

UNIVERSITY OF MINNESOTA



CENTER FOR TRANSPORTATION STUDIES

R E S E A R C H R E P O R T

# The Transportation Needs of People with Developmental Disabilities

Rania Wasfi  
David Levinson



CTS 07-02

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE January 05, 2007	3. REPORT TYPE AND DATES COVERED Final Report
4. TITLE AND SUBTITLE <b>The Transportation Needs of People with Developmental Disabilities</b>			5. FUNDING NUMBERS
6. AUTHOR(S) David Levinson, Rania Wasfi			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Hennepin County, Minnesota			8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Federal Transit Administration U.S. Department of Transportation Washington, DC 20590 Website URL [ <a href="http://www.fta.dot.gov">http://www.fta.dot.gov</a> ]			10. SPONSORING/MONITORING AGENCY REPORT NUMBER
11. <b>DISCLAIMER</b> -- This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof. The United States Government does not endorse products of manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.			
12a. DISTRIBUTION/AVAILABILITY STATEMENT <b>Available From:</b> National Technical Information Service/NTIS, Springfield, Virginia, 22161. Phone 703.605.6000, Fax 703.605.6900, Email [ <a href="mailto:orders@ntis.fedworld.gov">orders@ntis.fedworld.gov</a> ]			12b. DISTRIBUTION CODE
ABSTRACT (Maximum 200 words)			
14. SUBJECT TERMS Community Based Transit, Specialized Transit, Disadvantaged Transit, Paratransit			15. NUMBER OF PAGES 97
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT

**UNIVERSITY OF MINNESOTA  
CENTER FOR TRANSPORTATION STUDIES**

**THE TRANSPORTATION NEEDS OF PEOPLE WITH  
DEVELOPMENTAL DISABILITIES**

**FINAL REPORT**

**Rania Wasfi and David Levinson**

Networks, Economics, and Urban Systems Research Group  
Department of Civil Engineering  
University of Minnesota  
500 Pillsbury Drive SE  
Minneapolis, MN 55455  
dlevinson@umn.edu  
612 625 6354

September 10, 2006

# Acknowledgments

This work was funded by Hennepin County, Minnesota. The authors would like to thank all the community partners without whose help this project would not have come to reality. The following is a list of the community partners whom we would like to express our gratitude to:

## **Community Partners**

- 1 Partnership Resources, Inc.
- 2 Rise, Inc.
- 3 Opportunity Partners
- 4 AccessAbility, Inc.
- 5 Arc Greater Twin Cities

The authors would like to thank also all the people with developmental disabilities and their guardians who responded to the survey and agreed to be part of this study; Dianne Gregory, Neil Grass, and their team at the University of Minnesota Printing and Mailing Services for their help in printing and distributing the survey; and Kurt Kempf, Northwest Key punch, for his help in the data entry process.

In addition, we extend our thanks to the TAP members:

### **Hennepin County:**

Larry Blackstad  
Robert Luckow

### **Center for Transportation Studies:**

Bob Johns  
Gina Baas

### **Minnesota Department of Transportation:**

Donna Allan  
Noel Shughart

### **Greater Twin Cities United Way:**

Byron Laher  
Maynard Speece

### **Dakota Area Resources and Transportation for Seniors:**

Mark Hoisser

### **Humphrey Institute's State and Local Policy Program:**

Adeel Lari  
Gary Barnes

### **Twin Cities Red Cross:**

Micky Gutzmann

# Table of Contents

Chapter 1: Introduction.....	1
Introduction.....	1
Definitions.....	1
Goal and Objectives.....	2
Report Organization.....	2
Chapter 2: Background.....	3
Introduction.....	3
Mental Retardation.....	3
Cerebral Palsy.....	3
Autism Spectrum Disorders.....	4
PDD Transportation Needs.....	4
Transportation Modes.....	5
Auto.....	5
Transit.....	5
Unmet Needs.....	5
Defining Mobility/Mobility Impaired.....	5
Chapter 3: Methodology.....	7
Introduction.....	7
Research Design.....	7
Research Question.....	8
Population and Sampling Method.....	9
Community Partners.....	10
Opportunity Partners.....	10
Rise, Inc.....	10
Partnership Resources, Inc.....	11
AccessAbility, Inc.....	11
Arc Greater Twin Cities.....	11
Survey.....	11
Pilot Testing.....	12
Administering the Survey.....	13
Survey Distribution Methods.....	14
Response Rates.....	14
Phone Calls.....	15
Data Preparation and Entry.....	16
Chapter Summary.....	16
Chapter 4: Data.....	17
Introduction.....	17
Types of Developmental Disability.....	17
Age and Gender.....	18
Education.....	20
Place of Residence.....	20
Travel Diaries.....	23
Geographic Distribution.....	23

Chapter 5: Analysis and Discussion .....	25
Introduction.....	25
Trip Purpose.....	25
Frequency of Trips.....	25
Travel Needs .....	30
Travel Mode and Assistance.....	34
Difficulties .....	39
Concerns of Transit Users.....	40
Familiarity with Services .....	44
Independence .....	48
Travel Barriers .....	52
Comments in Survey.....	52
Chapter 6: Conclusion.....	57
References.....	58
Appendix A: Support Letter.....	59
Appendix B: Cover Letter.....	60
Appendix C: Consent Form .....	61
Appendix D: Assent Form .....	63
Appendix D: Partners Letters.....	64
Appendix F: Reminder Card.....	65
Appendix G: Survey .....	66
Appendix H: Travel Diary .....	76

## List of Tables

Table 1: Community partners (people with developmental disabilities) .....	10
Table 2: Summary of survey distribution methods .....	14
Table 3: Survey response rates .....	15
Table 4: Travel diary response rates .....	15
Table 5: Response rate based on the definition of developmental disability .....	17
Table 6: PDD sample by age group .....	19
Table 7: Response rate based on gender and type of DD .....	20
Table 8: Level of education and PDD type.....	20
Table 9: Where do you live and with whom? .....	23
Table 10: Trip purpose.....	25
Table 11: How often do you make work trips?.....	27
Table 12: Which mode of transportation do you use most often for shopping trips?.....	35
Table 13: Which mode of transportation do you use most often for work trips? .....	35
Table 14: Do you face problems standing ?.....	39
Table 15: Do you face problems reading transit schedules?.....	39
Table 16: Do you face difficulty understanding transit schedules? .....	39
Table 17: Do you face difficulty understanding announcements?.....	40
Table 18: Purpose of trips you could not make .....	52
Table 19: Reason for not making the trips.....	52

## List of Figures

Figure 1: Research design.....	8
Figure 2: PDD sample by place of residence.....	22
Figure 3: Distribution of PDD who responded to the survey .....	24
Figure 4: How often do you make recreation trips? .....	28
Figure 5: How often do you make social trips? .....	29
Figure 6: Trip Needs .....	31
Figure 7: Are there times when you are unable to make trips you need to make? .....	32
Figure 8: Are there times when you are unable to make trips you want to make?.....	33
Figure 9: Do you usually need assistance to make shopping trips?.....	37
Figure 10: Do you usually need assistance to make work trips? .....	38
Figure 11: If you use public transit, how concerned are you that scheduled buses don't serve where you need to go? .....	41
Figure 12: If you use public transit, how concerned are you with becoming a victim of crime?.	42
Figure 13: If you use public transit, how concerned are you with making connections to other transportation systems?.....	43
Figure 14: I am familiar with the different types of transportation services available to people with disabilities. ....	45
Figure 15: Do you ever use dial-a-ride, lift van, or Metro Mobility?.....	46
Figure 16: Do you ever use Metro Transit or other public transit buses or light rail ?.....	47
Figure 17: I consider myself to be an independent traveler.....	49
Figure 18: It is my choice what mode of transportation I use .....	50
Figure 19: Using public transit increases (would increase) my independence.....	51



## Executive Summary

The United States Department of Health and Human Services, Administration on Developmental Disabilities estimates there are about 4.5 million persons with developmental disabilities in the United States (about 1.5 percent of the total population), which translates to about 17,000 residents of Hennepin County, Minnesota. This report examines the transportation needs of adults with developmental disabilities in Hennepin County through a survey of their existing travel behavior and their unmet needs. We were assisted in the design and distribution of these surveys with community partners (Partnership Resources, Rise, Opportunity Partners, AccessAbility, and Arc), and had respondents (or their guardian or caretaker) mail back their responses to this multipage survey. The survey had both demographic and attitude questions as well as a travel diary for recording actual trips and desired but untaken trips.

Of more than 990 surveys distributed, 114 were returned, giving data on primarily mentally retarded individuals, with responses as well from individuals with cerebral palsy, autism spectrum disorder, and other, generally unspecified developmental disabilities. More than half of respondents were male. The responses covered a full range of adult ages from 18 to 60 and over.

Almost all developmentally disabled adults surveyed do not live independently. More than half live in group homes, while about a quarter live with relatives. However, 40 percent agree or strongly agree that they are independent travelers, and 70 percent agree or strongly agree that it is their choice what mode of transportation to use.

The report analyzes both travel behaviors and needs. About half of all trips were work related, with social/recreational, “other”, and shopping following in order. More than half of our population worked every day, while recreation occurred at least once a week for about two-thirds of the population, and more than half undertook social trips weekly.

About 30 percent reported being unable to make trips they want to make and 46 percent unable to make trips they need to make. Only a few travelers reported specific trips they could not make; of those, shopping was the most common, with no one available to drive being the main reason that trip could not be taken.

The modes of travel to work were walking (42 percent), transit (26 percent), social service providers (14 percent), and private car (4 percent), with the remainder reporting “other.” For shopping trips, a car was more important, serving 38 percent, with the other modes being very diverse. More of the developmentally disabled population required assistance for shopping trips than for work trips (which are more routine, and do not require spending money).

Public transit poses difficulties for this population, both physically—about one-third had difficulty standing—and intellectually—almost half had difficulty reading transit schedules and one-third had difficulty understanding announcements. More than half were concerned that public transit doesn’t serve where they need to go, and half were concerned about becoming a victim of crime. Fewer than 30 percent ever use scheduled public transit services.

A large number of comments were received, which add qualitative flavor to the analysis that was conducted. There were specific complaints about publicly provided paratransit services—in particular, the long lead times required for scheduling, the short windows available for pickup, and the long and unreliable travel times. Community service providers received praise.

# Chapter 1: Introduction

## *Introduction*

Transportation systems serve their communities by providing accessibility (the ability to reach valued destinations) and mobility (the ability to move on the network) (Handy & Niemeier, 1997; Hansen, 1959). Limitation in mobility occurs when a person cannot move between an origin and desired destination because of external or individual factors. People with limited mobility include but are not limited to the elderly, poor, children, persons who do not speak English, the physically disabled, and people with developmental disabilities. Limitations in mobility may affect physical, social, and psychological well-being. Community transportation agencies aim to help these populations overcome their limitations and increase their level of mobility, and provide them with the ability to access desired destinations. There is growing direction in the fields of disability services, rehabilitation, education, and psychology of the need to promote independence for individuals with mental retardation and developmental disabilities (Abery, 1994; Brown & Gothelf, 1996; Crimmins & Berroti, 1996).

This study investigated the travel demands and activities (in terms of both actual behavior and unmet needs) of people with developmental disabilities (PDD) residing in Hennepin County, Minnesota. Measuring the transportation needs of PDD was done by conducting a mail-in survey, which included questions measuring the difficulty of reaching their desired destinations in the region to conduct some kind of activity (work, shopping, recreation, social, education, medical, agency support, and businesses). Transportation is considered one of the main means to determine the level of independence and self-determination of PDD (Wehmeyer, Kelchner, & Richards, 1996).

## *Definitions*

Developmental disabilities (DD) are severe, chronic disabilities caused by mental and/or physical impairment. They typically appear before age 22 and last throughout a person's lifetime. The U.S. Department of Health and Human Services (HHS) reports that developmental disabilities result in substantial limitations in three or more of the following areas: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency. The HHS Administration on Development Disabilities estimates there are about 4.5 million persons with developmental disabilities in the United States (about 1.5 percent of the population), which translates to about 17,000 residents of Hennepin County, Minnesota. The Center for Disease Control (CDC) focuses its research and support activities on autism spectrum disorders, cerebral palsy, hearing loss, mental retardation, vision impairment, and attention deficit hyperactivity disorder.

It is clear that better understanding the transportation needs of PDD is crucial to help address their needs.

## ***Goal and Objectives***

The main goal of this research was to better understand the transportation needs and concerns of PDD as a special population. PDD have both met and unmet transportation needs. It is important to note that PDD as a population in general can include both transportation disadvantaged and transportation advantaged people depending on the degree of disability and training.

The transportation disadvantaged cannot meet all their transportation needs independently and require some special attention from the community to help meet those needs. In contrast, the transportation advantaged can independently meet all their needs through the existing system. PDD can be trained to certain levels to partially overcome their disability and use public transit for meeting their transportation needs. Listening to the concerns of both the advantaged and disadvantaged is important to help better serve their special needs.

Understanding these needs can be done through two main procedures. The first is to measure existing travel behavior patterns for the PDD population. The second is to determine the unmet needs and wants of the relevant groups—e.g., what services they want but are not presently being provided. These provide a baseline of information to proceed with subsequent planning and decision making. The perspective of the users of the services (and their caregivers) is critical to ensure an accurate measurement of both behaviors and desires.

## ***Report Organization***

The report is organized into several sections. The next section reviews the relevant literature, which is followed by a discussion of the methodology employed for this study, a presentation and summary of the data, and the report ends with the researchers' conclusions.

## **Chapter 2: Background**

### ***Introduction***

Defining disability in the context of travel behavior research is somewhat tenuous. Operational definitions are frequently used: In a study conducted using data from the London Area Travel Survey, disability was defined as “a longstanding health problem that affects [a participant’s] ability to travel or get about” (Schmöcker et al. 2004). Another definition included “individuals of all ages who are unable to transport themselves without special equipment or outside assistance due to a physical, cognitive, or psychiatric impairment” (ODOT 1999). In the study conducted using survey data from BTS (Sweeney 2004), the measure of disability relied on participant self-identification based on Census 2000 definitions. These include both categorically defined (blindness, deafness) and operationally defined (difficulty with mental and physical activities) disabilities. According to the Centers for Disease Control and Prevention (CDC) Department of Health and Human Services, developmental disabilities are defined as a diverse group of severe chronic conditions that are due to mental and/or physical impairments. People with developmental disabilities have problems with major life activities such as language, mobility, learning, self-help, and independent living. Developmental disabilities begin at any time during development up to 22 years of age and usually last throughout a person’s lifetime.

The major types of developmental disabilities that the CDC concentrates on are autism spectrum disorders, cerebral palsy, mental retardation, hearing loss, and vision impairment. In this study we concentrated on people with autism spectrum disorder, cerebral palsy, and mental retardation.

### ***Mental Retardation***

Mental retardation is described as a condition that is diagnosed in childhood and includes below-average general intellectual function accompanied by impairment in a person’s ability to acquire the skills necessary for daily living. There are different degrees of mental retardation, ranging from mild to profound. A person’s level of mental retardation can be assessed by his or her intelligence quotient (IQ), or by the types and amount of support needed. It has different causes; only 25 percent of the cases have a known reason.

### ***Cerebral Palsy***

Cerebral palsy refers to a group of disorders that affect a person’s ability to move and to maintain balance and posture. Cerebral palsy is motor impairment resulting from damage to one or more specific areas of the brain, usually occurring during fetal development or during infancy. It can also occur before, during, or shortly following birth. Cerebral palsy is due to a non-progressive brain abnormality, which means that it does not get worse over time, though the exact symptoms can change over a person’s lifetime. Depending on which areas of the brain have been damaged, one or more of the following may occur:

- Muscle tightness or spasm

- Involuntary movement
- Disturbance in gait and mobility
- Abnormal sensation and perception
- Impairment of sight, hearing, or speech
- Seizures (or convulsions), which are temporary abnormal electro-physiologic phenomena of the brain, resulting in abnormal synchronization of electrical neuronal activity. The medical syndrome of recurrent, unprovoked seizures is termed epilepsy, but some seizures may occur in people who do not have epilepsy.

## ***Autism Spectrum Disorders***

Autism spectrum disorders (ASDs) are a group of developmental disabilities that are caused by unusual brain development. People with ASDs tend to have problems with social and communication skills. Many people with ASDs also have unusual ways of learning, paying attention, or reacting to different sensations. ASDs begin during childhood and last throughout a person's life.

## ***PDD Transportation Needs***

Most literature on the travel needs and behaviors of developmentally disabled individuals has focused on blind or vision-impaired and deaf or hearing-impaired populations. Around 30 percent of deaf or hard-of-hearing individuals and close to two-thirds of children with vision impairment also have one or more other developmental disabilities (CDC 2004). Consequently, while hearing and vision impairments are not the focus of this study, the literature about them is germane.

In a survey of bus users in Washington, DC, and subway users in New York City, Winakur (1977) found that the hearing-impaired encountered problems with both bus and subway use. The problems experienced were mainly a result of difficulties in obtaining and using information about routes and fares and in communicating with the driver. For subway users, additional problems were encountered because the hearing-impaired were unable to hear loudspeaker announcements about emergencies or route changes and delays. Bettger & Pearson (1988) note similar problems in accommodating deaf and hard-of-hearing persons on buses, subways, and airplanes in Massachusetts and make suggestions for improvements that could be made in each mode, from increasing awareness of telecommunication devices for the deaf (TDD) to using video monitors and electronic readerboards to convey information.

Golledge, Costanzo, and Marston (1996) surveyed blind and vision-impaired populations in Santa Barbara, California, to determine how not driving impacts their quality of life and what types of transportation are most used. Respondents were recruited through local agencies that deal with the visually impaired. Fifty five people participated via mail (large print) survey, telephone survey, and in-person interviews.

Around 51 percent of the respondents identified the local bus as their primary mode of travel [not random], and the top reasons given for using public transit were the service met their needs, cost, and lack of alternative. Other forms of transportation used included household cars, walking, friends' cars, and agency vans. Sixty-seven percent of the sample was dependent on others for transportation, and four-fifths of these indicated frustration from this dependence.

The authors noted some differences in activity patterns of the respondents compared with the sighted: limited transit schedules constrained late-night and Sunday travel, participants needed assistance in traveling, and, due to the necessity of living near a bus stop, choice of home location was restricted. Most participants were familiar with the range of services for disabled people in their community, and 58 percent felt these services met their needs.

Vision loss affected the experience of using public transportation in two ways: using information, and using the service itself. First, while 64 percent agreed that public transportation information was easy to obtain, the majority felt that it was not easy to use. Respondents suggested that tactile or large-print information and schedules, in addition to access to human operators on phone hotlines, would improve ease of using transit information. Not unexpectedly, respondents also had difficulty navigating the public transportation system. Most (54 percent) indicated that it was difficult to estimate where they were when traveling. Other tasks that a large majority of the sample found difficult at least sometimes included finding pick-up points for different transportation modes, learning intervals between connections, crossing streets to find a transfer point, and learning whether connecting service is on time. In response to these difficulties, respondents suggested announcement by drivers of cross streets and auditory pedestrian signals at transfer points.

## ***Transportation Modes***

### **Auto**

Across the literature, the automobile is the dominant mode of travel for the elderly and disabled; this reflects the dominance of the automobile in the United States and other Western societies. Yet this might be different for PDD. A search in the literature revealed the lack of documentation in this area of research.

### **Transit**

Travel training for PDD to use transit and paratransit has shown to be an effective way for helping them make successful daily trips to and from work and school destinations.

### ***Unmet Needs***

Only a few studies addressed the unmet needs of the transportation disadvantaged population. A literature search revealed that most researchers tend to use transportation options and modes as a means to increase the independence of PDD yet none, to our knowledge, has documented these levels of independence or discussed the unmet needs of PDD.

## ***Defining Mobility/Mobility Impaired***

It is generally acknowledged that there is a vital relationship between mobility and quality of life of PDD. However, because mobility is ill- or multiply-defined, this relationship is difficult to

pin down. Mobility is often used synonymously with travel, but Metz (2000) points out that a loss of mobility implies more of a hardship than does simply traveling less.

Metz proposes operationalizing mobility using five key elements: travel to achieve access to desired people and places; psychological benefits of movement—of “getting out and about;” exercise benefits; involvement in the local community; and potential travel. Existing research tends to address the first of these, disregarding benefits that do not go hand-in-hand with a travel destination.

Previous studies on the travel behaviors of disabled people have used a combination of categorical and operational ways of identifying the transportation disadvantaged population.

