Bicycle and Pedestrian Transportation Survey

In August 1999, the Wisconsin Survey Research Laboratory released information from a study titled the Bicycle and Pedestrian Transportation Survey. The study consisted of two parts, one completed by phone and the other completed by mail. Wisconsin residents were randomly selected and interviewed by telephone. After answering a series of questions, interviewers asked the respondents if they were willing to complete "trip diaries" for all their daily trips during a three-day period. The purpose of both parts of this study was to collect information on how much people travel by foot and bicycle compared with riding in an automobile.

Data from the Phone Survey

The Wisconsin Survey Research Laboratory asked questions of nearly 1,300 people. Calls were made in early October 1998, and from early May to early June 1999. The following questions were asked:

- Thinking about the past week, how many one-way trips (a trip is considered any length of travel longer than a block) would you say you have taken?
- Have any of these trips been made by walking, and if so, how many?
- Have any of these trips been made by bicycle, and if so, how many?

Once respondents answered the questions, they were asked to pass the phone to another available member of the household. The data presented in Table 1 and Table 2 is broken down into five groups representing the number of household members that answered questions. Group 1 includes the first person of each household to answer questions, while group 2 includes the second person, and so on. For those households where five members answered questions, group 5 includes the information from the fifth person spoken to. Some of the households contacted did have more than 5 members, but for the purpose of this research, the analysis does not go beyond the fifth person.

Tables 1, 2, and 3 show the data regarding bike trips and Tables 4, 5, and 6 show the same information for walking trips. Overall, 13.0% of the respondents had biked and 30.8% of the people had walked during the one week period. For those respondents who do walk or bike, walking or biking is the mode of transportation for more than a quarter of their trips.

Tables 3 and 6 show that walkers and bikers both do more traveling (make more one-way trips) than the overall population of the survey.

Table 1
Bicycle Data from the Phone Survey

	Group 1	2	3	4	5	Overall Averages
Average age	47.7	44.3	19.5	14.5	12.2	38.0
Number who said they biked during the week	46/508	36/400	40/193	34/119	9/46	165/1266
% who biked during the week	9.1%	9.0%	20.7%	28.6%	19.6%	13.0 %

Table 2
Additional Bicycle Data (Considering only Bikers)

	Group 1	2	3	4	5	Overall Averages
One-way trips in the last week by bike	5.8	7.7	7.9	5.3	10.2	6.9
Total one-way trips in the last week (all modes)	38.3	30.4	25.9	17.9	24.7	28.6
% of trips by bike	15.1 %	25.3 %	30.6 %	29.6 %	41.3 %	24.1 %

Table 3
Comparing Bikers with the Total Population

	Group 1	2	3	4	5	Overall Averages
Total one-way trips in the last week (Total population)	25.0	23.8	23.8	19.9	18.9	23.8
Total one-way trips in the last week (People that bike)	38.3	30.4	25.9	17.9	24.7	28.6

Table 4
Walking Data from the Phone Survey

	Group 1	2	3	4	5	Overall Averages
Average age	47.7	44.3	19.5	14.5	12.2	38.0
Number who said they walked during the week	158/508	109/400	66/193	40/119	15/46	388/1266
% who walked during the week	31.1%	27.3%	34.2%	34.5%	32.6%	30.7 %

Table 5
Additional Walking Data (Only considering those who walk)

	Group 1	2	3	4	5	Overall Averages
One-way trips walked in the last week	5.9	6.3	7.2	7.7	6.8	6.5
Total one-way trips in the last week (all modes)	31.9	30.0	25.4	18.4	19.4	28.4
% of trips walked	18.5%	21.0%	28.3%	41.8%	35.1%	22.9 %

Table 6
Comparing Walkers with the Total Population

	Group 1	2	3	4	5	Overall Averages
Total one-way trips in the last week (Total population)	25.0	23.8	23.8	19.9	18.9	23.8
Total one-way trips in the last week (People that walk)	31.9	30.0	25.4	18.4	19.4	28.4

Table 7 summarizes the data collected by the phone survey. Nearly 12% of the trips by the respondents were made by walking or biking.

Table 7
Biking and Walking Data from the Phone Survey

	Trips	Percent of Total Trips
Number of Bike Trips/ Total Trips	1,038/ 30,105	3.5%
Number of Walking Trips/ Total Trips	2,439/ 30,105	8.1%

Points of Interest from Respondents

During the one week period:

- Twice as many people walked (30.7%) than biked (13.0%).

