

**Increasing Public Transit Ridership Among University
Of Manitoba Students: A Bus Rapid Transit Solution**

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Abstract

Public transit ridership has decreased over the last 50 years as automobile ownership has increased. The environmental impacts of automobile use have prompted the need for more sustainable methods of transportation. Winnipeg Transit has proposed to construct a bus rapid transit system that links downtown Winnipeg to the University of Manitoba. This study looks at whether or not students at the University of Manitoba state that they would use public transit more often if a bus rapid transit system was implemented. A survey instrument was employed and it was found that students at the University of Manitoba did state an improved willingness to use public transit if bus rapid transit were available.

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INTRODUCTION

Over the last 50 years public transit ridership has been declining as people become more dependent on automobiles for transportation (Bianco, 1999). Traditional bus systems do not offer viable and attractive alternatives to automobile travel, and as such, ridership has suffered (Kain, 1997). The reasons for declining ridership cannot simply be explained by stating that automobile use has increased. However, other factors that have contributed to diminishing public transit use go beyond the scope of this study and will not be examined in-depth.

We are increasingly growing conscious of the adverse environmental and lifestyle impacts that a dependence on automobiles engenders (Crawford, 2000). These concerns have prompted the need to incorporate sustainability objectives in transportation planning. Sustainable transportation does not necessarily mean that we have to eliminate automobile use, but rather that we have to provide livable and workable alternatives (Litman, 1999). The construction of Bus Rapid Transit (BRT) systems (will be defined later) are seen as one way to reduce the harmful effects of automobile emissions, without having to build costly subway or light-rail systems (Cervero, 1998). If BRT systems can increase transit ridership (e.g. by attracting former automobile commuters) then they are indeed a more sustainable method of transportation.

The City of Winnipeg has proposed to construct a BRT system that is known as the 'Southwest Transit Corridor' (also called Metro-Bus). Winnipeg transit would like to link the University of Manitoba Fort Garry Campus with Downtown Winnipeg using a combination of busway (exclusive road corridors used only for public transit), bus-lane, and on-street operations to achieve faster travel times than conventional bus routes. A 1994 survey conducted in Winnipeg found that 71 percent of 1004 respondents "agreed

that it was more important to develop a rapid transit system in Winnipeg than to develop more streets for automobiles” (Western Opinion Research, 1995, p.20). Winnipeg Transit hopes to start construction in the spring of 2003 (B. Menzies, personal communication, February 26, 2002)¹.

An exploratory approach, by means of a survey instrument, will be used to determine if public transit mode (conventional bus routes or bus rapid transit) is a factor when people decide to use transit. This study proposes to evaluate whether or not students at The University of Manitoba will state an improved willingness to use public transit if the City of Winnipeg implemented a BRT system. It is hoped that the research will show respondents demonstrate a relationship between transit ridership and transit mode by indicating they would use public transit more often if Winnipeg if BRT was an available transit option. The literature in this area does suggest that bus rapid transit systems are generally perceived very positively and can be successful at increasing ridership (Cervero, 1998; Kain, 1997).

A perceived limitation is that since Winnipeg does not yet have a BRT system, respondents will be responding to hypothetical questions that may yield results that will not transpire when the city implements BRT.

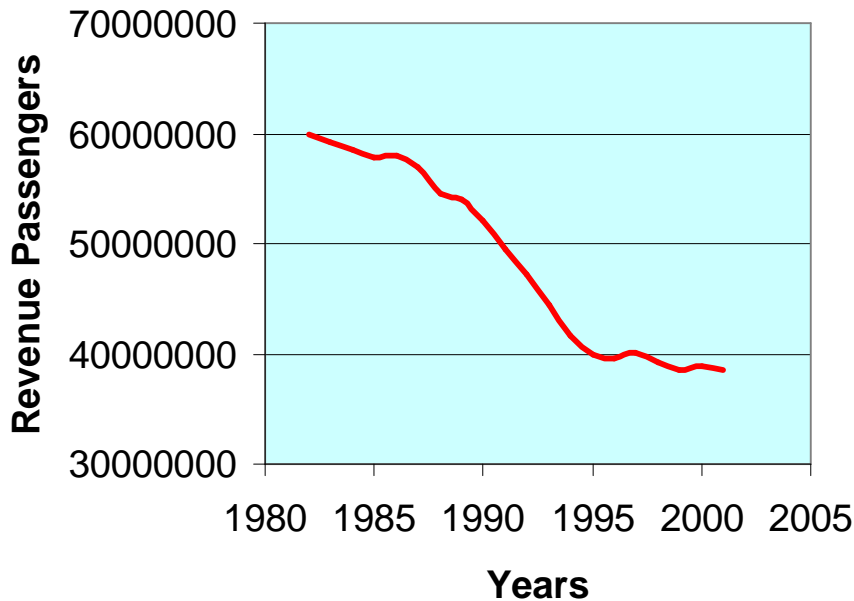
The importance of this study is that it will provide more insight as to how transit mode may be linked to ridership in the Winnipeg context. It will also provide some information about the perceived advantages and disadvantages of BRT in Winnipeg. Past research efforts have largely focused on the success of BRT systems in fast-growth cities like Curitiba, Brazil, and Ottawa, Canada; whereas results may differ in Winnipeg since it is considered a slow-growth, and auto-dominated city (Lennan & Leo, 2001).

¹ Bill Menzies is the manager of planning and schedules at Winnipeg Transit

LITERATURE REVIEW

Public transit systems have had to struggle with rising automobile ownership throughout the world (Newman & Kenworthy, 1999). In the United States, it is estimated that only “1.8 percent of all person trips were by transit in 1995, down from 2.4 percent in 1977, and 2.2 percent in 1983” (Cervero, p.2). Figure 1 illustrates that Winnipeg has not been immune to this trend. Winnipeg Transit reported 59.9 million annual riders in 1982 and 38.6 million annual riders in 2001 (P. Wiwchar, personal communication, March 19, 2002)². This is a 35 percent decrease over a 19-year period. In 1994 a survey of Winnipeg residents found that 58 percent of people used their vehicles as the primary mode of transportation for regular daily activities (school and work) and transit only accounted for 19 percent (Opinion Research, 1995). The remainder of those surveyed either car pooled, walked, or cycled.