## **Chapter 3: Methodology**

### ***Introduction***

The identification of the appropriate methodology is developed in a two-step process. The first involves developing the theoretical aspect of the methodology, which was done by the research team and through review of the literature and discussions with the technical advisory panel (TAP). The second step identifies the available datasets and the possibilities of achieving the methodology through empirical research based on either available data or collecting primary data. In this chapter, the researchers highlight the main components of the methodology used to conduct the analysis in this research. The methodology includes the research design and goal, research questions, description of the population and sampling methods, data-collection methods, survey instruments and design, and finally, methods used to conduct the analysis of the primary collected data either statistically or by using a geographic information system.

### ***Research Design***

The goal of this research is to measure the actual and unmet transportation needs of PDD in Hennepin County, Minnesota. Since this research deals with a special population, the available secondary datasets are not adequate to help in reaching this goal; accordingly, conducting a survey and collecting primary data that measures the needs of this population is essential. Based on a theoretical background, the research team constructed a transportation survey to help achieve the main goal of this study. Since PDD are part of a special population, targeting them to answer this questionnaire could be accomplished most readily through partnership with several senior centers, residential communities that are dedicated to serving PDD, and transportation providers for PDD. In other words, reaching the targeted population would be done through people who provide services to them, where mailing lists and contact information are maintained. This partnership started with the early stages of the study, where several partners helped review the survey and even organized meetings with PDD to pilot-test the survey. After the return of several surveys from the pilot testing, the research team incorporated several changes to the survey to address the concerns and issues raised by PDD who were part of the testing. The survey was then distributed to PDD through various channels of communication depending on the type of partnership established between the research team and the community partners. Finally, surveys were returned to start the analysis phase. The analysis phase ends with a conclusions section in this report, where major findings are presented. In addition, meetings with the TAP at various stages in the research process helped in crystallizing the ideas and polishing the research design. Figure 1 outlines the flow of the research and the various phases that the research team passed through.



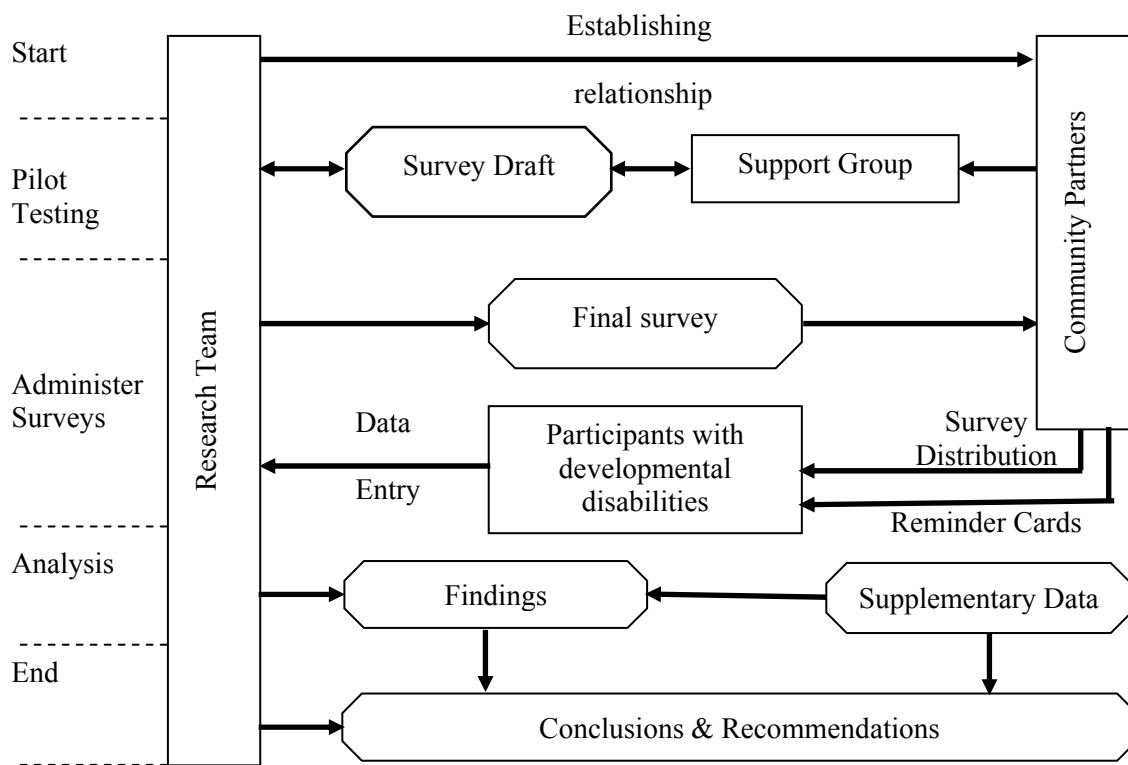


Figure 1: Research design

## ***Research Question***

An understanding of the transportation needs of a special population such as PDD can be achieved through answering the following research question:

*“What are the travel demands and activities (in terms of both actual behavior and unmet needs) of individuals with developmental disabilities?”*

To achieve an answer to this research question, two main objectives need to be met. The first is to measure existing travel behavior patterns for the PDD. The second objective is to determine the unmet needs and demands of this special population, e.g., what services individuals want but are not being provided. These objectives can be met through the following tasks:

1. Identify a sampling methodology
2. Design a survey that includes various questions measuring transportation needs and activities of the studied population
3. Build partnerships with various organizations in the region that serve PDD
4. Distribute the survey through partners
5. Collect and code the survey
6. Conduct the analysis to derive conclusions and recommendations

## *Population and Sampling Method*

The population of interest in this study was the PDD residing or working in Hennepin County. For purposes of this study, the PDD were defined as those who have been diagnosed with autism spectrum disorder, cerebral palsy, or mental retardation. This is a broad enough definition to include all those defined by the Center for Disease Control as PDD. In order to represent a diverse cross-section of PDD, the following characteristics were taken into account when selecting PDD to be part of the study:

- Geographic location: Hennepin County includes the urban core of Minneapolis as well as suburbs and distant exurbs. Each of these types of locations offers a different set of transportation options to the PDD.
- Mental retardation (MR): Degrees of mental retardation range from mild to profound. People with various levels of MR were recruited to be part of the survey.
- Cerebral palsy (CP): Cerebral palsy is a motor impairment resulting from brain damage in a young child. Depending on which areas of the brain have been damaged, one or more of the following may occur:
  - Muscle tightness or spasm
  - Involuntary movement
  - Disturbance in gait and mobility
  - Abnormal sensation and perception
  - Impairment of sight, hearing, or speech
  - Seizures (or convulsions) which are temporary abnormal electro-physiologic phenomena of the brain, resulting in abnormal synchronization of electrical neuronal activity. The medical syndrome of recurrent, unprovoked seizures is termed epilepsy, but some seizures may occur in people who do not have epilepsy.
- Autism spectrum disorders (ASDs) are a group of developmental disabilities that are caused by unusual brain development.
- Independence level: Mobility is not just a function of type and level of disability, but also of relative independence level. Independence, as a concept, encompasses physical and mental disabilities. Living situation will be used as a proxy for independence level. PDD who are hospitalized or in hospice care may not be medically stable, and the difficulties associated with incorporating their participation is probably too great for it to be worthwhile.
- Racial and ethnic diversity: Hennepin County is becoming a more diverse place—in the year 2000, 21 percent of residents were nonwhite, up from 11 percent in 1990, though much of that diversity is in the younger immigrant population. To be fully representative, the study included PDD from a variety of racial and ethnic backgrounds. One barrier to this is language: 46 percent of the state's foreign-born population lives in Hennepin County. PDD foreign-born Hennepin County residents may not be proficient in English, and producing survey materials in alternative languages is beyond the scope of the study.
- In order to account for all these elements of diversity, it was necessary to recruit participants from a variety of sources. The most efficient way to recruit participants was to develop relationships with community partners, which included agencies and organizations that provide support to PDD and were willing to allow and/or coordinate participant recruitment.

## ***Community Partners***

Finding appropriate community partners that were willing to help in finding PDD participants and distributing the surveys was key in this project. Community partners play a very important role in connecting the University to the PDD they serve. PDD centers, programs, community services that supervise PDD centers, and transportation programs located in Hennepin County that serve PDD were chosen to be the community partners that helped us conduct this study.

The research team contacted around 12 centers serving PDD in Hennepin County. Not all contacted groups agreed to help the research team conduct the survey. Of the 12 contacted, 5 partners agreed to help the research team in the study. The level of willingness to help in the recruitment process varied among partners. The following is a list of various levels of collaborations:

1. Introducing the study to a sample of PDD for pilot testing
2. Distributing surveys at sites
3. Sending the surveys to PDD by mail through use of mailing lists

Table 1 shows a list of community partners that agreed to help in recruiting PDD participants and their affiliation. The city where each center or community is located is also indicated in the table. It is important to note that the reported names and locations in the table represent the main office location of each partner. More detailed information about each partner follows in this section.

Table 1: Community partners (people with developmental disabilities)

<b>Community Partners</b>	<b>Main office location</b>
1 Partnership Resources, Inc.	Minneapolis
2 Rise, Inc.	Spring Lake Park
3 Opportunity Partners	Minnetonka
4 AccessAbility, Inc.	Minneapolis
5 Arc Greater Twin Cities	Saint Paul

## **Opportunity Partners**

Opportunity Partners provides personalized employment, housing, and educational opportunities to around 1,300 individuals with developmental disabilities, brain injury, autism, and other special needs at 31 separate locations in the Twin Cities metropolitan area. The main office of Opportunity Partners is in the city of Minnetonka. More information about Opportunity Partners can be obtained from its official Web site at: <http://www.opportunities.org/>.

## **Rise, Inc.**

Rise Inc. is an organization that supports people with disabilities or other barriers to employment attain their personal measure of safe and affordable housing, vocational achievement, self-sufficiency, and belonging in their communities. People with developmental disabilities are one of the groups that Rise supports with various programs. Rise has its own transportation program that helps in providing transportation to work for some of its participants at the different work sites. Rise has 16 office locations in the Twin Cities metropolitan area as well as in the outstate

Minnesota areas of St. Cloud and Chisago Lakes. Programs for people with developmental disabilities are located in Hennepin, Anoka, and Chisago Counties. The main office of Rise is located in Spring Lake Park. More information about Rise is available at its official Web site at: <http://www.rise.org/>.

### **Partnership Resources, Inc.**

Partnership Resources, Inc. (PRI) provides day training and habilitation services to PDD. PRI currently serves approximately 125 developmentally disabled adults (clients) with varying functioning levels. Of the 125 clients served, approximately 70 percent participate in full-time community-based activities. Partnership Resources is located in the city of Minneapolis. More information about Partnership Resources is available on its official Web site at: <http://www.partnershipresources.org/>.

### **AccessAbility, Inc.**

AccessAbility, Inc. is a nonprofit, diversified training, employment, and production facility. It provides training, work, and recreational opportunities for individuals with disabilities and economic disadvantages who have barriers to employment and community inclusion. The people served by AccessAbility have a wide range of disabilities including developmental disabilities, such as mental retardation, sensory impairments, and cerebral palsy; mental impairments such as serious and persistent mental illness or traumatic brain injury; and/or physical disabilities associated with spinal cord brain injury. AccessAbility serves approximately 500 individuals in different programs. More information about AccessAbility is available on its official Web site at: <http://www.accessability.org/>.

### **Arc Greater Twin Cities**

Arc Greater Twin Cities is an advocacy organization that serves PDD. From early childhood to school age, when making the transition to adulthood or adjusting to adult and senior life, Arc's services support individuals and families across the lifespan. In 2004, Arc Great Rivers and Arc Hennepin-Carver collectively served 20,788. More information about Arc Greater Twin Cities is available on its official Web site at: <http://www.archennepincarver.org/>.

The main reason for the limited number of partners is due to the type of targeted population. Also, some centers indicated that they were not interested and others indicated they did not want to overwhelm their PDD with surveys, since they thought they wouldn't be able to answer such a survey. It is important to note that our sampling is biased towards the cities and areas where PDD centers or community services agreed to help us and to the level of support we received from these centers.

### ***Survey***

In order to ascertain the transportation needs of PDD the research team designed a survey that contained a set of quantitative and qualitative questions. The *quantitative* questions in the survey included standard information about demographic and socioeconomics characteristics (level of education, age, gender, income, housing, household information, and ethnicity). In addition, a

set of questions was targeted towards identifying the transportation modes and frequency of usage to reach these activities. Travel/activity diary information recording every trip or activity undertaken by an individual over the course of the day was also included in the survey. This travel diary was similar to the travel diary collected as part of the TBI survey conducted by the Metropolitan Council.

The *qualitative* questions are directed to the travel and activities that the PDD could and/or could not do. Meanwhile, a set of supporting questions were included to help in quantifying the reasons if any activity was not met and if the reason was due to a disability or to the person's physical condition, the location of the desired activities, the quality of existing transportation services, or any other reasons. The main questions in the survey tried to cover the following areas:

- The frequency of trips made to different destinations
- The two modes of transportation most used
- If there is a need of assistance in traveling
- Capability of making trips needed and /or wanted
- The use of an automobile
- The use of paratransit
- The use of public transit
- Difficulty using public transit
- Concerns using public transit
- Attitudes using public transit
- Attitudes towards driving (dependence/independence)
- Concerns related to transportation
- Demographic and socioeconomic questions

A question was also added at the end of the survey asking if the surveyed person has any diagnosed medical condition and what it is. In addition, a different question asked the surveyed person if he or she has any kind of disability, if so, to specify what it was. Because of the nature of the targeted population, traditional survey instruments cannot be used without supplementary questions and alternative methodologies. An open-ended question was included at the end of the survey for respondents to report any comments or concerns related to their transportation needs or limitations. This section helped the participants to raise topics and issues that were not covered in the survey. The survey questionnaire and the travel diary are included as Appendices G and H, respectively.

Another key question was added to the survey asking who filled it out and if it was the PDD or someone who did it on his or her behalf.

## ***Pilot Testing***

Since this research tries to capture the transportation needs of a special population, conducting a pilot test and getting feedback from a sample of PDD was essential in order to polish the survey and enhance the methodology. A questionnaire was designed and tested on the leadership members of Opportunity Partners. The group was used to ensure that the questions proposed in the survey covered their transportation concerns. The PDD group was also used to test the ease of understanding the survey questions.

Coordination between the research team and the administration office at Opportunity Partners helped in organizing a meeting with the leadership group, which consisted of various

PDD personal. Guardian approvals were obtained prior to the meeting. During this meeting, which took place as part of the monthly leadership meeting, the research team presented the survey and distributed it to those in attendance. Several issues related to the survey design and questions were raised. The group members were asked to fill out the surveys and return it back in the prepaid envelopes, with comments on both the questions and design. The research team distributed 12 surveys to the PDD attending the meeting. Following the meeting, the team received five completed survey packets. Suggestions during the meeting from the support group helped in polishing and fine-tuning the survey. For example, adding the phone number of one of the team members in case the surveyed person had a question was suggested. Some simplifications in the language and adding figures and symbols adjacent to the questions were also suggested.

This round of pilot testing helped the research team finalize a survey that could capture the transportation needs (met and unmet) of PDD.

## *Administering the Survey*

Following the revision of the survey, approvals had to be obtained from the Institutional Review Board (IRB) at the University of Minnesota. The IRB required written approvals from partners as a key to start conducting the survey. A sample of the support letter is included in Appendix A. Other support documents were included in the survey packets that were distributed. These documents included a cover letter introducing the study to the participants and a consent form. A sample cover letter is included in Appendix B, while the consent form sample is included in Appendix C. In addition, an assent form was also included; a copy of the assent form is included in Appendix D. After addressing all the IRB concerns in terms of survey structure and inserts, the research team contacted the community partners to support the team by adding inserts to the packets. These inserts included a letter from the center introducing the survey to the participants and indicating that a partnership had been between the research team and the community partner. Several community partners did not provide an insert because they were satisfied with a sentence in the cover letter explaining the partnership established between the research team and their center. A sample of the support letter is included in Appendix E. All the surveys were coded with a digital code (similar to 10-27-15238). The first two digits indicate that the survey was sent to a PDD participant, the second two digits were associated with the community partner, and the last five digits were a sequential number. This coding was useful for determining the response rates from each community partner. After preparing the codes and the survey packet for printing, a final survey packet was prepared at the University of Minnesota's Printing Services to include the following:

- Letter of invitation
- Survey
- Travel diary
- Trips you made today
- Trips you couldn't make today
- Consent form
- Assent form
- Inserts from partners explaining the study and the support of the organization (optional)

Ultimately, 990 survey packets were prepared and printed for distribution to centers and community partners.

## ***Survey Distribution Methods***

The distribution methods of the survey varied based on the agreement between the research team and the community partners. Table 2 includes a summary of the survey distribution means for each community partner.

Table 2: Summary of survey distribution methods

Community Partner	Distribution Type
1 Partnership Resources, Inc.	M
2 Rise, Inc.	M
3 Opportunity Partners	M/H
4 AccessAbility, Inc.	M
5 Arc Greater Twin Cities	H

H: Gave to Community Partner to hand to participants M: Mailed to participants

M/H: Gave to Community Partner to hand to some of the participants and mailed to others

For partners one and two, the surveys were distributed by mail to participants. Each partner provided the research team with a set of labels with their client names and addresses. The labels were either placed by mailing services personnel at the University of Minnesota on the survey packets or by the community partners, where the research team provided the survey packets and they placed the labels. Following that, the research team picked the survey packets from the community partners to be sent by mail through the University of Minnesota mailing system. For community partner three, the research team provided the survey packets and the community partner placed the labels and mailed some of them while handing some to participants. For community partner four, the research team provided the survey packets and it placed the labels and mailed them to participants. For community partner five the research team provided the community partner with survey packets and partners handed them to participants during focus group meetings that they administer at their sites.

After receiving around 30 surveys back, the research team used the survey coding to determine the response rate from each community partner. This count was followed up with another contact to the community partners that had a low rate of return. The partners agreed to help send a reminder card to all participants who did not return the survey packets. A copy of the reminder card is included in Appendix F. Reminder cards were sent to partners one, two, three, and five. Most of these centers serve people other than PDD, so the research team asked them to limit the distribution of the surveys to people diagnosed with development disabilities.

## ***Response Rates***

In total 990 survey packets were printed and distributed. The research team received 124 returned envelopes. Only 114 surveys were completed by the PDD. The difference of 10 surveys came from PDD who did not want to participate in the study. In most of these cases the responses came mainly from the guardians, who stated that the targeted participant had a severe degree of disability and that his or her transportation needs were minor and being met by family

members. Table 3 includes a summary of the number of surveys distributed to each community partner and the number of returned surveys.

Table 3: Survey response rates

Community Partner	Distributed	Response	percent
1 Partnership Resources, Inc.	192	22	11.45 percent
2 Rise, Inc.	400	63	15.75 percent
3 Opportunity Partners	310	24	7.74 percent
4 AccessAbility, Inc.	15	2	13.3 percent
5 Arc Greater Twin Cities	73	3	4.1 percent
Total	990	114	11.51 percent

It is also important to note that not all the filled out surveys came back with completed travel diaries. The response rate of the travel diaries was lower than that of the surveys. The total number of returned and completed travel diaries was 94 surveys. Table 4 shows the response rates of travel diaries by partner.

Table 4: Travel diary response rates

Community Partner	Distributed	Response	percent
1 Partnership Resources, Inc.	192	19	9.90 percent
2 Rise, Inc.	400	51	12.75 percent
3 Opportunity Partners	310	20	6.45 percent
4 AccessAbility, Inc.	15	2	13.33 percent
5 Arc Greater Twin Cities	73	3	4.11 percent
Total	990	94	9.49 percent

## ***Phone Calls***

As part of the survey administration process the research team received more than 50 phone calls. The phone calls were mostly from PDD guardians. Several PDD guardians indicated that they did not want them to participate in the study. Several phone calls included questions and asked for clarifications in terms of the definitions (for example, what was a lift van). Following the reminder cards the team received several calls (around 6) from individuals who said that they did not receive the initial packet but had received the reminder cards. Those callers requested that a new packet be sent to them.



