiences Riding MAT

Twenty-eight percent (90 respondents) of faculty and staff reported using the MAT bus. Those who used the system were asked to explain their experiences using MAT. Of those 28 percent riding, 82 percent said the bus was clean; 78 percent said the bus took them where they wanted to go; and 77 percent said the bus arrived reasonably on time (Figure 13).



We asked the respondents about characteristics they might value as important for riding MAT. We listed eight potential characteristics and asked respondents to identify if they agreed, were neutral, or disagreed if the characteristic was important.

Figure 13. Faculty and Staff Experiences Riding MAT

The characteristics included: 1) free service; 2) less stress than driving; 3) convenience; 4) comfort; 5) drivers are friendly; 6) reliable/on-time; 7) environmentally friendly; and 8) serves the F-M area. Figure 14 contains the results of the respondents. The characteristic “serves the F-M area” received the highest number of individuals viewing that as important followed closely by “reliable service,” and “friendly drivers.”

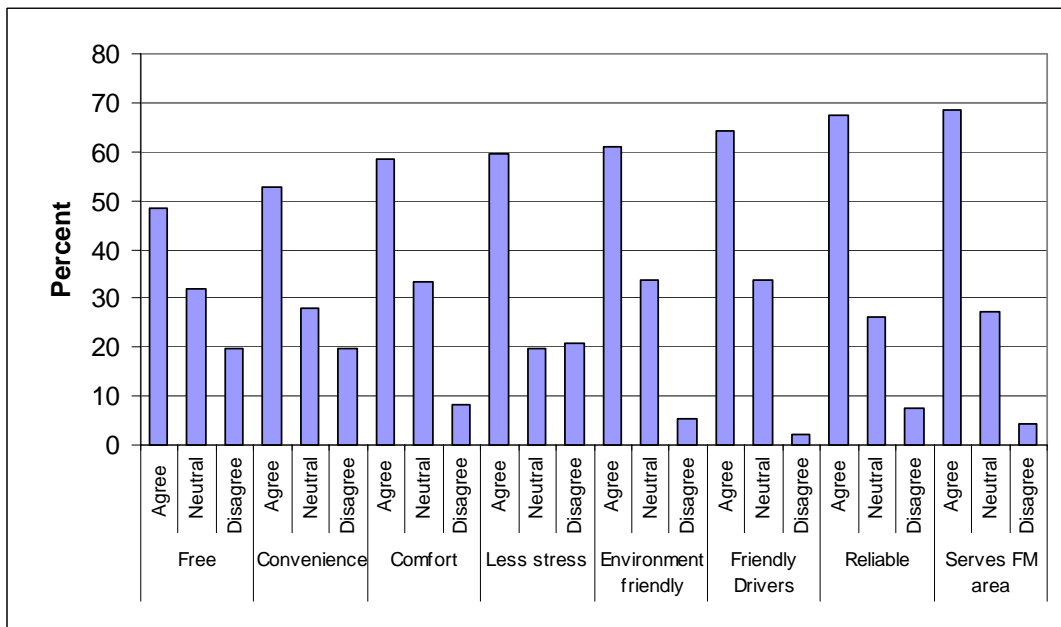


Figure 14. Important Characteristic Values of Public Transportation

Factors that Discourage Use of MAT

Faculty and staff were asked what keeps them from using the MAT bus service. The highest reported reason (87 percent) was their preference to drive, walk or ride their bike. Approximately 52 percent said the bus took too long while 40 percent indicated there was no route where they needed to go. Thirty-three percent reported they believed there was a lack of information (Figure 15). These responses further substantiate the importance of mapping where faculty and staff live and offering route recommendations to MAT officials.