**Figure 1: Winnipeg Transit Ridership
1982-2001**



² Phil Wiwchar is a market research analyst in the planning and schedules division at Winnipeg Transit

Decreases in overall transit use may be attributable to low-density, sprawling development patterns. The more spread out an urban area becomes, the less viable public transportation is; and people living in suburban areas will largely depend on automobiles for spatial mobility (Lennan & Leo, 2001). These patterns of urban development have led to environmental implications, which will worsen if we continue to use automobiles in the way in which we have become accustomed (Lennan & Leo).

As our society becomes more aware of the environmental consequences that a dependence on automobiles entails, cities have been looking for more innovative and cost-effective ways to transport people (Cervero, 1998). Mass rapid-transit is seen as a solution towards reconciling the need for fast, convenient transportation, with an environmentally sustainable transport mode (Littman, 1999). In particular, bus rapid transit systems that use busways can be one of the solutions advocated by transportation specialists (Cervero). A busway is a “bus street or transit mall ... created in an urban center by dedicating all lanes of a city street to the exclusive use of buses” (FTA & Volpe Center, n.d. p.5).

Research in the BRT field (as it relates to transit ridership) is often based on descriptive case studies. Cervero (1998) found that in two cities, Curitiba, Brazil, and Ottawa, Canada, BRT systems had contributed to substantial increases in overall transit ridership and that travel times were found to be much faster than conventional buses and rush-hour automobile traffic. It was also found that existing transit riders used the BRT systems more often, but faster travel times were the chief attractor for both existing and new riders (Cervero). Other case study research in Curitiba has produced similar results (Rabinovitch & Leitman, 1996; Wright, 2001).

Other than these case study approaches, there is an immense amount of research that looks at BRT from a financial perspective. The cost-effectiveness of rapid transit solutions is an ongoing debate in the transportation field. Some argue that light rail transit systems are less expensive in the long-run and attract more riders than BRT (Black, 1993). Conversely, those in favor of BRT systems will argue the same points (Black). Cervero (1998) indicates that the BRT systems in Ottawa and Curitiba have surpassed many cities (including those with rail systems) with respect to daily ridership numbers, and cost much less to build than comparable rail systems. Notwithstanding, advocates on both sides of the transit spectrum agree that other supportive measures (e.g. land-use policies) are necessary for the success of any rapid transit system (Cervero; Newman & Kenworthy, 1999).

There does not seem to be much research regarding how people perceive public transit. For example, case studies indicate BRT systems can be successful at increasing ridership, but they normally do not ask why this is the case. Cervero (1998) suggests that people perceive rapid transit systems in a more favorable light than conventional bus systems and this explains the higher ridership numbers. However, what is it about BRT systems that people favor? What aspects of BRT do they perceive as positive or negative? This leads us to the purpose of this research study: Will transit mode (bus, or bus-rapid transit) influence ridership?

METHODOLOGY

Study Design

The absence of BRT research in the Winnipeg context suggests that an exploratory approach to the topic under study would be the most useful. Babbie (2001) suggests that surveys are “excellent vehicles for measuring attitudes and orientations in a large population” (p.238). Attitudes towards public transit are a large part of this study and thus an appropriate survey instrument was developed (Appendix). Two distinct sections of the survey need to be delineated in order to explain how the survey tested the hypothesis.

The first section of the survey asks respondents to indicate if they currently use public transit. Respondents that do use public transit will be asked questions about their overall satisfaction with Winnipeg’s current transit system (Appendix, questions 7-10). Those that do not use public transit will be asked to explain why they do not (Appendix, question 11). The information about current public transit usage is necessary to establish a preliminary set of data that will later test the hypothesis. However, the questions about feelings and attitudes toward public transit will be useful for transportation planners in future service improvement and marketing efforts.

The second section of the survey deals with hypothetical questions. Information will be presented about the City of Winnipeg’s plan to construct a BRT system and respondents will be asked to indicate whether they would be more inclined to use transit as a result (Appendix, question 12). The results of question 12 would then be compared with the first section of the survey where riders indicated how often they currently use

transit (Appendix, question 5). The analysis of this comparison will essentially test the main hypotheses of the study.

The survey's second section also asks respondents to indicate what they feel are the perceived advantages and disadvantages of BRT (Appendix, questions 14-15). These questions give the respondent the ability to choose more than one answer. It is hoped that insight will be gained regarding the perception of the BRT system.

The last question of the survey is an open-ended question and will give all respondents an opportunity to voice some opinions about whether or not they think the proposed BRT system is a good or bad idea (Appendix, question 16).

Variables

Public transit mode is the independent variable in this study. By mode, we mean the type of public transportation available for public use. There are two principle modes that are examined in the study. The first mode is what is considered conventional bus transportation. For our purposes we will describe this type of transportation as diesel bus vehicles that transport passengers via existing city streets. With the exception of diamond (bus-only) lanes during rush hour, these routes generally share streets with automobiles. It is assumed that respondents of the survey will have some level of familiarity with how conventional bus systems operate, as they are usually a standard feature of any medium to large city.

The second transportation mode is called bus rapid transit. This mode may not be well known to people so it is necessary to define what is precisely meant by bus rapid transit in the Winnipeg context. The Southwest Transit Corridor will include a busway,

bus only lanes and regular on-street travel. As with conventional bus travel, bus only lanes and on-street travel are probably familiar concepts to people. However, the confusion lies in the term 'busway'. Busway's are central features of BRT systems. Graphics were included in the survey so that respondents had a better idea of what a busway looked like. Additionally, the survey included the following definition: "a busway is a preferential roadway or route that diesel bus vehicles use exclusively; automobiles are not permitted on the busway. These are not the same as 'bus only' lanes on existing streets, but rather they are separate road corridors made of reinforced concrete".

Public transit ridership is the dependent variable in this study. Ridership is fairly simple to conceptualize. The users of public transit are called 'riders'. Officially, the total number of daily riders is measured by the amount of monies collected in fare boxes, and by transit employees that have the specific task of estimating the amount of people on a transit vehicle at any given time. For the purposes of this study we will measure ridership based on information provided by respondents. The operational definition of increased ridership will be whether respondents' state that they would use transit more often if a BRT system were constructed (Appendix, question 12).