## ***Data Preparation and Entry***

All returned packets were reviewed and coded. The coding of the packets included adding the survey code on the survey addresses to the travel diaries, the consent form, and the assent form. Such coding will enable future merging between travel diaries and the main surveys. Several surveys included comments in the middle of the survey and not in the designated sections. These comments were marked for addition to the comment field. For the question related to the type of mode used, several responses did not recognize the presence of a key number below the question that responded to their choice. These surveys were reviewed and the mode of transportation that the PDD used was recoded as a number for the ease of the data entry purpose. Confusion was also present in terms of the coding, since several PDD indicated that they used a private car as their main mode and entered the code other than car in the table of choices. Such entries were corrected based on reviewing other questions in the survey.

For the travel diaries some people entered trips they took on various days and not just one day. Others entered more than four trips for the trips they made in a day. In addition, several participants indicated comments in the travel diary. Such comments were read by the research team and a comment field was added to the travel diary as part of the data entry process to document these comments and concerns. The research team hired a professional data entry firm, Northwest Key Punch, to conduct the data entry for the survey, travel diaries, and comment fields.

## ***Chapter Summary***

In this chapter we discussed the research design and methodology. We reported how the research team succeeded in building partnerships with various centers serving PDD in Hennepin County. The process of designing the survey and testing it was also discussed. Finally, response rates and the data entry process was explained.

## Chapter 4: Data

### *Introduction*

In this study the research team tried to better understand the transportation needs of PDD residing or working in Hennepin County, Minnesota. Diversity in the transportation needs and levels of independence are common in the studied population. The first step towards understanding the needs of this diverse population is to demonstrate the general characteristics of the sample. It is important to note that the findings of this study only represent the characteristics of the people who received the surveys and responded to it. The majority of the returned surveys were filled out by a guardian, relative, staff member, or volunteer. Only 16 surveys were filled out by the PDD themselves. This number represents around 14 percent of the returned sample, while 15 returned surveys did not indicate how they were filled out or by whom.

### *Types of Developmental Disability*

Since the PDD is a unique and diverse population, the type of developmental disability was used as the main factor for classifying the results and the data. Two questions were used to determine the type of disability. The first asked if the participant had any diagnosed medical condition. If the answer to this question was yes, then the participant was asked to define this medical condition. The second question asked if the participant had some kind of disability, and if the answer was yes, then the participant was asked to define the type of disability. The answers to these questions were analyzed and filtered to determine four main categories of developmental disability including MR, CP, ASDs, and others. The “others” category included such answers as traumatic brain injuries, developmentally disabled, Noonan syndrome, multiple sclerosis, dependent personality disorder, various brain and nerve disorders, and “would rather not discuss.” It is important to note that one participant reported that he does not have any kind of disability or any kind of diagnosed medical condition. Even though several community partners serve different types of disabilities, the research team was clear that these surveys be directed only to PDD. Accordingly, the community partners directed the surveys only to the PDD population. All the responses in the others category were reviewed based on the CDC definition of developmental disability to make sure they were part of the desired population. Table 5 shows the response rates by type of disability.

Table 5: Response rate based on the definition of developmental disability

Category	Total	Percentage
Autism	3	2.63 percent
Cerebral Palsy	11	9.65 percent
Mental Retardation	56	49.12 percent
Others	44	38.60 percent

---

Total	114
-------	-----

---

Observing Table 5, it is clear that the majority of the responses came from either the MR population (49 percent) or others (38 percent). A sample of 114 from a statistical standpoint is considered a small sample, yet when observing the type of population being studied, such a sample can be considered good enough to raise issues related to the needs of this small and disadvantaged population.

### *Age and Gender*

Among the 114 returned surveys, 2 PDD did not report their age. Table 6 shows the distribution of the PDD who responded to the survey by age group and type of disability. The majority of the age groups are represented in the sample, except for autism due to the size of the sample (3).

Table 6: PDD sample by age group

What is your age?	< 18	18-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	60+	Total
Autism	0	2	0	1	0	0	0	0	0	0	3
Cerebral palsy	0	1	1	0	2	2	1	2	1	1	11
Mental retardation	0	8	7	3	11	5	8	4	6	3	55
Others	0	2	3	5	3	11	9	6	2	2	43
Total	0	13	11	9	16	18	18	12	9	6	112

Observing the gender for the studied categories (MR, CP, ASDs, and others) in Table 6 can help in better understanding the sample. Approximately 56 percent of the responses came from males, while around 43 percent came from females. One person refused to identify gender.

Table 7: Response rate based on gender and type of DD

Type of Disability	Male	Female	No Answer	Total
Autism	2	1	0	3
Cerebral palsy	7	4	0	11
Mental retardation	33	23	0	56
Others	22	21	1	44
Total	64	49	1	114

### ***Education***

Level of education and household income are two factors that tend to be highly correlated. Yet in this section we concentrated only on the level of education that PDD have received to use as a proxy to understand their level of independency. Around 68 percent of the PDD who answered this question reported that they had education at the level of high school. Meanwhile, only 25 percent had an education at the less-than-high school level. Only a few reported any college education. This is clearly different from the general population. Table 7 shows the relationship between level of education and the type of PDD.

Table 8: Level of education and PDD type

	Less than high school	High school	(Junior community ) college	4-year college/university	Post graduate
Autism	0	3	0	0	0
Cerebral palsy	4	7	0	0	0
Mental retardation	18	37	0	0	0
Others	7	30	3	2	1
Total	29	77	3	2	1

### ***Place of Residence***

The place where PDD live can be used as an indicator for the level of independence. In the survey two questions were directed towards understanding where PDD reside and if they live

with a relative or a non-relative. Figure 2 shows where the surveyed PDD in the study live. Around 53 percent of the total surveyed sample indicated that they live in a group facility. Meanwhile, around 29 percent of the surveyed sample live in private homes or condos, while 10 percent reside in apartments. Combining this question with the question asking with whom do you live can help in better understanding the surroundings related to this type of special population. Table 8 shows whether they live by themselves or with other people in the household in relation to the type of facility they reside in.

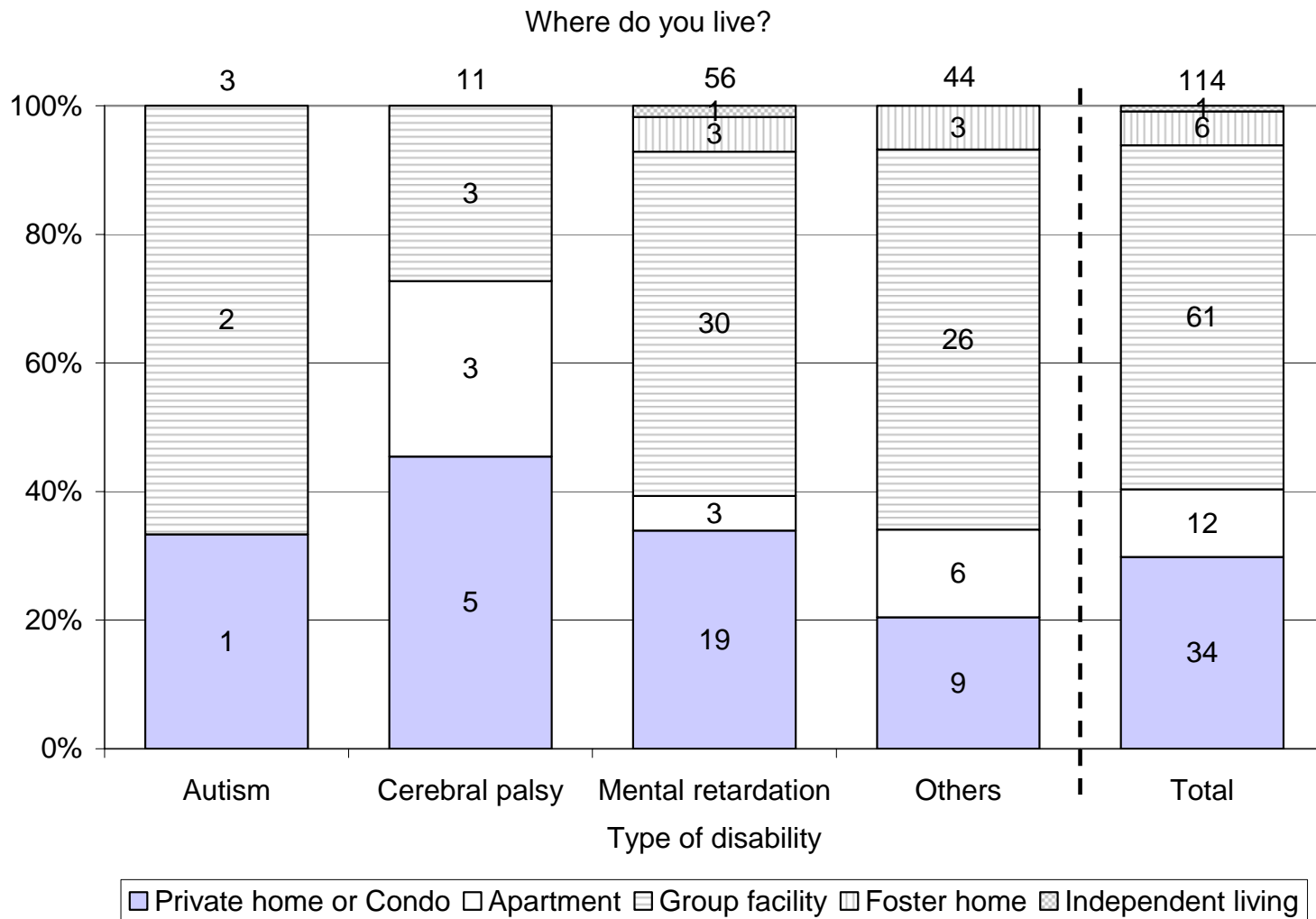


Figure 2: PDD sample by place of residence

Table 9: Where do you live and with whom?

	Yourself	With relatives	With non-relatives	Both with relatives and non-relatives	With others
Private home					
Condo	1	24	2	4	1
Apartment	7	2	1	0	2
Group Facility	2	0	37	2	16
Other	0	3	3	0	6
<b>Total</b>	<b>10</b>	<b>29</b>	<b>43</b>	<b>6</b>	<b>25</b>

Observing Table 8 it is clear that the majority of PDD reside with non-relatives or others (60 percent) and in group facilities, while 25 percent of people live with relatives. Around 8 percent of the surveyed sample reside by themselves in apartments, group facilities, and private condos. The two people who indicated they reside by themselves in a group facility might be referring to their personal rooms in the facility where they do not share bedrooms with others. As expected, it is clear that the level of independence in living arrangements tends to be low.

### ***Travel Diaries***

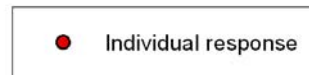
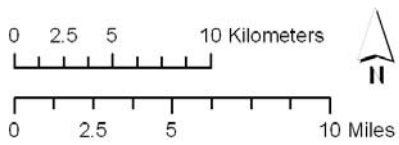
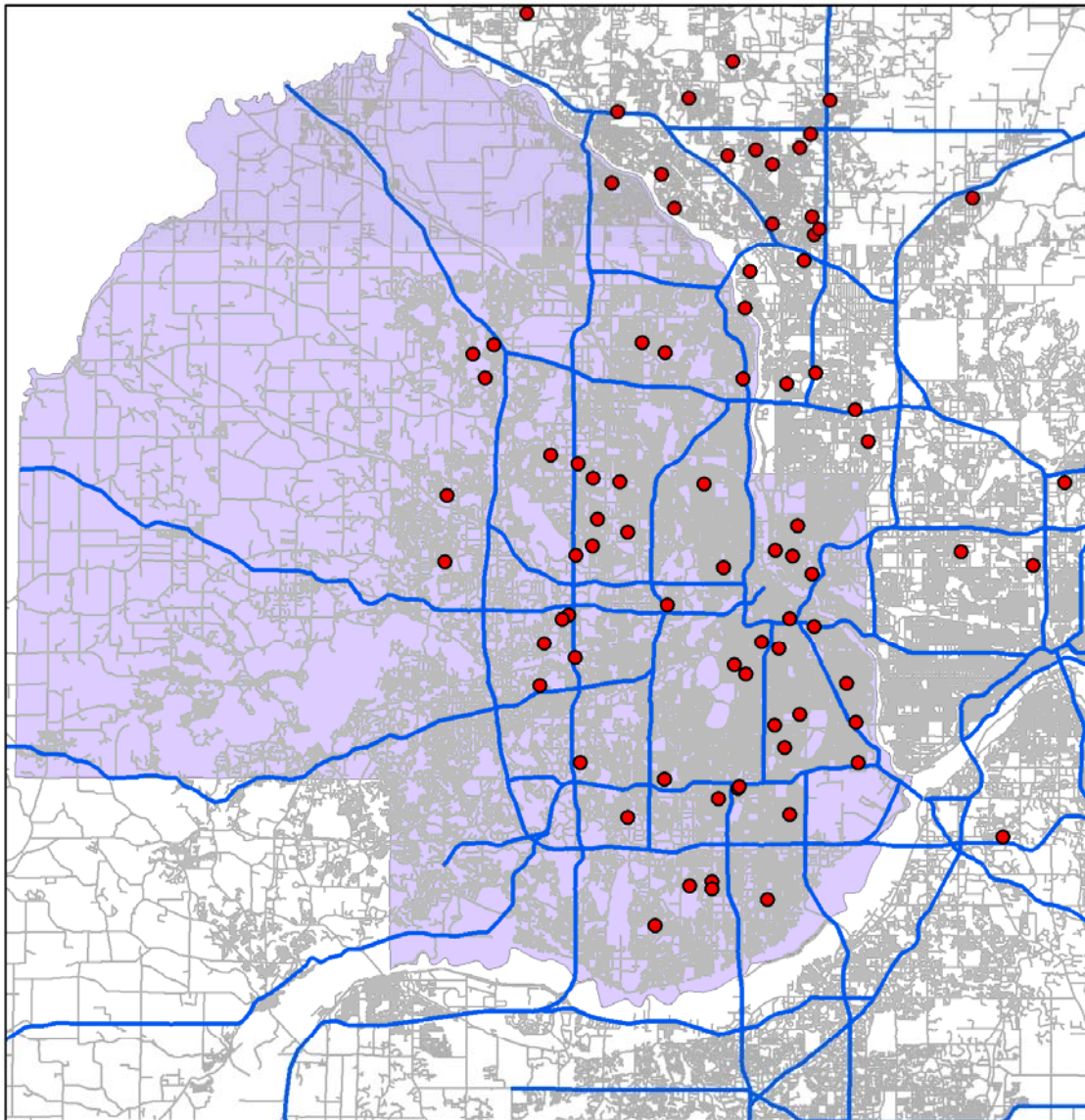
The total number of returned travel diaries was 100. Only 94 travel diaries were filled out and included information related to trips. Around 19 percent of the PDD who returned the surveys had (at least) four trips reported as part of their diary. (The diary had space for only four trips, so some individuals reporting four trips may have had more.) Meanwhile, 10 percent of the returned and completed diaries reported that three trips took place during the day the diary was recorded, while 44 percent reported making only two trips during the same period of time. Finally, 25 percent of the returned and completed diaries that had an activity reported one trip being made.

### ***Geographic Distribution***

Figure 3 shows the geographic distribution of the PDD who responded to the survey in the Twin Cities region. It shows that several responses came from outside Hennepin County. Since the research team requested that community partners distribute the surveys to either people living or working in the county, these points might represent those who reside out of Hennepin but visit it for work or other purposes. The figure is missing 19 observations for respondents who did not accurately report their address. The distribution of the responders depends on the level of collaboration between the community partners and the research team. As the figure shows, not all parts of the county are equally well-covered.



### Distribution of the studied sample



Projection: NAD 1983 UTM Zone 15N

Figure 3: Distribution of PDD who responded to the survey

## Chapter 5: Analysis and Discussion

### *Introduction*

This section concentrates on displaying the major findings of the survey. In order to better understand the transportation needs of the surveyed sample, looking at each question while controlling for the type of DD is critical for understanding the general trends and if there is a specific phenomenon associated to a certain DD group. For example, the ease of reading signs at transit stops might be high in the overall sample, while disaggregating it to DD types is expected to show differences between the categories. In this chapter we combine data obtained from travel diaries with data obtained from surveys to direct the analysis. We first concentrate on the travel diaries to obtain general trends in terms of trip purposes, and then we use this information in analyzing frequency of engaging in these trips through data obtained from the survey.

### *Trip Purpose*

Each trip a person is engaged in should have a purpose. In this section we analyze the purpose of trips PDD reported in their travel diaries. Observing the purpose of the trip, in the travel diaries, PDD reported trips to work, home, social and recreation, and “others” as the top four purposes for traveling. Trip chaining is part of 34 percent (26 observations) of the travel pattern among the surveyed sample who answered this section of the travel diaries (76 observations). This indicates that a fair amount of PDD engage in various activities after leaving their place of origin. Accordingly, the purpose of leaving their homes is not just to conduct one activity but to conduct various activities.

Table 10: Trip purpose

	Trip 1	Trip 2	Trip 3	Trip 4	Total
Home	1	31	5	9	46
Medical	1	1	1	0	3
Work	46	7	2	2	57
School	0	0	0	0	0
Shopping	8	1	4	2	15
Social/Recreation	9	7	6	1	23
Religious	0	2	1	0	3
Personal business	2	1	1	0	4
Other	9	7	3	1	20
No Answer	18	37	71	79	205

### *Frequency of Trips*

Observing the frequency of being engaged in work trips in the survey shows that around 74 participants responded that they usually engage in such activity at least five to seven days per week; 18 participants indicated they engage in work trips at least two to four

days per week. These two numbers comprise around 80 percent of the total surveyed population. This relationship is displayed in Table 11 and shown by DD group, too. This observation is especially true among the MR group we sampled. More than 90 percent of the MR group indicated that they participate for at least two days per week in work activity. Figure 4 shows the frequency of being engaged in recreational trips by type of DD group, while Figure 5 shows the frequency of being engaged in a social trip by type of DD group. Comparing the distribution of frequency of being engaged in social and recreational trips to the frequency of being involved in work trips, PDD tend to make more social trips compared to recreational, yet work is the most frequent trip purpose.

Table 11: How often do you make work trips?