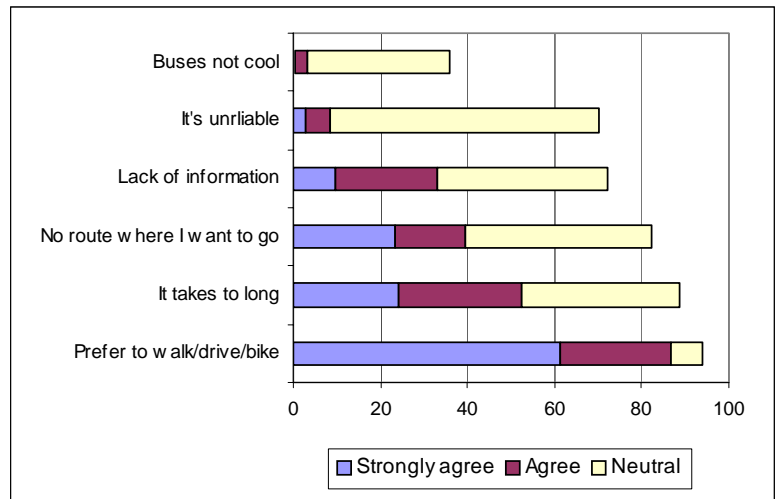


Figure 15. Factors that Discourage Use of MAT

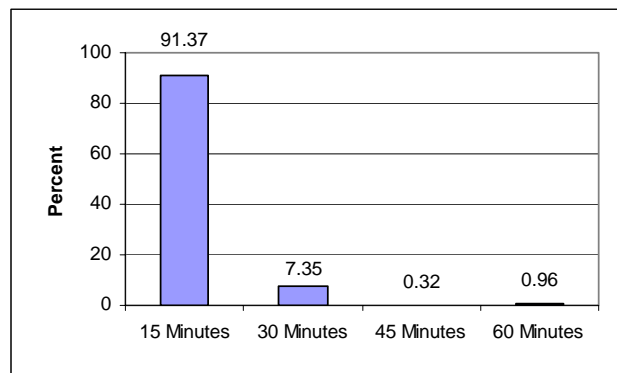


Figure 16. Time Willing to Wait for MAT

Respondents were asked how long they would wait for MAT. Ninety-one percent reported 15 minutes while 7 percent reported 30 minutes (Figure 16). MAT often has a 30-minute headway serving the NDSU campus. It may be worthwhile to investigate the cost of having a 15-minute headway during the peak morning and afternoon travel hours to and from campus.

We asked faculty and staff to identify reasons they would ride MAT in the Fargo-Moorhead area. They were presented potential reasons and they were to reply “yes” or “no” for each possibility. The possibilities included: to go to another campus, to visit family and friends, shopping, to go to and from campus and to get around campus. Nearly 34 percent indicated they would take MAT to get around campus (Figure 17). Closely following, 28 percent indicated they would take MAT to get to and from campus. Almost 17 percent indicated they would take MAT to go shopping. Faculty and staff could conveniently ride MAT to go shopping at West Acres using Gold Route 20 during the noon hour or during another break during the day.

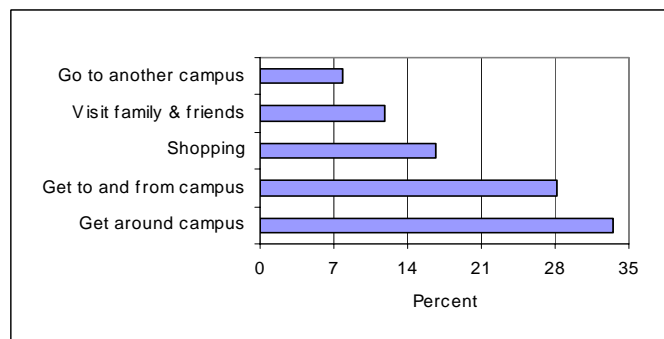


Figure 17. Reasons to Use MAT

Campus Accommodations for Transit

Transit accommodations can make riding the bus more appealing. We asked the faculty and staff about accommodations including shelters and fees. We first asked respondents if they would like to see more shelters on campus. Fifty-five percent reported they would like more shelters on the NDSU campus. The most frequently suggested locations for the shelters included Memorial Union, Library, Old Main, Bison Sports Arena, Fargodome, and 12th Avenue-Albrecht-Bolley. We also asked if they would like heated shelters on campus and if so, where they should be located. Fifty-seven percent reported they would like heated shelters on campus (Figure 18). The top locations suggested for heated shelters included Memorial Union, Old Main, Fargodome, at the current shelters and wherever there is no building/shelter in which to currently wait.

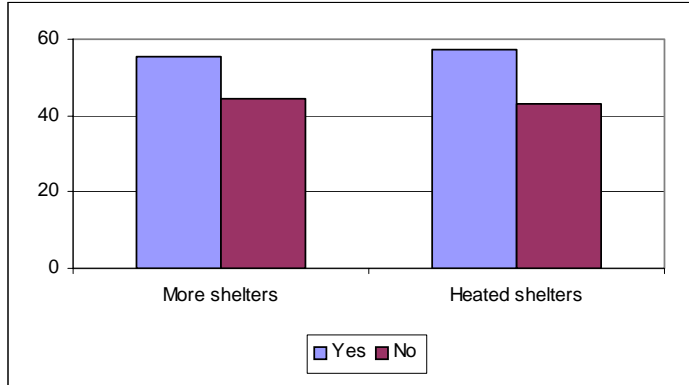


Figure 18. Desire for More and Heated Shelters

We asked respondents if they would be willing to ride the MAT bus if administration provided a monthly pass at a reduced rate. More than one-third of respondents reported they would ride MAT at a reduced rate. We further asked if they would ride MAT if administration provided a free monthly pass. Fifty-three percent reported they would ride MAT if provided a free monthly pass. The high percentage of individuals who indicated they would take MAT with a free pass is positive for campus. If more faculty and staff shift their mode choice to public transportation, it will reduce parking demand to help alleviate the overcrowding of the parking lots. Further, it will allow the University to focus more on developing buildings to hold the new programs, and serve the education and research needs of the campus.

This study found that faculty and staff are very reliant upon their personal automobiles. However, there does appear to be openness to public transportation, but the routes need to serve the residential areas of the NDSU employees and provide more direct service to campus to reduce travel time. Further, it appears there is a need for better marketing of the bus schedules and service to campus faculty and staff. Making public transit convenient and easy to use to get to and from campus can address NDSU's mobility growing pains.