Another dependent variable is transit-mode perception. This is a somewhat difficult variable to conceptualize because other variables will undoubtedly influence how a person views public transit. In general, this study assumes that most people are already aware of what bus public transit is; and that perceptions are based on factors such as quality/frequency of service, convenience, transit fares, and other factors. Perception will be generally measured in both parts of the survey by asking respondents to indicate

their feelings toward transit, and its advantages and disadvantages (Appendix, questions 8-12, 14-15)

There are of course other variables that will influence ridership and perception such as age, gender, residential location, and vehicle ownership. To some extent they have been accommodated in the survey design (Appendix, questions 1-5) and they will undoubtedly have an effect on the results. However, the primary purpose of this exploratory research study is to examine if students at the U of M would use public transit more often if a BRT system is constructed. The nature of the study is hypothetical. The respondent may indicate they are more willing to use transit, but in reality, once the BRT system is constructed, they may choose not to do so due to the presence of these other variables.

Sampling

The survey data was collected from University of Manitoba students (Fort Garry campus only). The University of Manitoba (U of M) is a terminus point for the proposed Southwest Transit Corridor and serves as an excellent testing ground for the study. In 1999, 45 percent of students at the U of M were found to be driving alone to school everyday (Prochera, 1999). Since the University will be a major destination of the BRT system, sampling students there may yield some useful results that can be used as the basis for further research in this area.

Professors were contacted in various faculties and were asked if they would allow the distribution of surveys in-class. Only a few professors indicated interest, and it was arranged to survey three classes. A target sample of 100 completed surveys was initially

projected in order to allow for as wide a sample as possible. Since mail-return surveys have low response rates, this in-class method required minimal effort on the part of respondents, as they would be able to return the completed surveys immediately. In order to achieve the target sample size in the time available, it was also decided to sample students in high-traffic hallways at the Fort Garry campus.

These types of sampling methods are considered non-probability sampling as this study relies on the availability of subjects in classrooms and hallways. This method is criticized because it often does not lead to results that are generalizable (Babbie, 2001). In this case, it is recognized that U of M students are not a representative sample of current and potential transit users in the city of Winnipeg. As explained earlier, this is an exploratory investigation and using this type of non-probability sample is consistent with the aims of the study. Student information is confidential and therefore makes random sampling much more difficult. However, Babbie suggest that studies that utilize non-probability sampling techniques can still “provide useful insights” (p.179).

Data Analysis

The information obtained from the survey fell into the category of nominal data. In many cases the data was converted into percentages. The last question (Appendix, question 16) was open-ended and to some extent a content analysis method was employed.

RESULTS

In total, 128 surveys were compiled and analyzed. The results were separated into two sections: the first section is comprised of demographic data and current transit use; the second section tests the main hypotheses and looks at whether or not respondents would use public transit more often if a BRT system is constructed. A number of questions that were asked on the survey were not analyzed given that they may have been too descriptive for the aims of the study (Appendix, questions 3, 6, 13)

Demographics

Table 1 depicts the demographic breakdown of the survey respondents. Of the 128 respondents, 78 were female and 50 were male (Figure 2). The age range of respondents was not very diverse, with 96 percent being within the 18-25 age category (Figure 3). To some extent this was expected since the sample group consisted of university students. The majority (70%) of respondents either owned or had access to a vehicle for than five times a week.

**Table 1:
Demographics**

Gender	
Male	50
Female	78
Age	
18-24	98
25-30	24
31-40	6
Own/Access to a Vehicle	
Yes	90
No	38

Figure 2 : Response By Gender

**Female - 74
Male - 50
Total - 128**

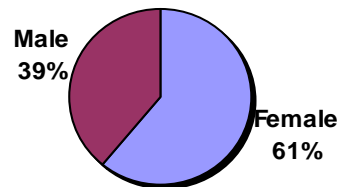
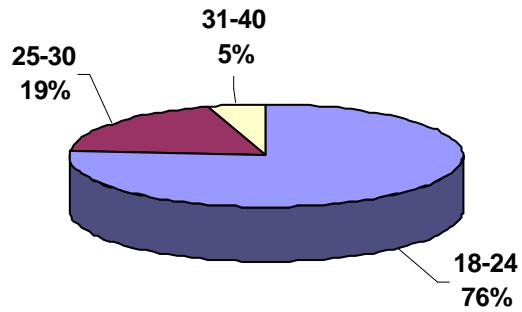


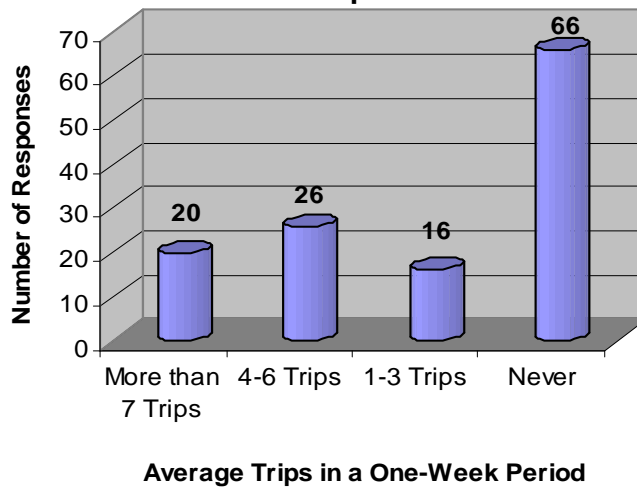
Figure 3: Age of Respondents



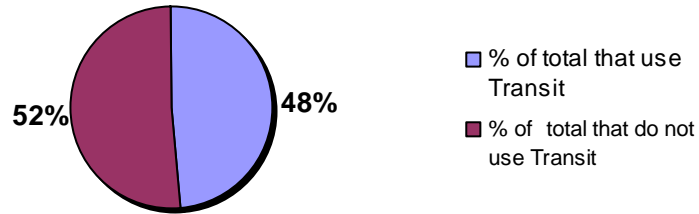
Current Public Transit Use and Perception

Of the 128 completed surveys, it was found that 62 people (48%) used Winnipeg’s public transit system at least once on a weekly basis, and 66 people (52%) indicated that they *never* used transit (Figure 4 & 5). It was found that 45 of the 62 transit users (73%) were satisfied with the current level of service (Figure 6). Respondents were also asked what they liked or disliked about transit the most (Figure 7 & 8). Route convenience was the most liked among transit users (34%), while expensive transit fares was the least liked (29%).