Which mode of transportation do you use most often for shopping trips?													
	local bus service	Private car	Social service	Taxi service	Hired driver for private car	Friend's car	Motorcycle	Walk( with cane/ walker)	Walk (without cane/ walker)	Lift van	Volunteer driver	Others	Total
Autism	0	1	0	0	1	0	0	0	0	0	0	1	3
Cerebral palsy	0	4	0	1	0	0	0	1	0	3	0	1	10
Mental retardation	2	16	4	0	0	3	1	1	1	6	0	17	51
Others	1	18	4	0	1	1	0	0	1	3	2	7	38
Total	3	39	8	1	2	4	1	2	2	12	2	26	102

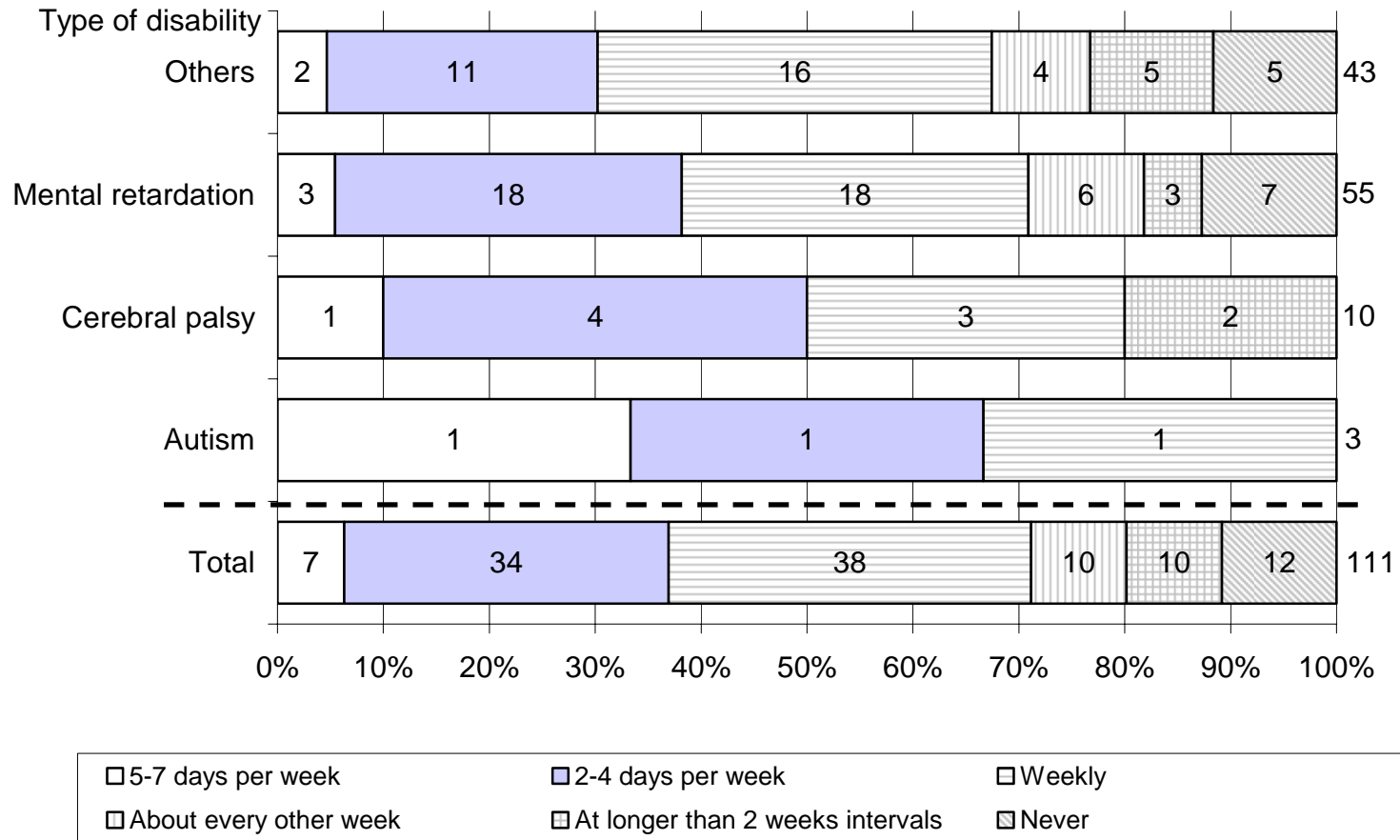
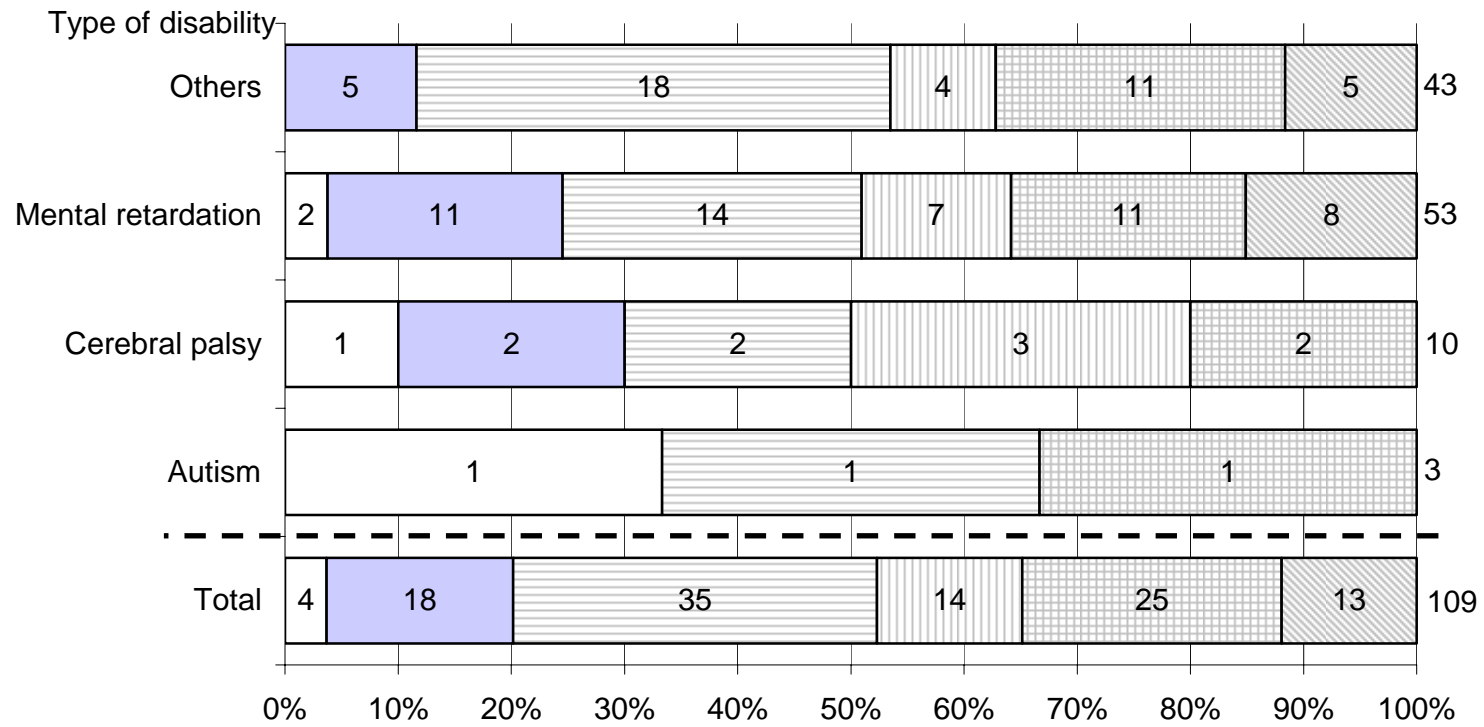


Figure 4: How often do you make recreation trips?



days per week 5-7 
  days per week 2-4 
  Weekly 
  About every other week 
  At longer than 2 weeks intervals 
  Never

Figure 5: How often do you make social trips?

## *Travel Needs*

Two questions were used to measure if the transportation needs of the surveyed PDD are being met. The survey asked the participants if there were times they could not make trips they needed to make and if there were times they could not make trips they wanted to make. Figure 6 shows the relationship between these two questions. Around 55 participants responded “No,” they can make both the trips they want to make and the trips they need to make. This number represents 50 percent of the surveyed sample. Meanwhile, 29 participants responded “yes,” they are facing problems in making both the trips they need to make and the trips they want to make. The number of people responding “No” to the question asking about the trips they need to make and “Yes” to the question asking about the trips they want to make was four participants. Figure 7 shows the DD group distribution with the responses of participants to the question asking if they could not make the trips they need to make. Only 25 percent of the participants with MR had trips they needed to do but could not do. Similarly, in the “others” group around 30 percent of the participants responded that there are trips they need to make but cannot. For the CP and ASD respondents, more than 60 percent indicated they have trips they need to make but could not. Figure 8 shows the distribution of DD groups with response to the question asking about trips they want to make. More than 45 percent of the participants in all DD groups indicated they have trips they want to make but could not.

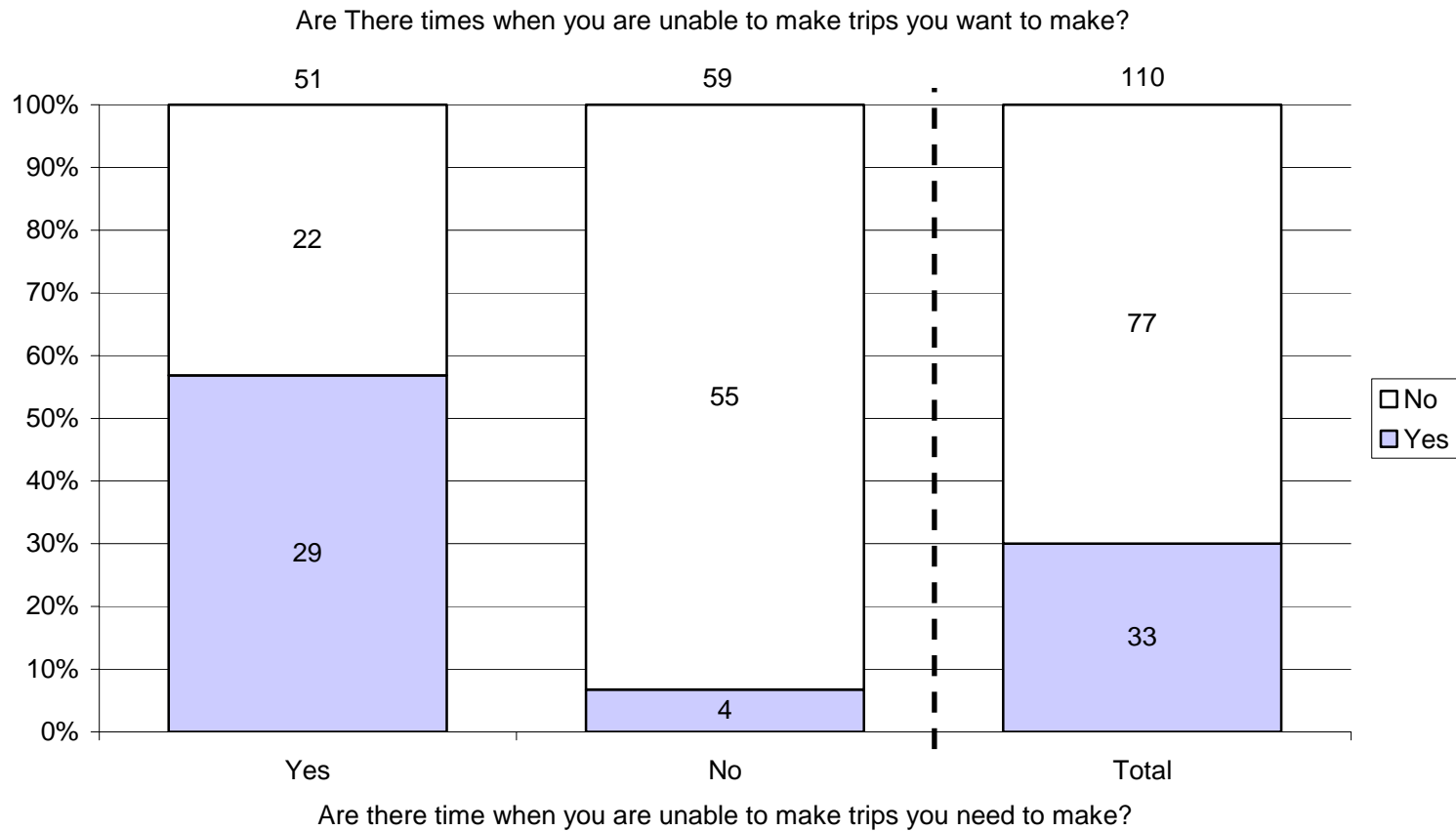


Figure 6: Trip Needs



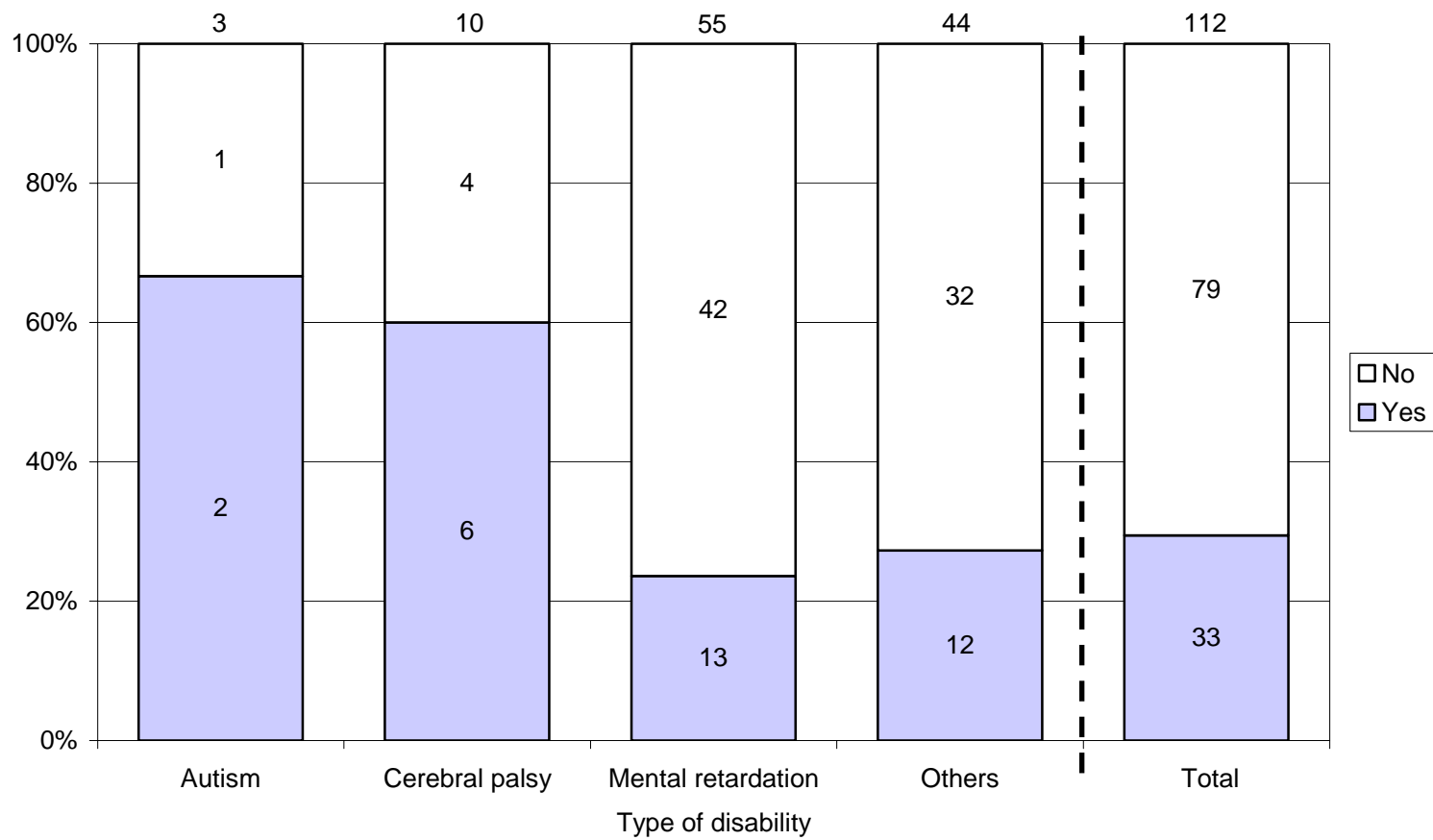


Figure 7: Are there times when you are unable to make trips you need to make?

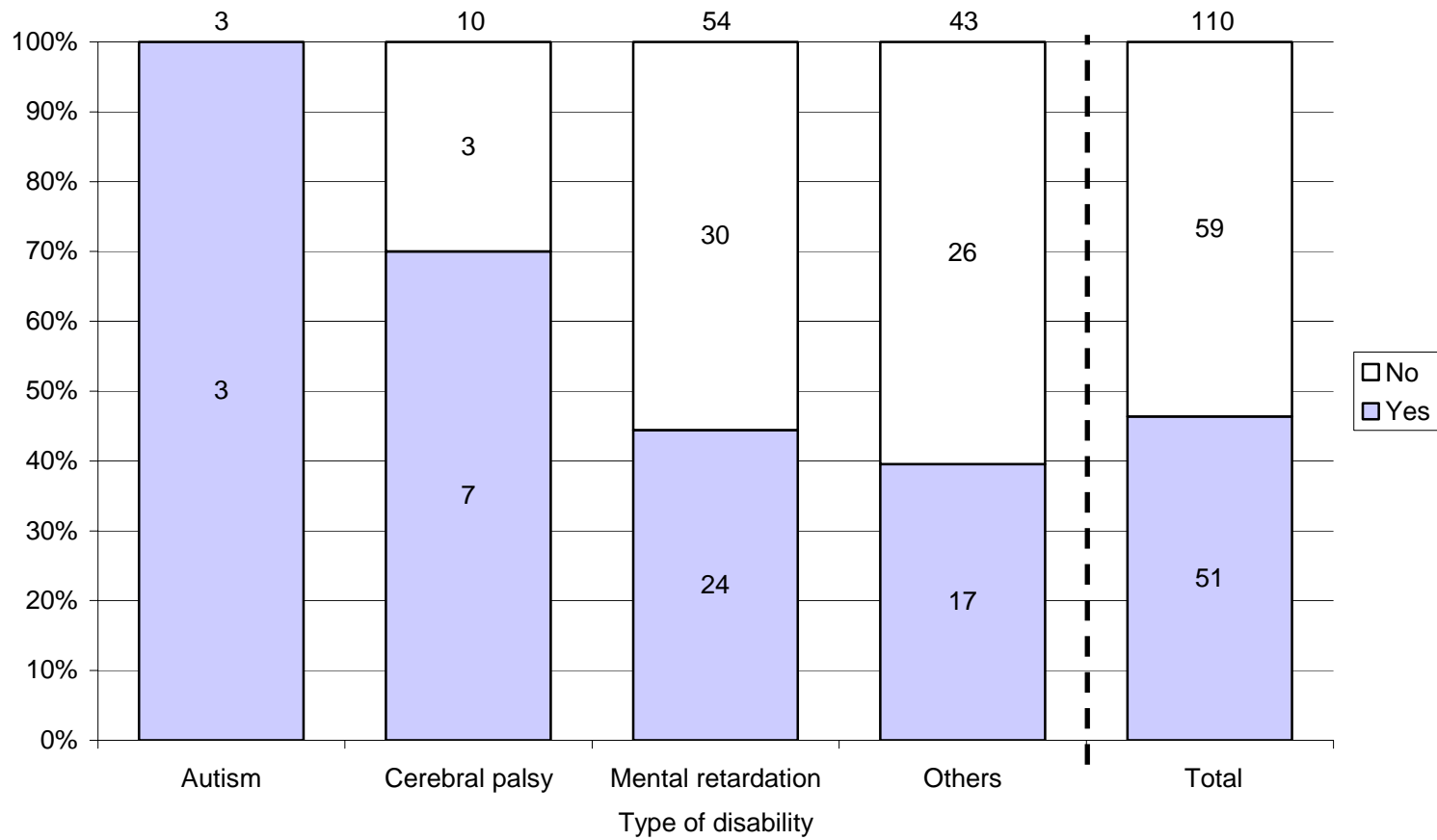


Figure 8: Are there times when you are unable to make trips you want to make?

## ***Travel Mode and Assistance***

Since work and shopping are the two main purposes for trips that PDD tend to take, this section concentrates on the mode of transportation PDD use for work and shopping and whether they need assistance in conducting these trips or not. Table 12 shows the distribution of the participants by DD group who responded to the mode used for shopping. Around 39 percent of the surveyed sample use private cars as their primary mode of transportation for shopping. The number of people using other modes, which includes local services at home facilities, is quite high along with the MR group. Table 13 shows the distribution of the participants by DD group who responded to the mode used for work. Walking, local bus service, and social service transportation were the highest modes of transportation used by all participants. Figure 9 shows the need of assistance in conducting shopping trips. Around 70 percent of the surveyed sample reported a need for assistance when conducting shopping trips. Figure 10 shows the need of assistance in conducting work trips. Around 52 percent of the surveyed sample reported a need for assistance when conducting work trips. Even though the MR group shows a higher level of independence in the mode type, it also was the group most in need for help shopping (75 percent of the surveyed population).

Table 12: Which mode of transportation do you use most often for shopping trips?

Which mode of transportation do you use most often for shopping trips?													
	Local bus service	Private car	Social service	Taxi service	Hired driver for private car	Friend's car	Motorcycle	Walk( with cane/walker)	Walk (without cane/walker)	Lift van	Volunteer driver	Others	Total
Autism	0	1	0	0	1	0	0	0	0	0	0	1	3
Cerebral palsy	0	4	0	1	0	0	0	1	0	3	0	1	10
Mental retardation	2	16	4	0	0	3	1	1	1	6	0	17	51
Others	1	18	4	0	1	1	0	0	1	3	2	7	38
<b>Total</b>	<b>3</b>	<b>39</b>	<b>8</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>12</b>	<b>2</b>	<b>26</b>	<b>102</b>

Table 13: Which mode of transportation do you use most often for work trips?

Which mode of transportation do you use most often for work trips?