**Figure 4: Current Use of Transit
128 Responses**



**Figure 5: Transit Use of 128 Respondents
Before Bus Rapid Transit**



**Figure 6: Satisfaction With Winnipeg Transit's Current
Bus Service
62 Responses**



**Figure 7: What do you like the most about
Transit?**

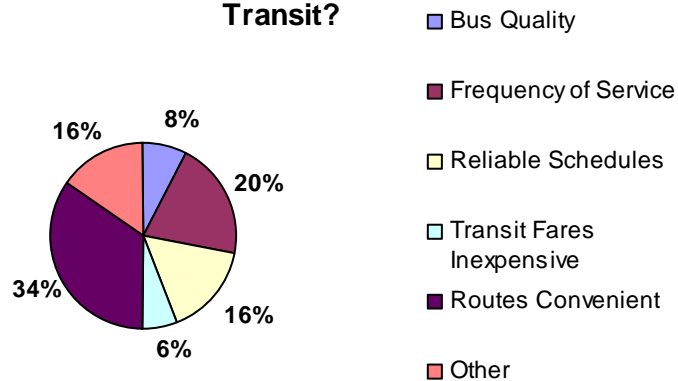
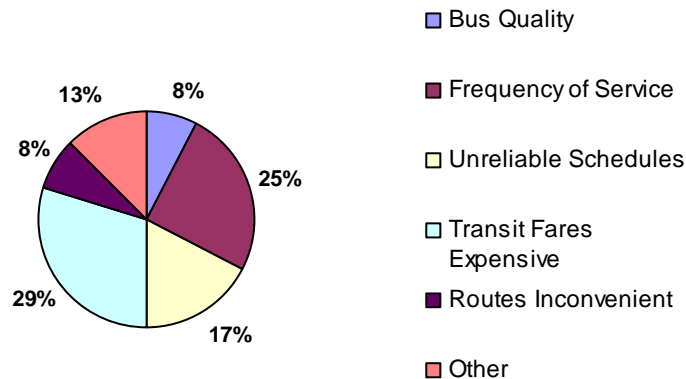
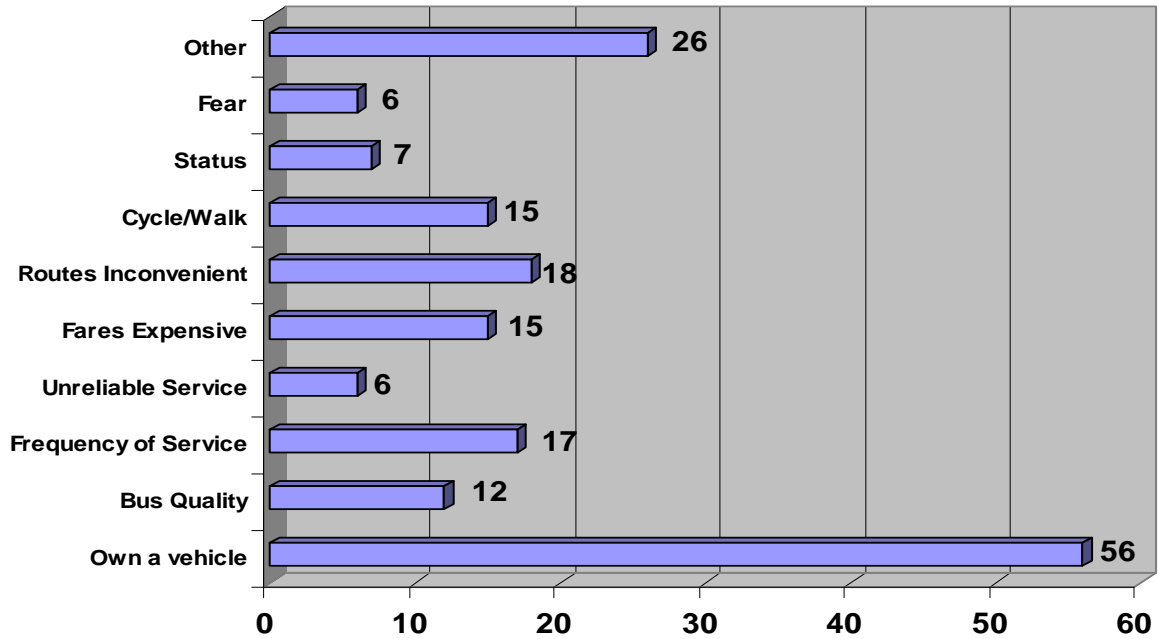


Figure 8: What do you dislike the most about transit?



Those that did not use public transit were asked to indicate why they did not. It was not surprising that vehicle ownership was the number one reason (56 responses) for not using transit (Figure 9). Quite a large number of people selected the category ‘other’ (26 responses) in this question. Some of these ‘other’ concerns were that public transit is dirty; transit takes too long; people on the bus often smell; and Winnipeg’s extreme climate makes it too hot to take the bus in summer and too cold to wait for the bus in winter. These perceptions of transit could possibly be based on observations, personal experience, or most likely some social stigma attached to transit. Cervero (1998) does suggest that public transit is often perceived as a second-class form of transportation.

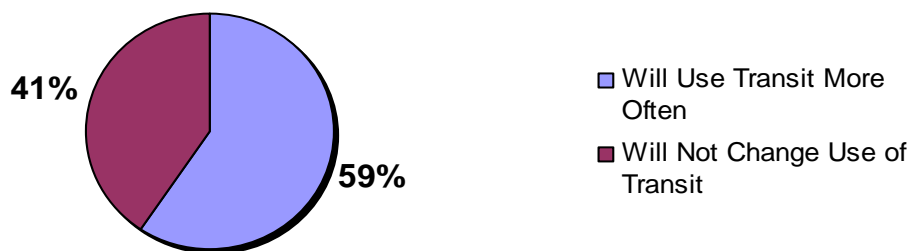
Figure 9: Reason's For Not Using Public Transit



Bus Rapid Transit Ridership Effects

The aims of the project were to show that U of M students would indicate an improved willingness to use transit if a bus rapid transit option existed. Overall, the results supported this hypothesis. 48 percent of those surveyed indicated that they use transit today, compared to 59 percent that stated they would use transit more often if a BRT system was constructed (Figure 10). This represents an 11 percent increase in transit ridership of both current and non-transit riders. Of the 76 respondents that indicated they would use transit more often, 75 said they would if travel times were faster (than current bus transit), and one person said that frequency of service was very important.

Figure 10: Transit Use After Bus Rapid Transit is Implemented



It was also useful to distinguish how many of these potentially new transit riders were former automobile commuters. It was found that 50 percent of respondents that owned an automobile (and did not currently use public transit) indicated that they were willing to use transit if a BRT system was available (Table 2). Those that currently use the transit system, regardless of vehicle ownership, indicated a 66 percent increase in their use of transit if a BRT system was implemented (Table 3).