	Local bus service	Express bus service	Mini-bus	Private car	Social service	Walk( cane/ walker)	with cane/ walker)	Walk (without cane/ walker)	Others	Total
Autism	1	0	0	0	0	0	0	1	1	3
Cerebral palsy	1	0	2	0	0	0	0	2	1	6
Mental retardation	6	1	2	3	10	1	25	6	54	
Others	5	1	5	1	3	1	9	4	29	
Total	13	2	9	4	13	2	37	12	92	

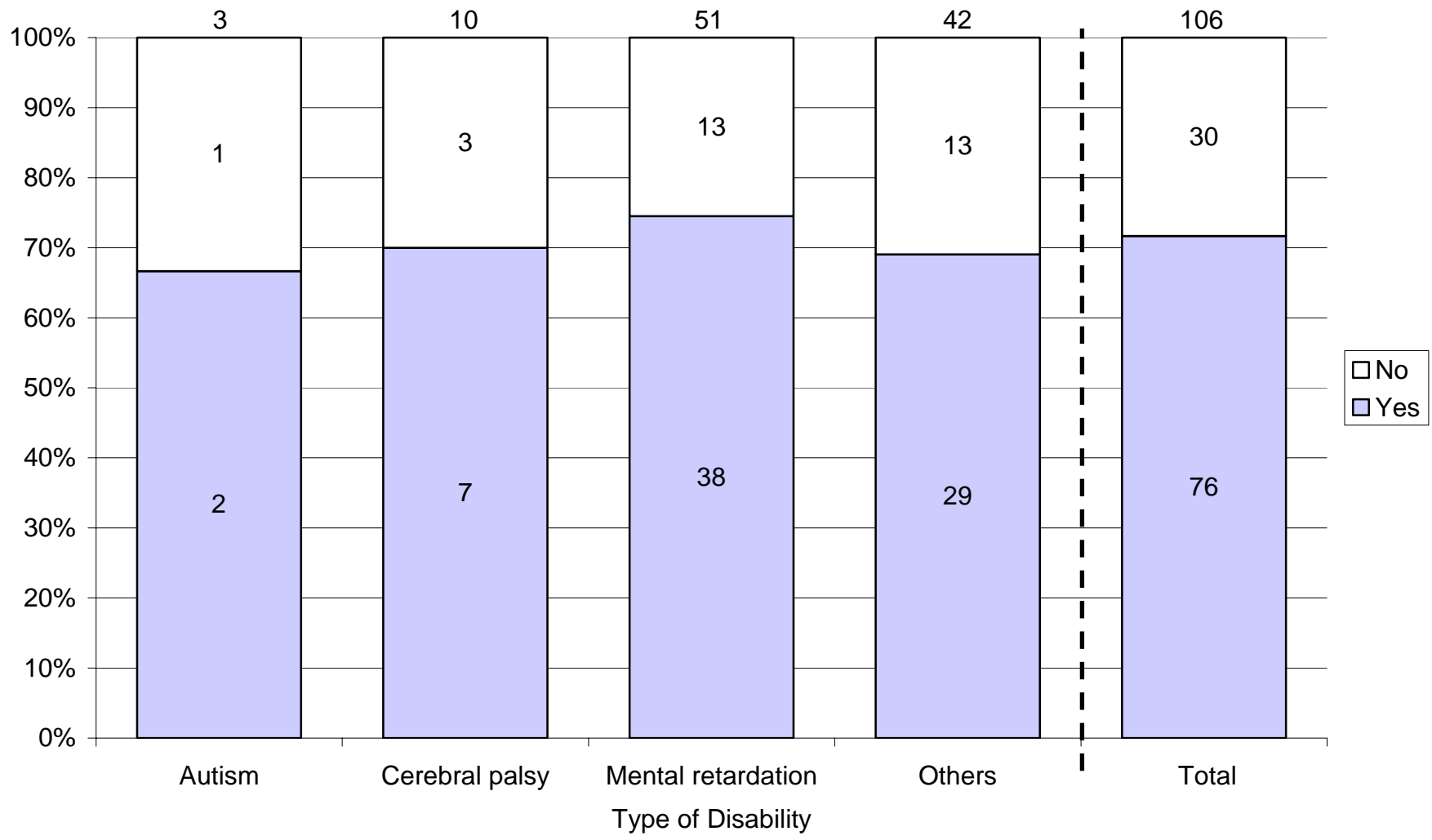


Figure 9: Do you usually need assistance to make shopping trips?

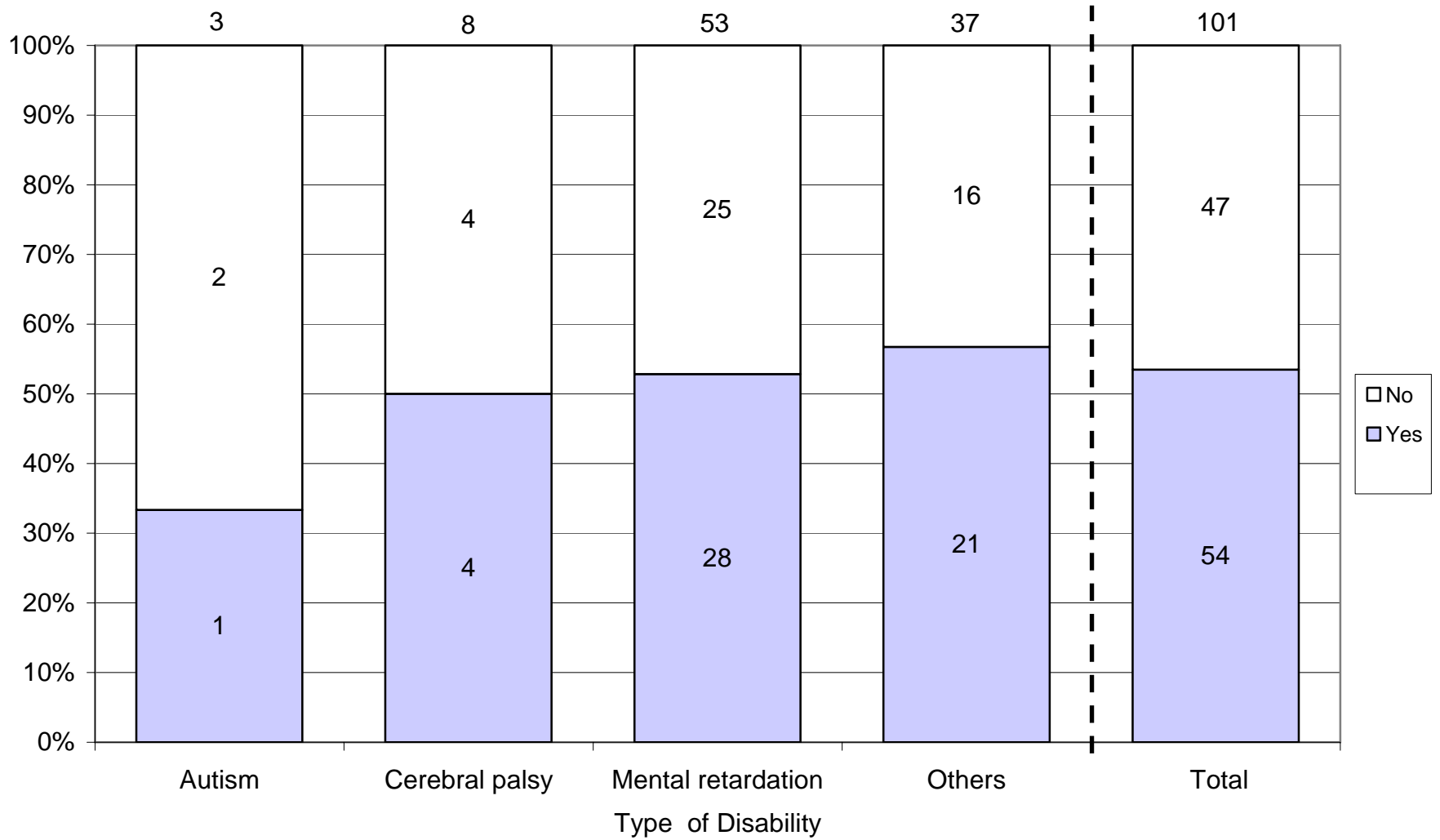


Figure 10: Do you usually need assistance to make work trips?

## *Difficulties*

A question in the survey concentrated on the difficulties participants face when using public transit. These questions concentrated mainly on physical difficulties concerning asking about moving, standing, walking to the bus stop, climbing stairs, and reading the route numbers. Table 10 shows the distribution of people who need help in standing by DD group.

Table 14: Do you face problems standing?

	Yes	No
Autism	1	2
Cerebral palsy	5	6
Mental retardation	26	30
Others	11	33
Total	43	71

As expected among the CP group, 45 percent have problems standing, while 46 percent of the MR group face the same difficulty. Tables 15 and 16 show the difficulty some participants have reading and understanding schedules.

Table 15: Do you face problems reading transit schedules?

	Yes	No
Autism	2	1
Cerebral palsy	5	6
Mental retardation	32	24
Others	14	30
Total	53	61

Table 16: Do you face difficulty understanding transit schedules?

	Yes	No
Autism	2	1
Cerebral palsy	5	6
Mental retardation	32	24
Others	17	27
Total	56	58

Around 46 percent of the participants indicated they face problems reading schedules, while 49 percent indicated they face problems understanding schedules. Transit schedules in general are written to time points. A user of the service not using a time point interpretation must determine the arrival and departure time. This way of writing



schedules is difficult for even the general population to understand. Thus, it is expected that PDD might face such issues. Among the MR and other groups who tend to have the highest level of transit usage of the four groups, more than 50 percent did report difficulty in reading and understanding transit schedules. Similarities do exist even when trying to understand the announcements being made on board a bus by 35 percent of the surveyed sample, as shown in Table 7.

Table 17: Do you face difficulty understanding announcements?

	Yes	No
Autism	1	2
Cerebral palsy	4	7
Mental retardation	26	30
Others	9	35
Total	40	74

### ***Concerns of Transit Users***

Public transit was the second-most-used mode of transportation for PDD. In this section we concentrated on the concerns of participants when using public transit. As shown in Figure 11, around 51 percent of the surveyed sample reported that they were either concerned or very concerned that the bus service might not serve their destinations at their desired time. The PDD population is also concerned with being a victim of a crime while using public transit. Around 55 percent of the surveyed sample reported such a concern, which is clear in Figure 12. Around 78 percent of the surveyed sample with SP reported being concerned of becoming a victim of a crime. On the other hand, less than 50 percent of the surveyed sample were concerned with transfers between various transportation systems during their trips. This relationship is shown in Figure 13.

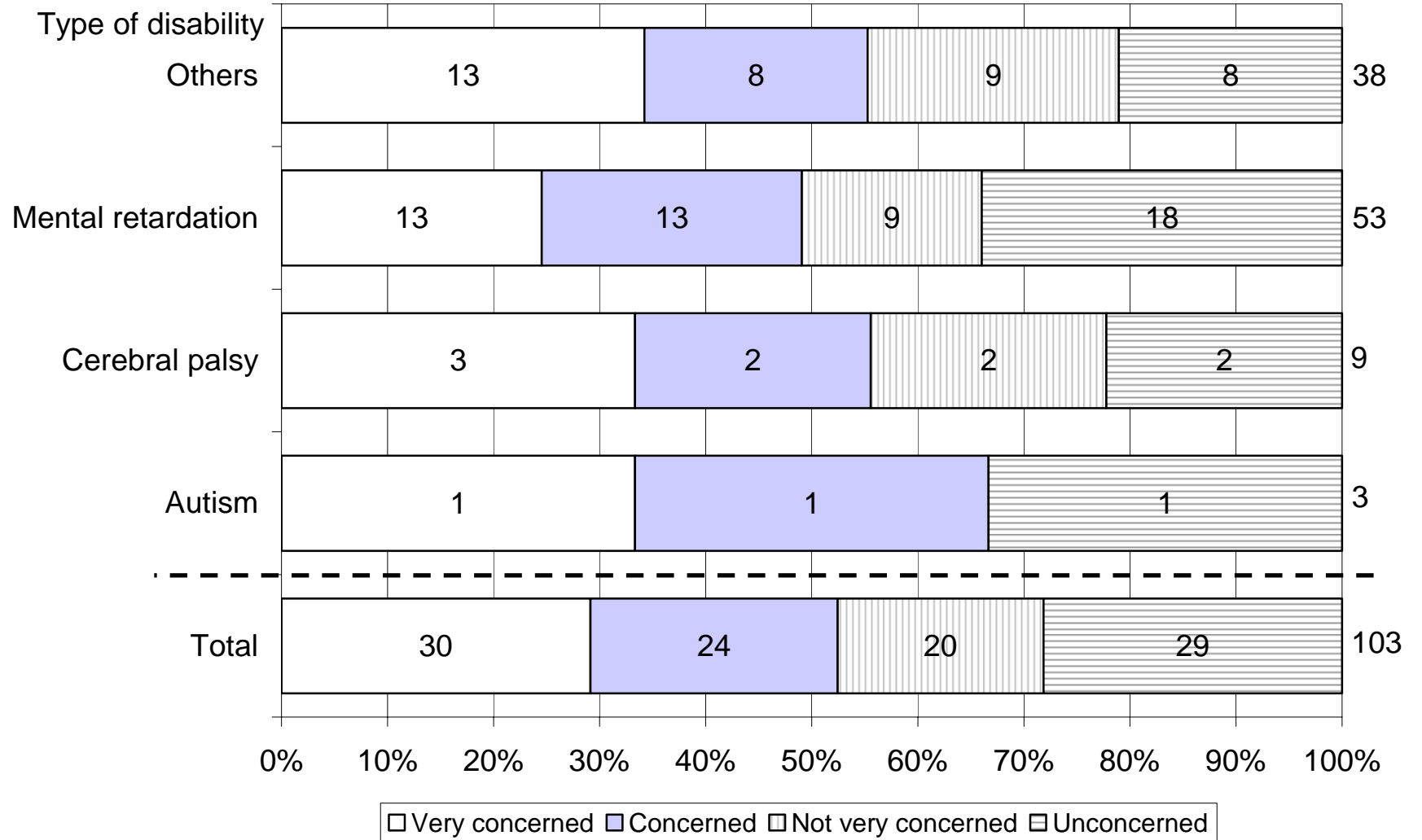


Figure 11: If you use public transit, how concerned are you that scheduled buses don't serve where you need to go?

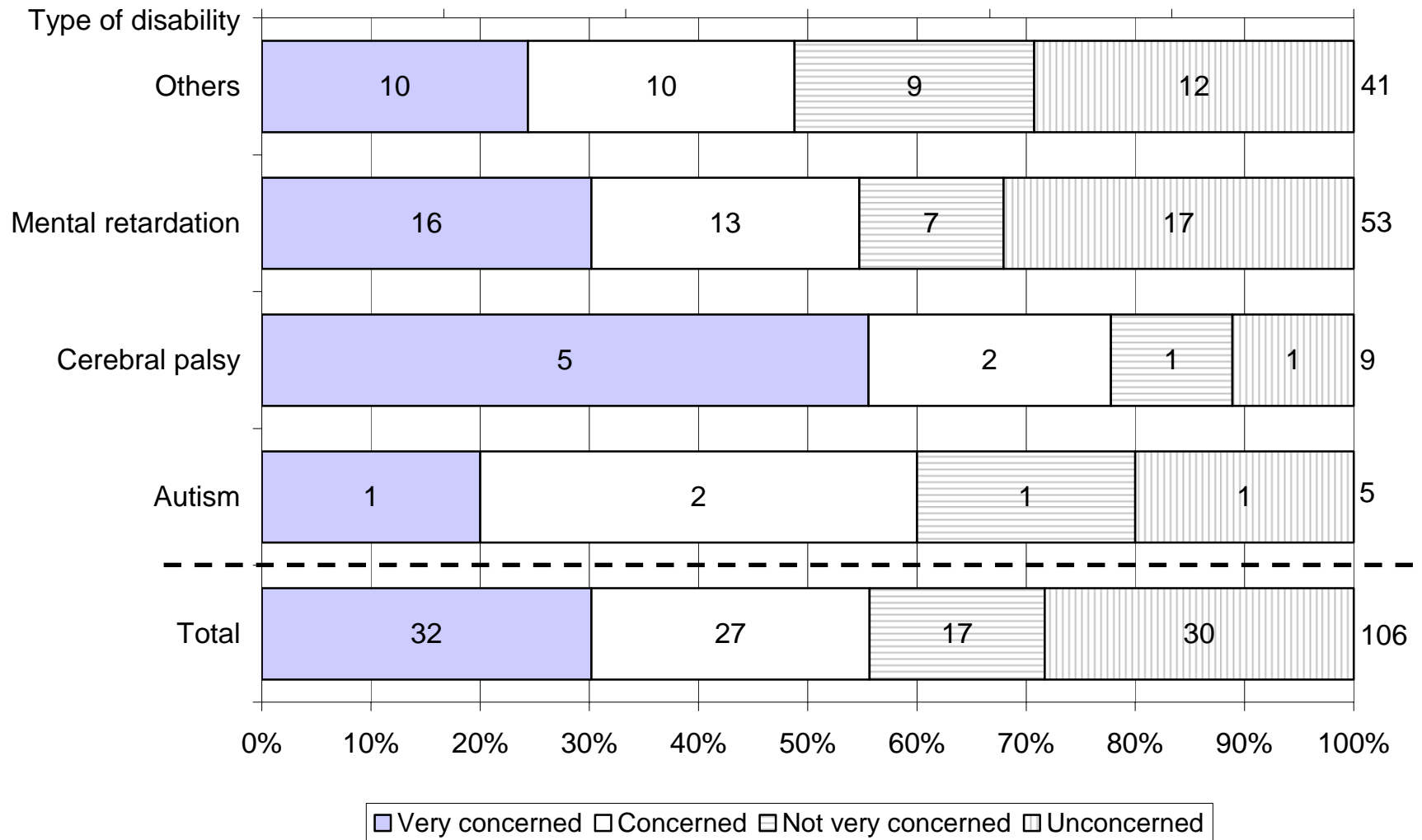


Figure 12: If you use public transit, how concerned are you with becoming a victim of crime?

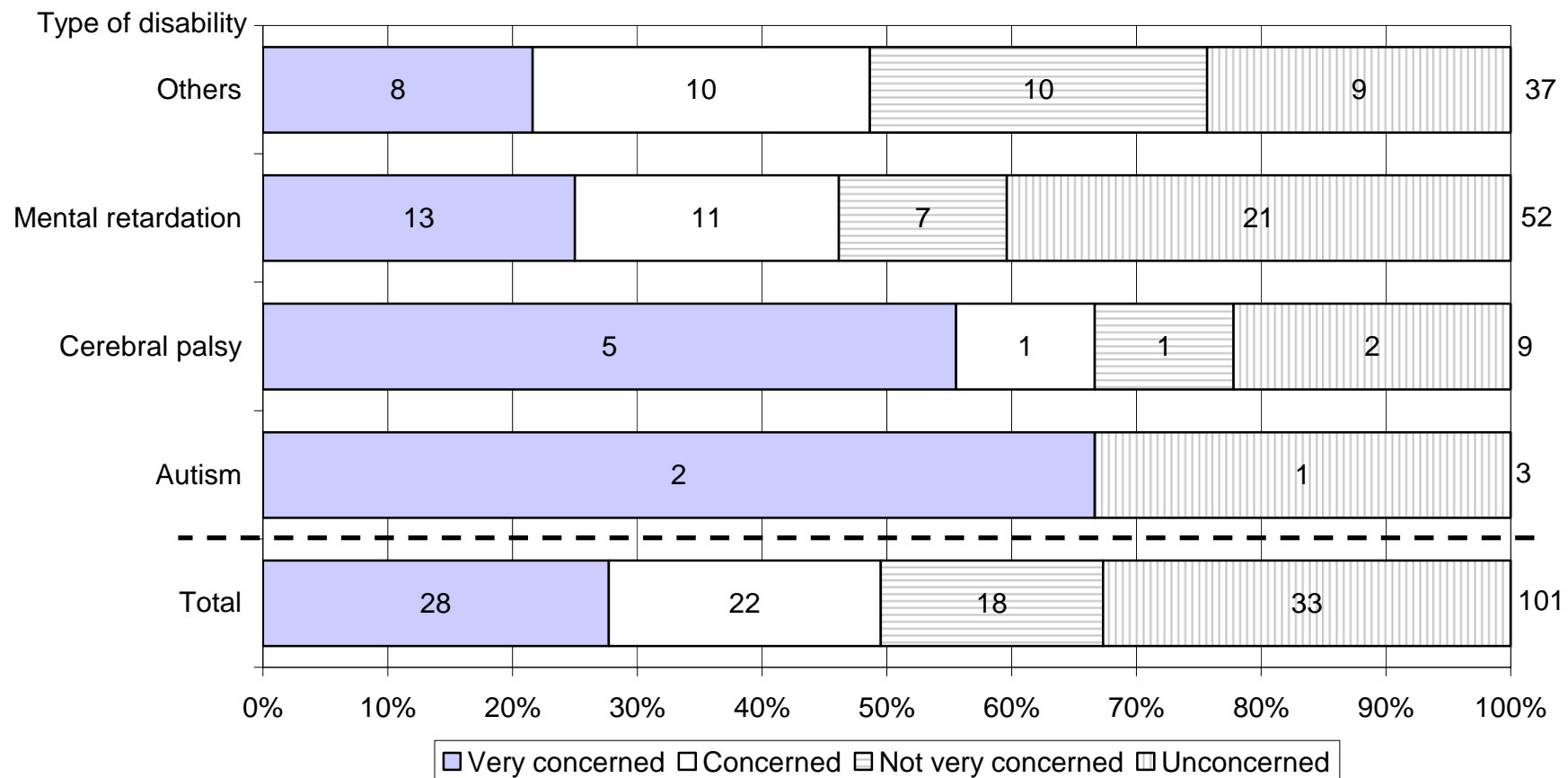


Figure 13: If you use public transit, how concerned are you with making connections to other transportation systems?

## *Familiarity with Services*

In this section we wanted to learn to what extent the surveyed sample understands its transportation options as PDD and measure its familiarity with the various services available in the Twin Cities in general and in Hennepin County. Figure 14 shows the direct response of participants to this question. Around 75 percent of the surveyed sample indicated being familiar with services offered to PDD, while around 25 percent of the surveyed sample indicated that they were not familiar (disagree and strongly disagree) with the services being offered to PDD. This indicates that more work may be needed in promoting services to PDD. Variation does exist between the various PDD groups and no pattern was noticed from Figure 14. The “others” category and the MR group indicated the highest familiarity with such services being offered in the region. Dial-a-ride, lift van, and Metro Mobility are among the services offered to PDD in the Twin Cities region. Figure 15 shows the relationship between using such services and the DD groups. It is clear that paratransit service is used by only 62 percent of the surveyed sample. It is important to note that restrictions do exist when applying for dial-a-ride service, and not all PDD are qualified for such service. Figure 16 shows how many PDD have used or use Metro Transit (the local transit provider in the Twin Cities region). Around 30 percent of the surveyed sample have used Metro Transit—either buses or light rail—at some point in time as a mode of transportation. The variation among the various PDD groups seems to be minor.

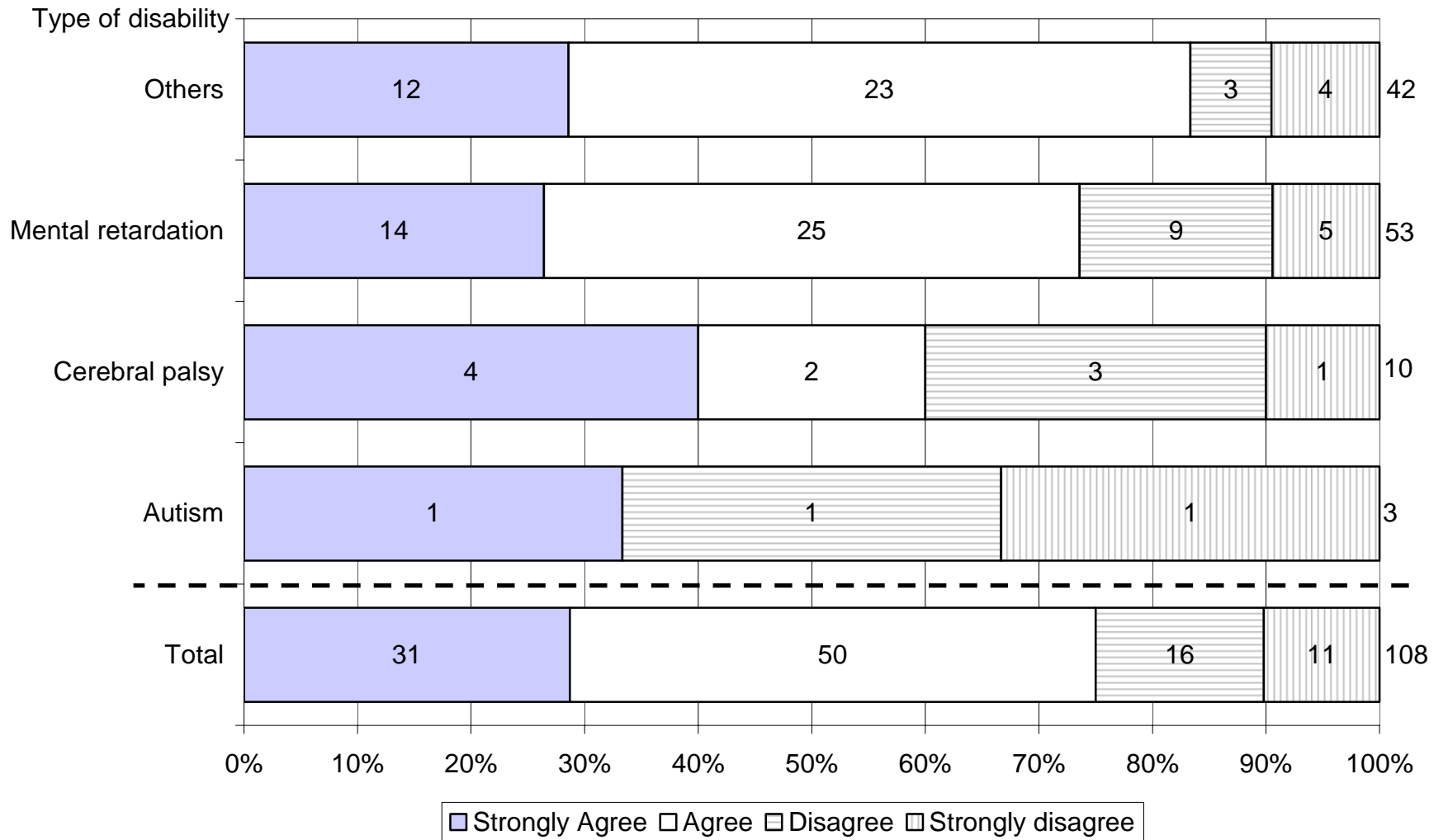


Figure 14: I am familiar with the different types of transportation services available to people with disabilities.

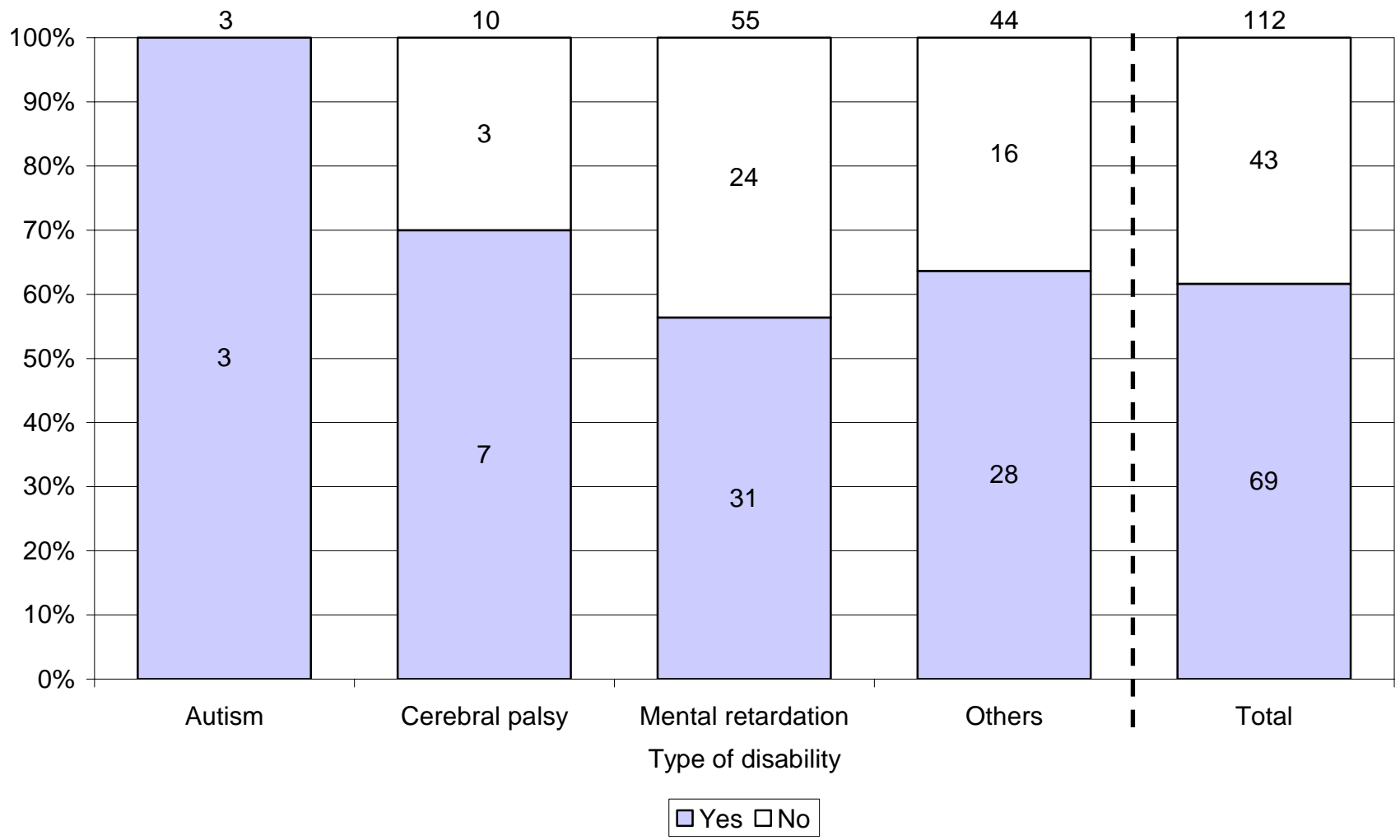


Figure 15: Do you ever use dial-a-ride, lift van, or Metro Mobility?

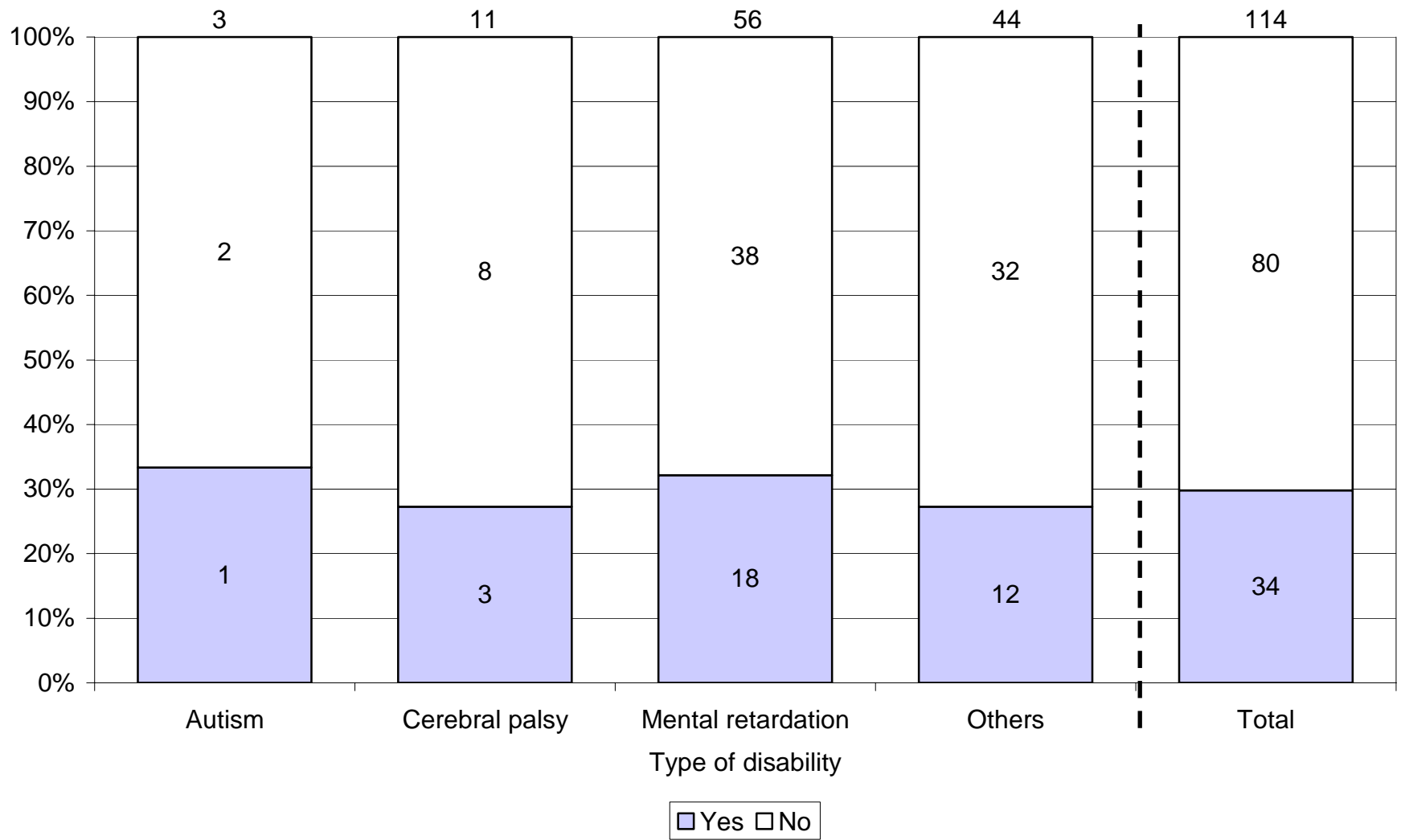


Figure 16: Do you ever use Metro Transit or other public transit buses or light rail ?



## *Independence*

In this section we tried to understand to what extent the surveyed sample consider themselves independent citizens in term of their transportation needs. Independence was measured through asking direct questions related to what extent PDD considered themselves independent travelers. Their answers are reported in Figure 17. Around 48 percent of the participants in the survey reported that they are independent travelers. We noticed that the MR group felt least independent compared to the other PDD groups. The levels of independence of the other DD groups tend to be higher for the “Others” group (40 percent) and CP group (50 percent). Surprisingly, around 68 percent of the surveyed sample indicated it’s their choice which mode of transportation they use. This relationship is shown in Figure 18. The positive response rate to this question seemed to be a little higher than expected, since the level of independence of PDD was much lower. Also, the comments section included several contradictory comments with this finding. Finally, a question related to public transit and the possibility of using it as a means of increasing independence is demonstrated in Figure 19. Around 68 percent of the surveyed sample responded that they agreed that using public transit would increase their level of independence. The MR and the ASDs groups tend to disagree more with this statement, while the Others and the CP group felt that this statement is true and agreed more with it.