Table 2: Changes in Transit Use of Non-Transit Users

	Currently do not use the transit system	More Willing to use Transit after BRT Implemented	% More Willing to use Transit after BRT Implemented
That own a vehicle	64	32	50%
That do not own a vehicle	2	2	100%
Totals	66	34	52%

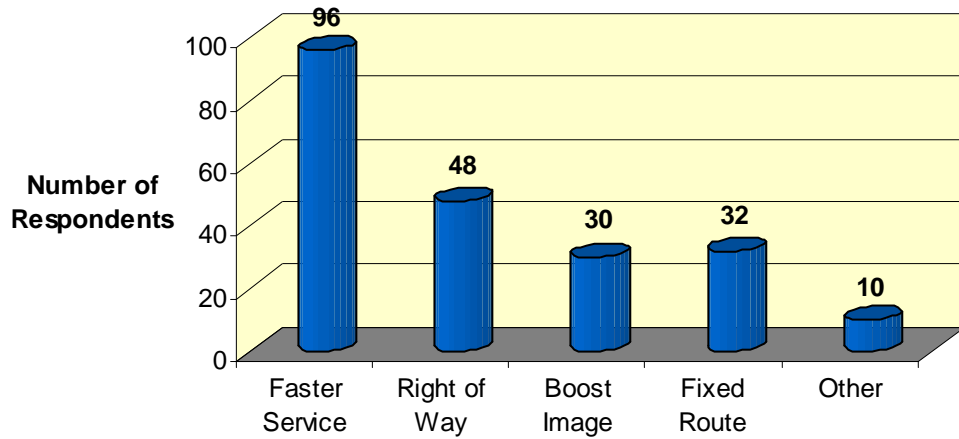
Table 3: Changes in Transit Use of Existing Transit Users

	Currently use the transit system	More Willing to use Transit after BRT Implemented	% More Willing to use Transit after BRT Implemented
That own a vehicle	26	16	62%
That do not own a vehicle	36	26	72%
Totals	64	42	66%

Bus Rapid Transit Advantages and Disadvantages

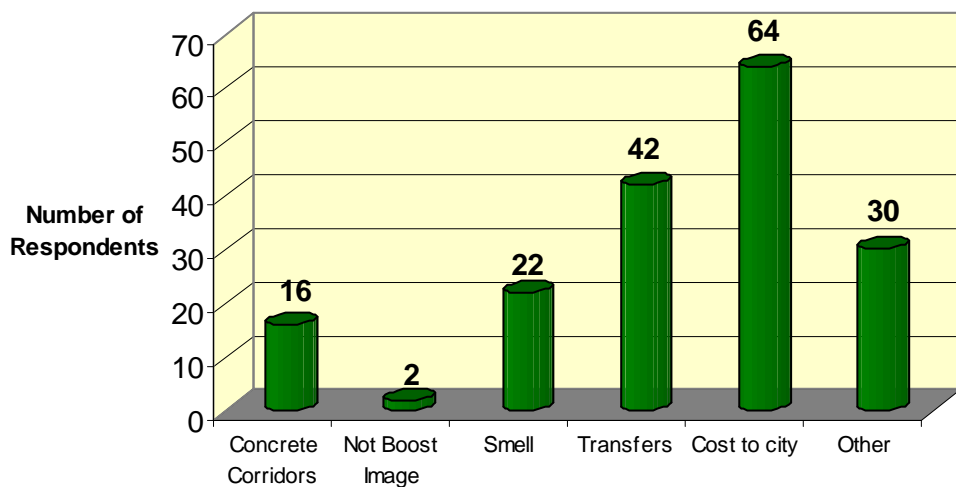
Based on the information given in the survey about Winnipeg’s proposed BRT system, respondents were asked to indicate what they felt the advantages and disadvantages of such a system would be. Respondents were allowed to circle more than one answer to this question. The most often selected advantage was faster service (Figure 11) and is consistent with 75 of the 76 respondents that answered they would use transit more often if travel times were faster. The right of way that BRT systems enjoy over automobile traffic was also selected favorably (Figure 11).

Figure 11: Bus Rapid Transit Advantages



Although the cost of constructing the busway, and implementing other features of the BRT system were not provided in the survey, it was found that many of the respondents felt that ‘cost’ was the biggest disadvantage of the proposed transit system (Figure 12).

Figure 12: Bus Rapid Transit Disadvantages



Respondents were also concerned that they would be required to transfer from regular bus service to the BRT and possibly back to regular bus service to reach their destination. This perceived disadvantage was possibly based on the following information that was provided in the survey:

If you do not live near one of the '**Metro-Bus**' station stops, existing bus routes will generally be re-routed so that they feed into the rapid bus transit system. As a result, passengers may need to transfer from a regular bus route onto the busway system. It is also possible that you may need to transfer off the busway to another bus route to reach your final destination. Once you are on the rapid bus, you will not need to transfer again if one of your destinations is the University of Manitoba, Downtown, or any intermediate point in between. Please note that these types of rapid transit networks are meant to serve a 'long-haul' function. This means that they provide faster service over greater distances and do not stop as frequently as 'short-haul' bus routes.

Specific information regarding the Southwest Transit Corridor was not available to the researcher at the time of the study design. The information given about service transfers was based on what other cities have done with long-haul rapid transit systems. It was later found out that this would not necessarily be the case for Winnipeg's system. Bill Menzies of Winnipeg Transit had the following to say:

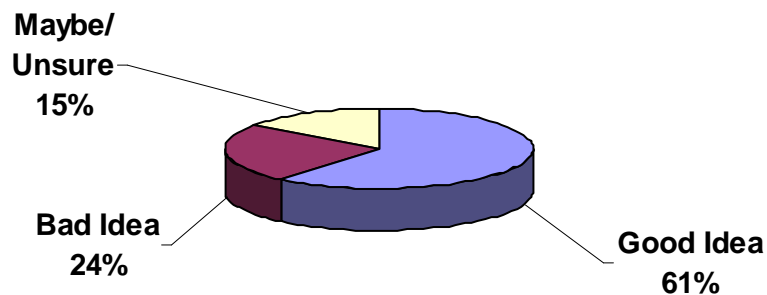
All transit service operating to the southwest corridor will use the busway facility. We'll have Metrobus Route 60, Metrobus Route 61, Metrobus Route 62, etc. Remember, the busway and the on-street rapid bus features are physical facilities to permit buses to operate at high speeds. The service that runs on it is what is called Metrobus service and it will involve a network of routes that operate to all parts of southwest Winnipeg. Any individual route may operate partly on the rapid transit facility and partly on the regular street system (Personal communication, March 1, 2002).