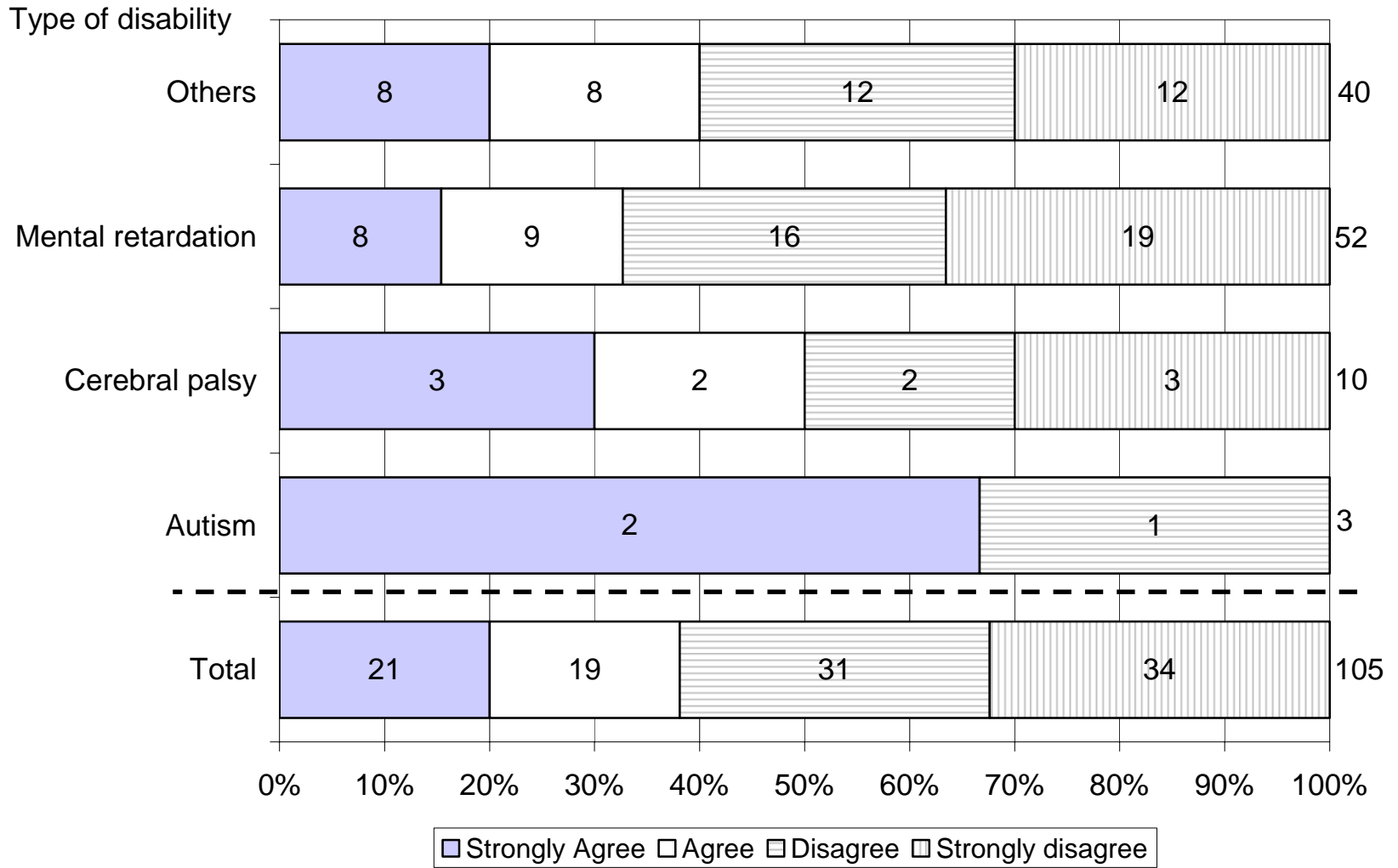


Figure 17: I consider myself to be an independent traveler

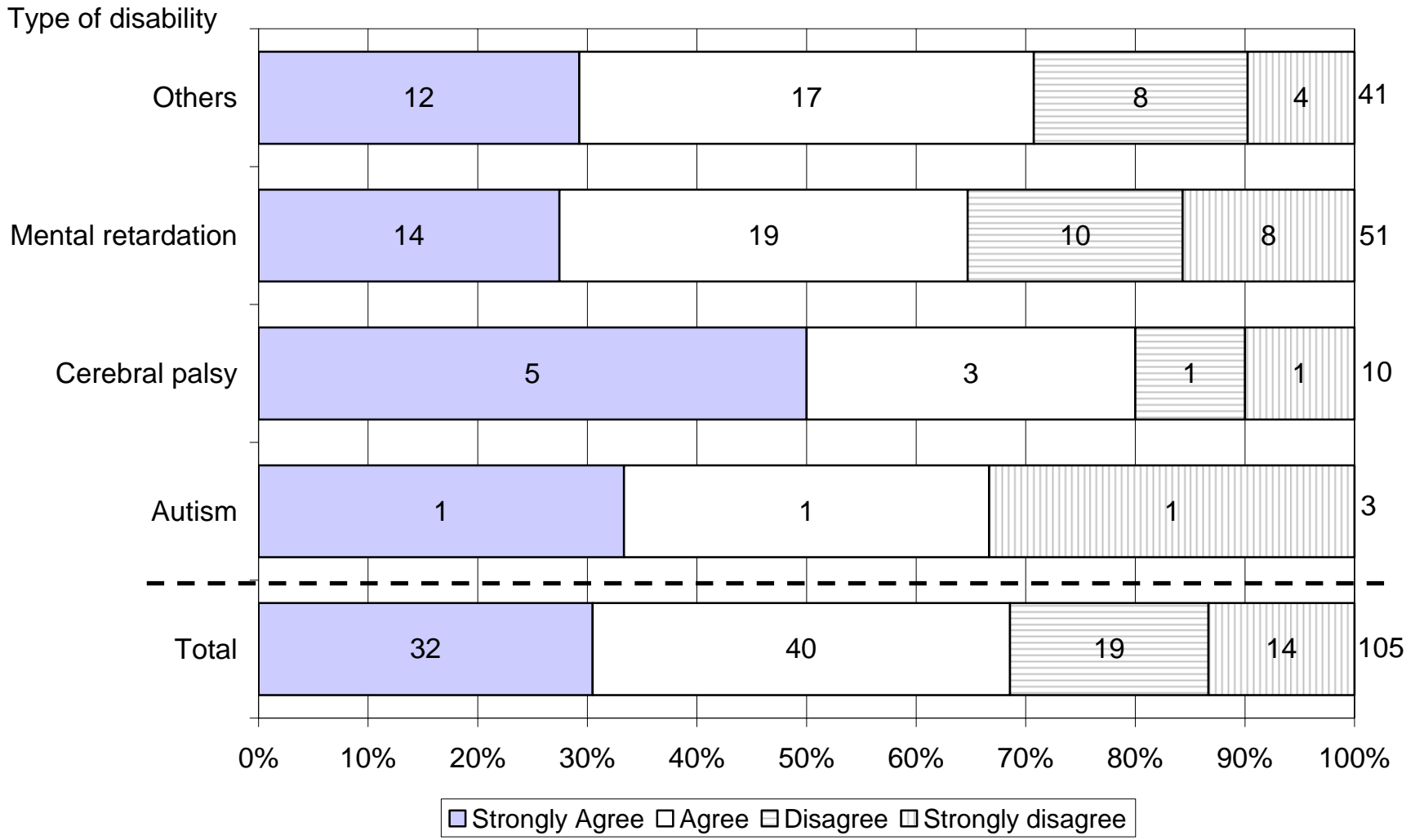


Figure 18: It is my choice what mode of transportation I use

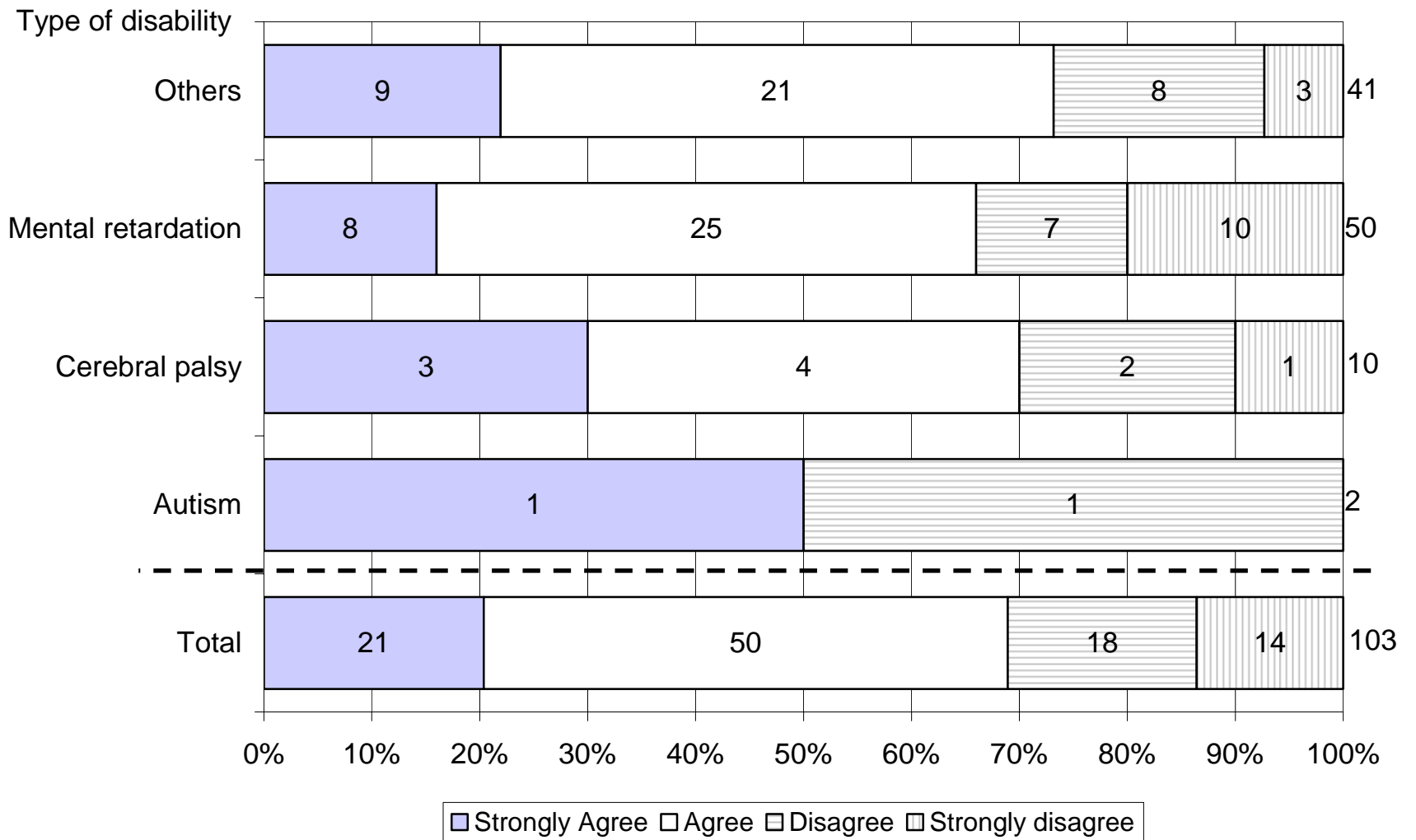


Figure 19: Using public transit increases (would increase) my independence

## ***Travel Barriers***

The travel diaries included a question asking participants about the trips they could not make. Only 14 percent percent of the 94 participants who filled out the diaries reported at least one trip they could not make. Meanwhile, 7 percent of the participants who filled out travel diaries had at least two trips they wanted to make but could not, while 4 percent of the participants could not make at least three trips they wanted to make. Finally, only 3 percent of the participants who filled out travel diaries had at least four trips they wanted to make but could not. The purposes of these trips are reported in Table 18.

Table 18: Purpose of trips you could not make

	Trip 1	Trip 2	Trip 3	Trip 4	Total
Medical	2	0	0	0	2
Work	1	1	1	1	4
Shopping	5	1	0	0	6
Social/Recreational	1	2	1	1	5
Personal Business	2	0	0	0	2
Other	3	3	2	1	9

The reasons why participants could not make these trips is reported in Table 19. Most of the participants reported purposes other than what was provided in the list as the reason why they could not make the trips they wanted to make. The Other category included “too late to make reservations,” “scooter battery died,” “weather,” and “service is too far to go to.” In addition, some people reported weather and health as the reason for not being able to make the desired trips. Inability to reach service included the absence of the desired service nearby for the survey respondent to use. “No one available to drive” was the second most widely cited reason why participants could not make their desired trips.

Table 19: Reason for not making the trips

	Trip 1	Trip 2	Trip 3	Trip 4	Total
Change in plans	1	0	0	0	1
No vehicle available	3	1	0	0	4
No one available to drive	4	2	1	0	7
Couldn't make dial-a-ride reservation	0	0	0	1	1
Weather	1	0	0	0	1
Other	5	4	3	2	14

## ***Comments in Survey***

The comments section was one of the richest parts of this survey. Participants wrote an abundance of details regarding their transportation needs and concerns. Several reported their personal experiences and frustrations when using transportation modes. The most frequent comment was similar to the following:

## Sidewalks

*“There is a lacking of sidewalks.”*

## Metro Mobility and dial-a-ride

*“With the current Metro Mobility, it is only used for his twice weekly day program and what should be a 1/2 hour trip averages 1-1/2 hours or more. The jarring from such a long trip while seated in a wheelchair would make it hard to use any more often. For every other transportation need he is dependent upon family.”*

*“We have had “We Care Trans.” for almost 6 years. We love them. He has 4 different drivers that know all of my sons needs. They have never ignored or forgotten any of his needs. They are always on time except for weather reasons and his drive time is 25 minutes to sometimes 45 minutes. We have no plans to change transportation!”*

*“When I call Metro Mobility to schedule a ride, I basically have to take whatever ride they give me rather than the ride I want. So I don't always get to places when I want to or need to be there.”*

*“When you want to go somewhere with Metro Mobility you have to call four days in advance. It would be nice to get a ride for the same day when you feel like going somewhere.”*

*“There are certain times that the lifts vans that pick me are unavailable. Sometimes they cancel my scheduled pick up saying they are over booked and running late.”*

*“Metro mobility helps me get to day programs. I worry that could get cut at times.”*

*“Metro Mobility only gives you a five minute window that they will wait for you, but they give themselves 1 to 2 hour window of when they will arrive. Complaints over this issue are never heard or dealt with. Sometimes they (Metro Mobility) can guarantee your ride to your destination but they can't help you on the way home. But without Metro Mobility we have nothing. You have to plan your trips 4 days in advance. If you have something that just came up, you have no way of getting there. Afraid of becoming*

*victim of crime when using Metro Mobility and no one comes (delays). Bus doors don't open enough.”*

*“I (mother & conservator of person) filled the survey for him. I take my son almost everywhere he needs or wants to go. Once a week he goes off for 3 hours with someone for mostly a walk. Twice a week he rides Metro Mobility to Rise (their times in getting him home are improving, but it sometimes takes close to 2 hours to get him home). Very seldom he goes anywhere without me, and if he does, it's with another relative.”*

*“Metro Mobility is hard to get rides unless you get up and call at 6:00am. They fill up fast. Then you have to wait for a stand-by ride. They need more drivers.”*

*“Biggest, most irritating problem is dependability of transportation. From the time my son started school at age 2, we've experienced problems: drivers late to pick up, late arrivals home (no notification so don't know where he is - vehicle trouble, accident, lost, whatever). All depends on the driver hired - some are reliable, some are not. All I ask is to be notified when there are problems so we know where our child is and when to expect him home.”*

*“Being on time is my main concern.”*

*“I would prefer to use Metro Mobility but I don't apply.”*

#### Personal Issues

*“I've made comments about my son throughout the survey. I'm not sure if this survey pertains to him as we live in a rural area & do not have public transportation. My son needs to be accompanied wherever he goes - unable to be independent in travel; he functions less than 2 years old. We wouldn't know what he wants to do - other than he loves to ride.”*

*“I was stranded at the U of M on a winter day for 8 hours.”*

*“The high cost of adding a wheel chair lift to my own private transportation vehicle is a big concern.”*

*“I think the travel is too long. I am up to 4:30 am. At work by 7:00am! It makes it a long day. I go to medical trips as needed. I don't have much of a social life. I am saving up for trips, things for the house. My transportation is minimal. Unless I have to I get out once per week to do errands. Sometimes it is 5 times a week, depending.”*

*“Because of my status as an extremely vulnerable adult it would seem that a helper would need to be available at all times to assure me a safe trip.”*

*“I only go to medical and day care.”*

*“We are so thankful for RISE/CIP and their drivers, aides & staff.”*

#### Independence

*“I would like to take the bus and go around to somewhere and be more independent.”*

*“My son has an interest in driving - but due to seizures is not able to.”*

*“I don't need assistance if I'm walking, just for driving me places. I would like to drive.”*

*“I am totally dependent on husband & family for transportation.”*

*“I like going back and forth to work in a vehicle.”*

#### Transit

*“I hope bus fares could be lower in price.”*

*“Changing buses with out contacting sister/guardian - transition is difficult.”*

*“I don't use public transit.”*

*“I use transit only couple of times a year.”*

*“No connecting route from 61 Vicksburg Plymouth by work house, none. If there is it's not easy for me.”*



*“Keep the price low for people with disabilities! When the prices go up, many people can't afford to go where they want. Keep multiple locations to buy tickets/bus passes.”*

## Safety

*“I have a client that is independent, and able to go and come in the community up to 8 hours at a time. She was attacked in March of this year (2006) leaving the public library. There needs to be transportation available for higher functioning vulnerable adults as well, due to the fact that they still need assistance so things like this won't happen to them. I believe if you are a vulnerable adult you cannot be expected to know certain things. We need more transportation for individuals with mental retardation that are higher functioning (or free self-defense classes).”*

*“Extreme lack of drop off and pick up. Also there is lack of handicap accessible spots. Public transportation is risky for a vulnerable young woman with poor judgments.”*

## **Chapter 6: Conclusion**

This report details an 18-month research study into the transportation behavior and needs of PDD living or working in Hennepin County, Minnesota. The report describes in detail previous research into the transportation behaviors of the developmentally disabled, the methodology pursued in this study, and the findings and results of the study. Overall, most PDD responding to the survey remain partially independent (around 48 percent), but many recognize that independence is not permanent. This number may seem a little high for the PDD population in general, but this may be due to the characteristics of the sample studied.

Walking, public transit, and dial-a-ride were found to be the main modes of transportation participants used to meet their transportation needs. PDD in the surveyed sample showed a willingness to use public transit more and indicated that they feel using it would increase their independence. Several PDD indicated their willingness to drive, but they cannot afford it due to their conditions. Also several participants would like to use public transit, yet they are concerned that service does not exist near their homes or their destinations and so they felt using it was not possible for the time being. Issues related to understanding and interpreting transit schedules were also raised.

The need for assistance was observed among almost half of the surveyed sample. Issues related to dial-a-ride services and complaints were a common factor in the comment sections. There was notable criticism of the long lead times for scheduling and unreliability of public paratransit services, though there was commendation for the paratransit provided by service providers directly. Several participants added some comments related to the walking distance to and from bus stops. Various participants raised safety concerns.

The sampling of the survey was determined based on the level of cooperation between the PDD centers and the research team. The sample is biased towards the locations where these centers tend to serve their population. Since only 14 percent of the PDD sample filled out the surveys themselves, this study should be interpreted carefully since it reflects a mix of points of views of guardians or relatives as well as the PDD. Still, this study remains unique in the transportation field in trying to study and measure the needs of a special population that has had very little transportation research conducted about their needs.

We recommend the report be presented to Metro Transit, Metro Mobility, and dial-a-ride services for their information, particularly concerning specific comments and complaints. Community transportation groups should periodically conduct seminars and visits to PDD centers to introduce transportation options to PDD and their guardians.

## References

- Abery, B. (1994). A conceptual framework for enhancing self-determination. In M. F. Hayden & B. H. Abery (Eds.), *Challenges for a service system in transition* (pp. 345-380). Baltimore: Paul H. Brookes Publishers.
- Brown, F., & Gothelf, C. R. (1996). Self-determination for all individuals. In D. H. Lehr & F. Brown (Eds.), *People with disabilities who challenge the system* (pp. 335-353). Baltimore: Paul H. Brookes Publishers.
- Crimmins, D. B., & Berotti, D. (1996). Supporting increased self-determination for individuals with challenging behaviors. In D. H. Lehr & F. Brown (Eds.), *People with disabilities who challenge the system* (pp. 379-402). Baltimore: Paul H. Brookes Publishers.
- Golledge, R. G., Costanzo, C. M., & Marston, J. R. (1996). *The mass transit needs of a non-driving disabled population*. California PATH Research Report No. UCB-ITS-PRR-96-9. University of California—Santa Barbara.
- Handy, S. L., & Niemeier, D. A. (1997). Measuring accessibility: An exploration of issues and alternatives. *Environment and Planning A*, 29(7), 1175-1194.
- Hansen, W. (1959). How accessibility shapes land use. *Journal of the American Institute of Planners*, 25(2): 73-76.
- Wehmeyer, M., Kelchner, K., & Richards, S. (1996). Essential characteristics of self determined behavior of individuals with mental retardation. *American Journal on Mental Retardation*, Vol. 100(6), 632-642.
- Oregon Department of Transportation. (1999). *Oregon's mobility needs General population survey and transportation provider survey*. No. FHWA-OR-RD-99-19. Salem, Oregon: Oregon Department of Transportation.
- Schmöcker, J., Quddus, M. A., Noland, R. B., & Bell, Michael G. H. (2005). Estimating trip generations of elderly and disabled people: An analysis of London data. *84th annual meeting of the transportation research board*, Washington, DC, 1-21.
- Sweeney, M. (2004). *Travel patterns of older Americans with disabilities*. No. 2004-001-OAS, Bureau of Transportation Statistics.

## Appendix A: Support Letter

Dear David Levinson,

I am writing with regard to the U of M Transportation Study measuring the transportation needs for disadvantaged population: People with developmental disabilities

Please accept this letter as a statement of our willingness to help in distributing surveys to people with developmental disabilities and/or their legal representatives who is part of [Insert Center Name]. We did receive an explanation from Rania Wasfi of the research study and we are willing to help distribute the survey in our communities through distributing the surveys to the people with developmental disabilities who are participate in our program.

Participants will receive a brief explanation of the study and then the surveys will be distributed to them by hand. Participants who are interested, or their guardian is, in the study will mail the survey and travel dairy back your team in a prepaid envelope as explained.

We are willing to work collaboratively with your team to ensure the success of your research since the transportation needs is a major concern in the Twin Cities region. We feel the results of this work will be of a great value to us and others in the region and to the people with disabilities in general.

Feel free to contact me if you have any questions or concerns. My office phone number is: or by email :

Sincerely,

Signature of Community Partner helping in the Study.

## Appendix B: Cover Letter

### TRANSPORTATION SURVEY

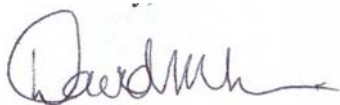
Dear Participant,

You are invited to participate in our research project at the University of Minnesota to find out about your transportation needs. We want to understand what the difficulties you face in your transportation and what your needs are. We have attached a short transportation survey that we are hoping you will fill out and return. It should take you about thirty minutes to complete. If you don't have any transportation problems we will still appreciate it if you can fill out the survey and return it. Hennepin County, our sponsor, will use what we find out through this survey to help plan transportation services.

You will see that we ask many questions about transportation. If you choose to participate in the survey please fill in your answers and send the survey back to us in the prepaid envelope enclosed in the packet. We will not use your name or address except to send you back a copy of the consent and assent forms and to contact you if any clarification is needed. We will respect your privacy. We will make sure that your answers cannot be linked to you personally when we send the results to the Hennepin County.

The risks to you or your privacy if you decide to join our study are minimal. Your participation in the study is voluntary, and your decision whether or not to participate will not affect your current or future relations with *[Insert name of disability institution /day program]*. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. In order to contact you with questions or concerns, we will ask for your name; however, you do not have to put your name on the survey. This is a transportation study, so your address will help us in identifying and locating transportation problems. Please include your address or nearest street intersection to your house. Your name and address will also be used to send you a copy of the signed consent and assent forms. If you choose not to participate in the study, you may still get a copy of the survey results, if you wish. To get a copy of the survey results, or if you have any questions about the study or survey, please contact Rania Wasfi at 612-624-8282.

Sincerely  
Dr. David Levinson



Professor, Principal Investigator  
University of Minnesota  
Department of Civil Engineering

## **Appendix C: Consent Form**

### **Studying the Needs of the Transportation Disadvantaged Populations**

You are invited to participate in a research study that investigates the travel demands and activities of transportation disadvantaged individuals by filling a one day travel diary and answering some survey questions relating to travel demands and needs. You were selected as a possible participant because you are part of a group that has special transportation needs and is 18 years old or older. Dr. David Levinson is in charge of this study and Rania Wasfi is a research fellow that assists him. Dr. Levinson and Mrs. Wasfi work in the Center for Transportation Studies, Department of Civil Engineering at the University of Minnesota.

#### **Background Information**

The purpose of this study is to investigate the travel demands and activities (in terms of both actual behavior and unmet needs) of transportation disadvantaged individuals. Broadly, transportation disadvantaged populations include elderly, poor, children, persons who do not speak English, people with the physical disability, and people with developmental disability. To date there has been no comprehensive study of the transportation demands of these disadvantaged populations, who have been ignored in conventional transportation planning. The research team will analyze the data from the surveys and travel diaries to give a picture of the transportation needs of the studied population to be used in future transportation planning in the Twin Cities.

#### **Procedures**

If you agree to be in this study, we would ask you or your guardian to complete a travel diary that tells us about your travel behavior for one day (the general purpose of your trip, your origin and destination, the mode of travel and when you traveled). You or your guardian will also be asked to complete a short survey that asks you some transportation questions and some other demographic questions. You will be asked to send us back the survey and travel diary in the prepaid envelope provided.