Unfortunately, inaccurate information was given in the survey and it is uncertain if transfers will be a major disadvantage with Winnipeg's BRT system.

Bus Rapid Transit Reactions

In the last question of the survey respondents were asked to indicate whether or thought they felt that BRT in Winnipeg was a good or bad idea. Since this was an open-ended question, it did make data analysis difficult. It was decided that content analysis would be employed, and each response would be categorized in one of three classifications: Good idea, Bad idea, and Maybe/Unsure. Of the 120 responses to this question, 61 percent felt the BRT system was a good idea, 24 percent felt it was a bad idea, and 15 percent thought it might be a good idea or were unsure. Key words and phrases such as good, great, bad, maybe, don't know, not sure, were used as the basis for the content analysis. Most of the responses (91 of 108) had one or more of these key words. The remaining responses were categorized where it was felt they belonged.

Figure 13: Is Bus Rapid Transit in Winnipeg a Good or Bad Idea?



Results Summary

The data that was collected and analyzed indicates that the main hypothesis of the study has been supported: Students at the U of M expressed that they would use public transit more often if a BRT system was implemented. Previous case studies have shown that cities that construct BRT systems generally enjoy an increase in overall transit

ridership (Cervero, 1998). Individuals that own or have access to automobiles and individuals that currently use public transit both expressed that they would use transit more often. Respondents felt that faster travel times were the biggest advantage of BRT and the biggest disadvantage was how much the BRT system would cost to construct.

DISCUSSION

Limitations

As discussed earlier, a large part of this study is hypothetical. Respondents at the U of M have indicated they would use transit more often if a BRT system was constructed, but there are no certainties that this will indeed occur. Additionally, respondents will be basing their answers on how the survey describes Winnipeg's future BRT system. Winnipeg Transit was not able to provide the researcher with any formal information with respect to the Southwest Transit Corridor. Most of the details were obtained through personal communication with Bill Menzies of Winnipeg Transit. Therefore, it is quite possible that the system will look and operate in a very different manner than what was explained in the survey.

The last question of the survey was an open-ended question and gave respondents an opportunity to voice some opinions about whether or not they think the proposed BRT system is a good or bad idea (Appendix, question 16). Some of the responses to this question expressed to the researcher that the survey design may have been flawed in some areas. For example, a few of the respondents indicated that that they did not understand the difference between BRT and Winnipeg Transit's current express bus routes on Pembina Highway. This indicates that the respondent did not fully understand

the information in the second section of the survey that described busways and bus rapid transit. If this is the case, then future care, with respect to study design, will need to be taken when undertaking more descriptive research.

One area of concern was noted after the surveys had already been distributed. Question 12 (Appendix) gave the respondent three choices to the question: Do you think you would use Winnipeg's public transit system more often if a busway system were available for you to use? The first available answer was: "Yes, if travel times are faster". This should have been made more specific as there was room for uncertainty about whether this referred to travel times being faster than current bus routes or automobile use. Intuitively, it was assumed that most people understood that the answer referred to travel times being faster than current bus routes. However, this may not have been the case and could have possibly affected the results of the research.

Another limitation was the amount of time that was available (approximately three months) to complete this project. A topic of interest had to be chosen, a research question posed, and a study methodology had to be designed and carried out in a very short period of time. This may have limited the effectiveness of the survey design and the interpretation of the data.

Conclusion

While it was expected that U of M students would state that they would use transit more often if BRT was implemented, it was not expected that a large share of this increase would have been from persons that own automobiles. Even though 50 percent of automobile owners (that were non-transit users) indicated that they would use transit

more often if BRT was available, we must remember that these results are based on hypothetical questions. The convenience factor that automobiles engender may in fact keep drivers in their cars after the BRT is constructed; especially when traffic is not generally considered a problem in Winnipeg (Western Opinion Research, 1995).

Even though some respondents indicated they would not use transit more often, it was still useful to ask all respondents how they would perceive the BRT system. For example, a respondent that will not use the BRT system may have indicated that they feel the primary advantage of the BRT is faster service. This provides some useful information with respect to marketing the service in the hopes of someday capturing a larger share of automobile drivers.

Cervero's (1998) case studies supported the general hypothesis that BRT systems, as long as they are designed well, can increase ridership. However, Cervero carried out his research in Ottawa, and Curitiba, which are fast-growth cities whereas Winnipeg is not (Lennan & Leo, 2001). While the consequences of slow growth urban areas will not be discussed here, it is safe to say that Winnipeg is revenue poor and infrastructure rich (Lennan & Leo). Intuitively, survey respondents understand the restrictive financial situation of the City of Winnipeg by answering that the cost to the city for the BRT system would be its biggest disadvantage (even though the cost of the system was not mentioned in the survey). The cost of the full Southwest Transit Corridor implementation has been projected at \$75 million (B. Menzies, personal communication, April 10, 2002). Bill Menzies at Winnipeg Transit indicates the city has applied for funding from the Federal Western Diversification Infrastructure program to finance a large part of the Southwest Transit Corridor (personal communication, February, 26, 2002). Nevertheless,

after this initial funding is exhausted, where will the city find the resources to maintain and expand the BRT system? Will the city support other policies (e.g. more compact development) that will enhance the viability of rapid transit? Expansion, access, and complimentary land-use policies are key components to the success of bus rapid transit (Cervero).

RECOMMENDATIONS

According to the City of Winnipeg's Plan 2020 vision document (2001), the City does intend to expand the high speed transit network throughout all quadrants of the city. They also plan on implementing supportive land-use policies. However, the question of future funding remains unanswered. The Province of Manitoba will undoubtedly have to work with the City of Winnipeg to ensure that rapid transit in Winnipeg will have the financial resources and supportive policies that are required to make the transit system a success. A sustained effort will be required to make certain the BRT system will have the desired effect of increasing transit ridership in Winnipeg. Officials at Winnipeg Transit are projecting a 15-18 percent ridership increase for the Southwest Transit Corridor (B. Menzies, personal communication, April 10, 2002). To achieve this, Winnipeg Transit will have to work hard at challenging negative perceptions that the public holds about transit.

Developing strategies to effectively challenge Winnipeg's automobile dominance are absolutely necessary to achieve more sustainable forms of transportation. In this sense, Winnipeg's proposed bus rapid transit system may very well be a step in the right direction.

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APPENDIX

Public Transit Mode: Perception Questionnaire

You are invited to participate in a research questionnaire conducted by Nelson Medeiros, a student of the Urban Studies department at the University of Winnipeg. I am currently working on a research project in the field of public transportation perception and how perceptions may shift if a new public transit mode is made available. I can be reached at (204) 771-8335 or my supervisor, Michael Dudley (Research Associate at the Institute of Urban Studies) at (204) 982-1145. The questionnaire will be distributed among University of Manitoba students only. The questionnaire will ask you to answer some questions about how you currently use public transit; how you feel about public transit; and then ask you to answer some hypothetical questions about a different public transit mode based on an information statement within the questionnaire. The questionnaire will take approximately ten minutes of your time.

The data will be used solely for a research paper. The questionnaire is expected to add to our understanding with respect to public transportation modes and how these modes may affect perception and usage of public transit.

Your name will not be placed on the questionnaire. Participation is voluntary and responses are anonymous. No identifying information will be given to anyone outside me, or my supervisor. Participation in the questionnaire will be considered as your consent. If you so choose, you may discontinue participation in the questionnaire at any time. You do not have to answer all of the questions if you do not want to. A report on the results of this questionnaire may be provided to an agency or institution outside the University of Winnipeg. If you would like a copy of the results you may contact me via e-mail at nelsonm@mts.net or by telephone at (204) 771-8335.

The Research Ethics Committee of the Environmental Studies department at the University of Winnipeg has approved this study. If you have any questions or concerns about this questionnaire, you may discuss them with my course instructor Anke Kirch, at (204) 786-9015 or by e-mail at a.kirch@uwinnipeg.ca

Thank you for consideration and your participation in the questionnaire.

Instructions: Please circle only one answer for each question, unless the question requires some form of written response or indicates that multiple answers are permissible. If you feel that any question is unclear please leave it blank or ask for clarification from the person administering the questionnaire.

Part 1

1. Gender: a) Female b) Male
2. Age: a) less than 18 b) 18-24 c) 25-30 d) 31-40 e) 40+
3. What area of the city do you live in? (e.g. North Kildonan, Fort Garry, Fort Rouge, etc...) If you reside outside of Winnipeg please indicate the municipality you live in. **Please write your response.**

-
4. Do you own a vehicle or have access to a vehicle more than 5 times a week?
 - a) Yes b) No
 5. On average, in a one-week period (Monday through Sunday) how often do you use Winnipeg's bus public transit system for a return trip? A return trip constitutes *to* and *from* a destination and counts as 1 trip.
 - a) More than 7 trips a week
 - b) Between 4 and 6 trips a week
 - c) Between 1 and 3 trips a week
 - d) Never

If you answered 'Never' to the previous question, please go to question 11

6. Please rank on a scale of 1 to 5 what you primarily use public transit for? A rank of 1 indicates that you use transit for that destination almost all of the time, and a rank of 5 indicates that you use public transit for that function the least amount of time. ***You do not need to exhaust all 5 rankings. For example, if you only use public transit to get to University and Work then you will only rank those two destinations.***

	Almost Always				Almost Never
University	1	2	3	4	5
Work	1	2	3	4	5
Entertainment (day)	1	2	3	4	5
Entertainment (evening)	1	2	3	4	5
Shopping	1	2	3	4	5
Other	1	2	3	4	5

(explain 'Other') _____

7. How would you describe your *overall* feelings towards bus service in Winnipeg? By feelings, we mean, how do you feel about frequency of service, quality of bus vehicles, and ridership costs?

- a) Very Satisfied b) Satisfied c) Not Satisfied d) Unsure

8. What do you like the most about riding the bus in Winnipeg?

- a) Bus vehicle quality
b) Frequency of service
c) Reliable route schedules
d) Transit fares are inexpensive
e) Current bus routes are convenient
f) Other (explain) _____

9. What do you dislike the most about riding the bus in Winnipeg?

- a) Bus vehicle quality is poor
b) Frequency of service is poor
c) Unreliable route schedules
d) Transit fares are expensive
e) Current bus routes are inconvenient
f) Other (explain) _____

10. Why do you use public transit in Winnipeg? (**You may circle more than one answer**).

- a) I don't own a vehicle
b) Convenience
c) Cost (inexpensive relative to driving)
d) I don't want to pay for parking
e) Parking is unavailable
f) Environmental reasons
g) Other: (explain) _____

Question 11 is only for respondents who indicated that they *Never* use public transit in Question 5.

11. What would you say are the principal reasons that you do not use Winnipeg's public transit system? (**You may circle more than one answer**)

- a) I own a vehicle or have access to a vehicle frequently
b) Bus vehicle quality is poor
c) Frequency of service is poor
d) Unreliable service
e) Transit fares are too expensive
f) Current bus routes are inconvenient
g) I cycle and/or walk
h) Status (people who use transit are looked down upon)
i) Fear (using the bus is unsafe)
j) Other (explain) _____

Part 2

The next part of the survey will present you with an explanation of a different type of public transit mode than Winnipeg's conventional bus transit mode.

Busway Transit

For the purposes of this questionnaire a busway transit system will be defined as a preferential roadway or route that diesel bus vehicles use exclusively; automobiles are not permitted on the busway. These are not the same as 'bus only' lanes on existing streets but rather they are separate road corridors made of reinforced concrete. Try to think of how railway tracks run through the city now and how these tracks are completely separate from the roads we drive on. In your head replace the railway track with concrete roads and you are picturing what a typical busway looks like.

The City of Winnipeg is proposing to construct a bus rapid transit system. This system has been termed '**The Southwest Transit Corridor**' also known as '**Metro-Bus**'. The route will include a busway, bus only lanes and regular on-street travel. Metro-Bus will link downtown Winnipeg with The University of Manitoba via the Pembina highway corridor.