The survey will take you about thirty minutes to complete.

#### **Risks and Benefits of being in the Study**

The risks in participating in this study are minimal. Responding to the survey questions poses no risk to you or filling the travel diaries. If at anytime you do not want to proceed as a subject in this study, you are free to stop.

There are no direct benefits to you for participating in this study.

#### **Compensation:**

There is no compensation for participating in this study.

#### **Confidentiality:**

The responses you give to the survey questions and your travel diaries will be kept confidential.

In any presentation or account of this study, your name will never be used and we will not provide any information that would make it possible to identify you. Research records will be kept in a locked file; the researchers responsible for the study will be the only people who have access to the records.

**Voluntary Nature of the Study:**

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the *[Insert name of disability institute/day program]*. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

**Contacts and Questions:**

The researchers conducting this study are: Dr. David Levinson and Rania Wasfi. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact them at The Center for Transportation Studies, Department of Civil Engineering, 500 Pillsbury Drive SE Minneapolis, MN 55455 USA . Dr Levinson’s email: [levin031@umn.edu](mailto:levin031@umn.edu) phone: 612-625-6354. Mrs. Wasfi’s email: [wasfir@umn.edu](mailto:wasfir@umn.edu) phone: 612-624-8282

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects’ Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

*You will be mailed a copy of this information to keep for your records.*

**Statement of Consent:**

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature of guardian (If applicable): \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix D: Assent Form

### ASSENT FORM

We are asking if you are willing to tell us about the trips you make around town and how easy it is for you to get around, because we are trying to find out more about how people with disabilities get around. Because of your relationship with [*Insert name of the disability institute/day program*] we are asking if you want to be in a study. We hope that learning more about how you get around will help us figure out ways to make it easier for people with disabilities to get around.

If you agree to be in this study, we ask you to write down information about all the trips you make for one day. You can get help writing down the information from your caregiver. We will give you paper to write this information on. we will ask you to answer some questions about the trips you made that day when you filled the paper, and about what kind of trips you make in general and how hard or easy it is for you to make those trips. Answering the questions will take you about 30 minutes to complete.

You can ask any questions that you have about this study. If you have a question later that you didn't think of now, you or your guardian can call and ask Rania Wasfi at 612-624-8282

Signing here means that you have read this paper or had it read to you and that you are willing to be in this study. If you don't want to be in this study, don't sign. Remember, being in this study is up to you, and no one will be mad at you if you don't sign this or even if you change your mind later.

Signature of participant\_\_\_\_\_

Signature of person explaining study\_\_\_\_\_

Date\_\_\_\_\_



## Appendix D: Partners Letters

Date:

To: RISE clients and families  
Re: University of Minnesota Transportation Survey  
From: RISE, Inc.

The Department of Civil Engineering at the University of Minnesota contacted RISE last April about a project regarding transportation. The purpose of the study is to determine the transportation needs of special populations including people with disabilities.

RISE agreed to participate in the study by helping the University to distribute this survey packet to our clients in the programs. Packets are mailed through the University mailing system. Names and addresses of our clients are kept confidential.

This is a wonderful opportunity to be part of policy and community planning.

Please complete the attached survey packet and mail it back to the University of Minnesota, Department of Civil Engineering with enclosed prepaid envelope.

If you have questions, feel free to call me at 763-783-2814

Lynn Noren  
Chief Operating Officer  
Rise, Inc.

## Appendix F: Reminder Card

UNIVERSITY OF MINNESOTA

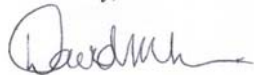
Dear Participant.

A few days ago you should have received a Transportation Survey packet from the University of Minnesota. If you have mailed it back, thank you. If you have not, please fill it out and send it back in the pre-paid envelope that was enclosed with the packet.

Local transportation planners will use this information to better serve your transportation needs.

If you have any further questions, or need a new copy of the survey packet, please feel free to contact Rania Wasfi at 612-624-8282.

Sincerely,

A handwritten signature in blue ink, appearing to read "David Levinson", with a horizontal line extending to the right.

David Levinson  
Associate Professor  
Department of Civil Engineering  
University of Minnesota

## Appendix G: Survey

*[Insert name of disability institution /day program]*

Survey Serial: *[Insert serial number]*

Date: \_\_\_\_\_

Name of person surveyed (Optional): \_\_\_\_\_

Who filled the survey for you: \_\_\_\_\_

Home address *OR* nearest two streets intersection: \_\_\_\_\_










---

City: \_\_\_\_\_ Zip code: \_\_\_\_\_










*Note: Names will only be used to return a copy of the consent form to you and contacting you for any clarifications needed.*

***Please fill in the following questionnaire***

**How often do you make the following kinds of trips?** *Please mark one box for each purpose*










Purpose	Purpose example	5-7 days per week	2-4 days per week	Weekly	About every other week	At longer than 2 weeks intervals	Never
Work		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shopping		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation/leisure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social trip (e.g. (visiting friends and family)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious (e.g. church, temple)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical (e.g. hospital, doctor, dentist)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agency support services. (e.g. meeting with service agencies)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business (bank, legal, accounting, financial, etc)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Any other trips		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please fill in with the transportation mode from the box below

Purpose	Purpose example	Which mode do you use most often?	Which mode do you use next most often?
Work			
Shopping			
Recreation/leisure			
Social trip (e.g. (visiting friends and family)			
Religious (e.g. church, temple)			
School			
Medical (hospital, doctor, dentist)			
Agency support services. (e.g. meeting with service agencies)			
Business (bank, legal, accounting, financial, etc)			
Any other trips			










**Modes include:** 1) Local bus service 2) Express bus service 3) Mini-bus 4) Private car 5) Social service  
 6) Taxi service 7) Hired driver for private car 8) Friend's car 9) Motorcycle 10) Bicycle/tricycle  
 11) Walk (with cane/walker) 12) Walk (without cane/ walker) 13) Lift Van 14) Volunteer driver  
 15) Other Please specify \_\_\_\_\_

Please mark your answer in the table below if your answer is yes; please specify who assists you from the box below

Purpose	Purpose example	Do you usually need assistance to make these trips?		If yes, who assists you?
		Yes	No	
Work		<input type="checkbox"/>	<input type="checkbox"/>	
Shopping		<input type="checkbox"/>	<input type="checkbox"/>	
Recreation/leisure		<input type="checkbox"/>	<input type="checkbox"/>	
Social trip (e.g. (visiting friends and family)		<input type="checkbox"/>	<input type="checkbox"/>	
Religious (e.g. church, temple)		<input type="checkbox"/>	<input type="checkbox"/>	
School		<input type="checkbox"/>	<input type="checkbox"/>	
Medical (hospital, doctor, dentist)		<input type="checkbox"/>	<input type="checkbox"/>	
Agency support services. (e.g. meeting with service agencies)		<input type="checkbox"/>	<input type="checkbox"/>	
Business (bank, legal, accounting, financial, etc)		<input type="checkbox"/>	<input type="checkbox"/>	
Any other trips		<input type="checkbox"/>	<input type="checkbox"/>	

**Assistants include:** 1) Spouse/significant other 2) Mother or Father, 3) Child) 4) Other relative 5) Roommate/neighbor 6) Friend 7) Hired assistant 8) Volunteer assistant 9) Co-worker 10) Other please specify \_\_\_\_\_

Please mark your answer to the questions in the table below

Purpose	Purpose example	Can you almost always make this trip when you <u>want</u> ?		If no, how often are you delayed?				
		Yes	No	More than once a week	Once a week	Twice a month	Once a month	Less than once a month
Work		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shopping		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation/leisure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social trip (e.g. visiting friends and family)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious (e.g. church, temple)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
School		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical (e.g. hospital, doctor, dentist)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Agency support services. (e.g. meeting with service agencies)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business (bank, legal, accounting, financial, etc)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Are there times when you are unable to make trips you need to make?**

- Yes
- No

**Are there times when you are unable to make trips you want to make?**

- Yes
- No

**Do you have a valid driver's license?**

- Yes
- No

**If no did you ever have a driver's license?**

- Yes
- No

**Do you own a motor vehicle?**

- Yes
- No

**Do you ever use dial-a-ride, lift Van, or Metro Mobility?**

- Yes
- No



**Do you ever use MetroTransit or other public transit buses or light rail?**

- Yes
- No

**If no, would you like to be able to use public transit?**

- Yes
- No

**Do any of the following difficulties with using public transit apply to you? *You can check more than one answer if needed.***

- Need special aid in order to move around
- Difficulty in standing
- Difficulty in walking to curb to meet transit vehicle
- Some difficulty in climbing stairs (need assistance)
- Cannot read transit schedules
- Cannot understand transit schedules
- Have difficulty in reading signs or vehicle route numbers
- Have difficulty in understanding signs or vehicle route numbers
- Cannot hear announcements over the public address system
- Having difficulty understanding the announcements
  
- Other (What?) \_\_\_\_\_

We would like to find more out about your concerns with respect to your travel. Use the categories “Very concerned, Concerned, Not very concerned, Unconcerned” to indicate your concerns. Please mark one box for each question in the Table below

Statement	Very concerned	Concerned	Not very concerned	Unconcerned
a. Becoming a victim of crime	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Having to wait for transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The travel time is long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Crowding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Other people are not kind to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Not being sure of arrival time at places I want to go to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Making connections to other transportation systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Being unfamiliar with going to new places	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Having to cross streets for places I want to go.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Difficulty finding the bus stop or entrance for transit (like bus or train)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

<b>Statement</b>	<b>Very concerned</b>	<b>Concerned</b>	<b>Not very concerned</b>	<b>Unconcerned</b>
k Having to deal with narrow doors to enter a bus or train	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l Having to deal with steps to enter a bus or train	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m Having people with no disabilities occupy seats in locations reserved for people with disabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n Bus drivers are not aware of my needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o Bus stops are not located within a walking distance from my home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p Scheduled buses do not serve where I need to go	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Considering using an automobile, how concerned are you with:**

<b>Statement</b>	<b>Very concerned</b>	<b>Concerned</b>	<b>Not very concerned</b>	<b>Unconcerned</b>
a Travel time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b Safety driving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c Finding parking for people with disabilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d Affordability of driving a car	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Do you “Strongly agree, Agree, Disagree or Strongly Disagree” with each of the following statements**  
*Please mark one box for each question in the Table below*

<b>Statement</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
a I am familiar with the different types of transportation services available to people with disabilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I believe that public transportation information is easy to obtain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c I believe that public transit information is easy to understand and use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d I consider myself to be an independent traveler.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e There is no disadvantage to being a non-driver.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f Not-driving limits (would limit) my freedom to choose where I live.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g Not-driving reduces (would reduce) my independence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Using public transit increases (would increase) my independence.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i It is my choice what mode of transportation I use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Demographics:*

*Please mark one box for each of the following questions*

**What is the highest level of education you have obtained?**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Less than high school | <input type="checkbox"/> Junior (community) college | <input type="checkbox"/> Post graduate |
| <input type="checkbox"/> High school           | <input type="checkbox"/> 4-year college/university  |  |

**What is your age?**

- |                                       |                                |                                  |
|---------------------------------------|--------------------------------|----------------------------------|
| <input type="checkbox"/> Less than 18 | <input type="checkbox"/> 36-40 | <input type="checkbox"/> 56-60   |
| <input type="checkbox"/> 18- 25       | <input type="checkbox"/> 41-45 | <input type="checkbox"/> 60 plus |
| <input type="checkbox"/> 26-30        | <input type="checkbox"/> 46-50 |                                  |
| <input type="checkbox"/> 31-35        | <input type="checkbox"/> 51-55 |                                  |

**Are you male or female?**

- Male
- Female

**What is your yearly household income level from all sources?**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Less than \$25,000        | <input type="checkbox"/> From \$ 45,000 to \$74,999 | <input type="checkbox"/> From \$99,000 to \$199,999 |
| <input type="checkbox"/> From \$25,000 to \$44,999 | <input type="checkbox"/> From \$75,000 to \$99,000  | <input type="checkbox"/> \$200,000 or more          |

**Do you live in a:**

- |  |  |
|--|--|
| <input type="checkbox"/> Private home or Condo | <input type="checkbox"/> Group facility              |
| <input type="checkbox"/> Apartment             | <input type="checkbox"/> Other (Please specify)_____ |

**If you live in a Group facility what kind?** (e.g group home, assisted living facility, nursing home.)

---

**Do you live by:**

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Yourself                              | <input type="checkbox"/> With relatives              | <input type="checkbox"/> With non-relatives |
| <input type="checkbox"/> Both with relatives and non-relatives | <input type="checkbox"/> Others please specify _____ |   |

**How many people live in your household?**\_\_\_\_\_

**Do you consider yourself?**

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> White/Caucasian                  | <input type="checkbox"/> Asian                     | <input type="checkbox"/> Native Hawaiian        |
| <input type="checkbox"/> American Indian or Alaska Native | <input type="checkbox"/> Black or African American | <input type="checkbox"/> Other Pacific Islander |
| <input type="checkbox"/> Multi-racial                     |  |   |

**To help us better understand your transportation needs, can you please tell us:**

**Do you have any diagnosed medical condition?**

- Yes
- No

**If Yes, what is your diagnosed medical condition?** \_\_\_\_\_

**Do you have a disability?**

- Yes
- No

**If Yes, what is your disability?** \_\_\_\_\_

**Do have any other comments or concerns you would like to add in terms of transportation limitations you are facing?**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---



## **Appendix H: Travel Diary**

Travel Diary for (name of surveyed person) \_\_\_\_\_ Completed by: \_\_\_\_\_

Date: \_\_\_\_\_ Day of week: \_\_\_\_\_

Institute name: Medica Skyway Senior Center

If you made any trips today, please record each and every trip longer than two (2) blocks.

Please fill in the information below and check the boxes for the correct answer as appropriate

**TRIP 1 –**

**1. Where did you start your first trip today?**

- Made no trips today
- Home
- Somewhere else  
Where? \_\_\_\_\_

**2. Then where did you go? (be as exact as possible)**

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

**3. What time did you leave? (record exact time)**

[ \_\_\_\_ : \_\_\_\_ ] am/pm

**4. What time did you arrive? (record exact time)**

[ \_\_\_\_ : \_\_\_\_ ] am/pm

**5. Why did you go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**6. How did you get there?**

- Auto (passenger)  
a. If you were an auto passenger:  
  
Who was the driver? \_\_\_\_\_  
Were there other passengers? \_\_\_\_\_  
If yes, how many? \_\_\_\_\_
- Auto (driver)  
b. If you were an auto driver:  
  
Were there any passengers? \_\_\_\_\_  
If yes, how many \_\_\_\_\_
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

## TRIP 2

### 1. Then where did you go? (be as exact as possible)

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

### 2. What time did you leave? (record exact time)

[ \_\_\_\_:\_\_\_\_ ] am/pm

### 3. What time did you arrive? (record exact time)

[ \_\_\_\_:\_\_\_\_ ] am/pm

### 4. Why did you go there?

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

### 5. How did you get there?

- Auto (passenger)  
a. If you were an auto passenger:

Who was the driver? \_\_\_\_\_  
Were there other passengers? \_\_\_\_\_  
If yes, how many? \_\_\_\_\_

- Auto (driver)  
b. If you were an auto driver:

Were there any passengers? \_\_\_\_\_  
If yes, how many \_\_\_\_\_

- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**TRIP 3**

**1. Then where did you go? (be as exact as possible)**

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

**2. What time did you leave? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**3. What time did you arrive? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**4. Why did you go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**5. How did you get there?**

- Auto (passenger)  
a. If you were an auto passenger:  
  
Who was the driver? \_\_\_\_\_  
Were there other passengers? \_\_\_\_\_  
If yes, how many? \_\_\_\_\_
- Auto (driver)  
b. If you were an auto driver:  
  
Were there any passengers? \_\_\_\_\_  
If yes, how many? \_\_\_\_\_
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**TRIP 4****1. Then where did you go? (be as exact as possible)**

Place name: \_\_\_\_\_

Address/City: \_\_\_\_\_

County/Zip code: \_\_\_\_\_

Cross street/landmark: \_\_\_\_\_

**2. What time did you leave? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**3. What time did you arrive? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**4. Why did you go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**5. How did you get there?**

- Auto (passenger)
  - a. If you were an auto passenger:  
  
Who was the driver? \_\_\_\_\_  
Were there other passengers? \_\_\_\_\_  
If yes, how many? \_\_\_\_\_
- Auto (driver)
  - b. If you were an auto driver:  
  
Were there any passengers? \_\_\_\_\_  
If yes, how many \_\_\_\_\_
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

Travel Diary for (name of surveyed person) \_\_\_\_\_ Completed by: \_\_\_\_\_

Date: \_\_\_\_\_ Day of week: \_\_\_\_\_

Institute name: Medica Skyway Senior Center

Trips today you couldn't make, please fill the following.

Please fill in the information below and check the boxes for the correct answer as appropriate

**TRIPS YOU COULDN'T MAKE (TRIP1)**

**1. Were there trips you wanted to make today (survey day?) but couldn't make?**

- Yes
- No

**2. Where did you want to go? (be as exact as possible)**

Place name: \_\_\_\_\_

Address/City: \_\_\_\_\_

County/Zip code: \_\_\_\_\_

Cross street/landmark: \_\_\_\_\_

**3. What time did you want to leave? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**4. What time did you want to arrive? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**5. Why did you want to go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**6. How were you going to get there?**

- Auto (passenger)
- Auto (driver)
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**7. Why didn't you make the trip?**

- Change in plans
- Could not afford
- No vehicle available
- No attendant available
- No one available to drive
- Couldn't make dial-a-ride reservation
- Weather
- Health
- Other (What?) \_\_\_\_\_

**TRIPS YOU COULDN'T MAKE (TRIP2)**

**1. Were there other trips you wanted to make today (survey day?) but couldn't make?**

- Yes
- No

**2. Where did you want to go? (be as exact as possible)**

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

**3. What time did you want to leave? (record exact time)**

[ \_\_\_\_ : \_\_\_\_ ] am/pm

**4. What time did you want to arrive? (record exact time)**

[ \_\_\_\_ : \_\_\_\_ ] am/pm

**5. Why did you want to go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**6. How were you going to get there?**

- Auto (passenger)
- Auto (driver)
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**7. Why didn't you make the trip?**

- Change in plans
- Could not afford
- No vehicle available
- No attendant available
- No one available to drive
- Couldn't make dial-a-ride reservation
- Weather
- Health
- Other (What?) \_\_\_\_\_

**TRIPS YOU COULDN'T MAKE (TRIP 3)**

**1. Were there other trips you wanted to make today (*survey day?*) but couldn't make?**

- Yes
- No

**2. Where did you want to go? (be as exact as possible)**

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

**3. What time did you want to leave? (record exact time)**

[ \_\_\_\_:\_\_\_\_ ] am/pm

**4. What time did you want to arrive? (record exact time)**

[ \_\_\_\_:\_\_\_\_ ] am/pm

**5. Why did you want to go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**6. How were you going to get there?**

- Auto (passenger)
- Auto (driver)
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**7. Why didn't you make the trip?**

- Change in plans
- Could not afford
- No vehicle available
- No attendant available
- No one available to drive
- Couldn't make dial-a-ride reservation
- Weather
- Health
- Other (What?) \_\_\_\_\_



**TRIPS YOU COULDN'T MAKE (TRIP 4)**

**1. Were there other trips you wanted to make today (*survey day?*) but couldn't make?**

- Yes
- No

**2. Where did you want to go? (be as exact as possible)**

Place name: \_\_\_\_\_  
Address/City: \_\_\_\_\_  
County/Zip code: \_\_\_\_\_  
Cross street/landmark: \_\_\_\_\_

**3. What time did you want to leave? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**4. What time did you want to arrive? (record exact time)**

[\_\_\_\_\_:\_\_\_\_\_] am/pm

**5. Why did you want to go there?**

- Home
- Medical
- Work
- School
- Shopping
- Social/Recreation
- Religious
- Personal Business
- Other (What?) \_\_\_\_\_

**6. How were you going to get there?**

- Auto (passenger)
- Auto (driver)
- Scheduled service bus or light rail
- Dial-a-ride service
- Taxi
- Wheelchair
- Walking
- Bicycle
- Other (What?) \_\_\_\_\_

**7. Why didn't you make the trip?**

- Change in plans
- Could not afford
- No vehicle available
- No attendant available
- No one available to drive
- Couldn't make dial-a-ride reservation
- Weather
- Health
- Other (What?) \_\_\_\_\_