Highlights of the system are:

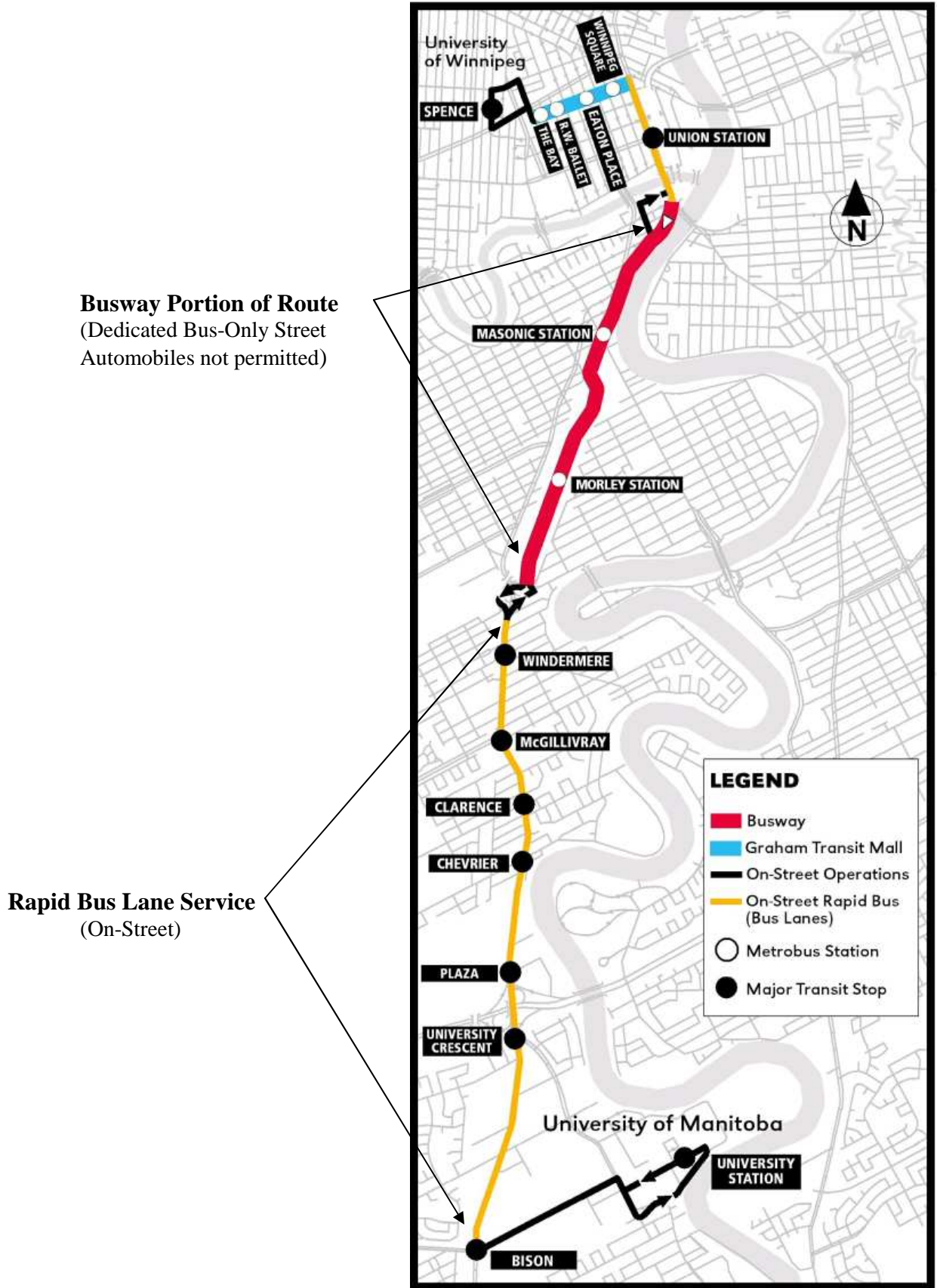
- Faster Service
- Infrequent Stops
- Frequent Service
- Integrated into existing bus route network
- Same fare paid on Metro-Bus as regular bus routes
- Park and Ride facilities for automobile commuters

If you do not live near one of the '**Metro-Bus**' station stops, existing bus routes will generally be re-routed so that they feed into the rapid bus transit system. As a result, passengers may need to transfer from a regular bus route onto the busway system. It is also possible that you may need to transfer off the busway to another bus route to reach your final destination. Once you are on the rapid bus, you will not need to transfer again if one of your destinations is the University of Manitoba, Downtown, or any intermediate point in between. Please note that these types of rapid transit networks are meant to serve a 'long-haul' function. This means that they provide faster service over greater distances and do not stop as frequently as 'short-haul' bus routes.

Please take a moment and look at the following pages of graphics. These will give you a better idea of what a busway transit system looks like and the kind of Busway route Winnipeg Transit would like to implement.

After you view the graphics please go ahead to the last page of the questionnaire for the last set of questions.

Winnipeg Transit's proposed Metro-Bus route



**Take a look at these pictures of cities with Busway Systems.
Automobiles are not permitted on these streets.**



Left: Curitiba, Brazil

Below: Miami, Florida



Left: Ottawa, Canada

12. Do you think you would use Winnipeg's public transit system more often if a busway system were available for you to use (you can circle more than one answer)?
- a) Yes, if travel times are faster
 - b) Yes, other reasons (*explain why*) _____
 - c) No (*explain why*) _____

13. The busway transit system that Winnipeg is proposing will serve the downtown area and provide rapid transportation to the University of Manitoba along the Pembina highway corridor. What kind of trips would you use the busway system for? (**You may circle more than one answer**).

- a) Downtown
- b) Shopping malls
- c) Sporting events
- d) University
- e) Work
- f) Recreation (day)
- g) Recreation (evening)
- h) Not applicable (I won't use the system for any trips)
- i) Other (explain) _____

14. What do you think would be the primary advantages of a busway system in Winnipeg? (**You may circle more than one answer**).

- a) Faster Service
- b) Right-of-way (priority over automobiles)
- c) Boost the image of Winnipeg
- d) An easily identifiable fixed route
- e) Other (explain) _____

15. What do you think would be the primary disadvantage of a busway system in Winnipeg?

- a) Concrete corridors and bus vehicles are unattractive
- b) A busway system will not help boost the image of the city
- c) Smell of diesel bus vehicles
- d) Too many transfers
- e) Cost to the city
- f) Other (explain) _____

16. Given the information about Winnipeg's plan to construct a busway rapid transit system, can you tell us if you think it's a good or bad idea? Why do you feel that way? (**Please write a brief response, use the reverse of the paper if you need to**).

Thank you for taking the time to complete this questionnaire