- Although walking was done by more people, bikers make about the same amount of bike trips in a week as walkers go for walks in a week.

  Walking 6.5 one-way trips a week
  Biking 6.9 one-way trips a week

- The younger groups of respondents (groups 3,4,5) biked at least twice as often as the older groups (1,2), while walking was done about the same amount by all ages.

- Although only 13.0% of the respondents biked, those 13.0% biked for nearly a quarter (24.1%) of their trips.

Trip Diary Information

Some of the respondents agreed to keep trip diaries of their daily activities to help answer questions about the why, where, and how of everyday travel. Nearly 250 people kept a diary of their one-way trips (a block or more in distance) over a three-day period. This information was recorded during the months of May, June, July, October, and November. These 250 people made a combined 3,183 trips, an average of nearly 13 one-way trips per person in a three-day period, or 4.3 one-way trips a day.

Each separate purpose of a trip was recorded as a one-way trip. Traveling to work and then getting groceries on the way home would be recorded as 3 one-way trips for the day. The first trip would be recorded as "travel to work," the second would fall under the category of "shopping," and the third would be the "return home."

Table 8 shows why people are traveling. Table 9 also shows the trip purpose, but the "return home" choice was pulled out to show the breakdown of the other trip purposes. Table 10 shows how they got there, which is most often done driving alone in a car (44.3%). Table 11 shows the distance they traveled, with the most common distance being more than ten miles a trip.

Table 8
Purpose of Trip - Including the Return Home

	Frequency	Percent
Travel to Work	483	15.2 %
School	90	2.8 %
Shopping	381	12.0 %
Pick up or Drop off	111	3.5 %
Personal or Family	377	11.8 %
Social, Recreational	501	15.7 %
Return Home	1113	35.0 %
Other	105	3.3 %
Not Ascertained	22	0.7 %
Total	**3161**	**100.0 %**

Table 9
Purpose of Trip - Without the Return Home

	Frequency	Percent
Travel to Work	483	23.6 %
School	90	4.4 %
Shopping	381	18.6 %
Pick up or Drop off	111	5.4 %
Personal or Family	377	18.4 %
Social, Recreational	501	24.5 %
Other	105	5.1 %
Not Ascertained	22	1.1 %
Total	**2048**	**100.0 %**

Table 10 - How did they get there?

	Frequency	Percent
Carpool or Vanpool	6	0.2 %
Drove alone in car	1411	44.3 %
Drove car with others	652	20.5 %
Passenger in car	654	20.5 %
Motorcycle/Scooter	31	1.0 %
Bicycle	**83**	**2.6 %**
Walk	**253**	**7.9 %**
Other (taxi/bus)	81	2.5 %
Not ascertained	12	0.4 %
Total	**3183**	**100.0 %**

Table 11 - Distance Traveled

	Frequency	Percent
Less than a ¼ mile	153	4.8 %
A ¼ mile to a ½ mile	255	8.0 %
A ½ mile to 1 mile	358	11.2 %
1 to 2 miles	504	15.8 %
2 to 5 miles	663	20.8 %
5 to 10 miles	541	17.0 %
More than 10 miles	699	22.0 %
Not ascertained	10	0.3 %
Total	**3183**	**100.0 %**

Limitations of the Trip Diary

A couple limitations of the trip diary make a small impact on the results of the survey. Complications occurred that are unique to walking and bicycling trips with the trip type, "recreational or social or fitness." This type of trip may often have the same origin and destination, such as a bicycle ride from home and back to the home. When participants filled out their trip diaries, the majority included "return home" for a leg of the trip, but some did not. The result of not everybody including the "return home" leg of the trip is that there are more "return home" trips than what the data indicates. Another implication of this discrepancy on how trips are recorded is determining the actual length of the "recreation or social or fitness" trips. One person may have recorded a walk as a two mile "recreation" trip, while another may have recorded it as a one mile "recreation" trip followed by a one mile "return home." The implication of this is that the average length of the "recreational or social or fitness" trip type is actually longer than what the data indicates, because some of the length of these trips was being credited to the "return home."

One additional limitation of the study is that the trip diaries were filled out in June and July, when students are not traveling to and from school. This could reduce the number of walk and bike trips. Rain or cold weather could also impact the findings.

Further Trip Analysis

The trip diary information is broken down further to determine the age of people who indicated they walk and bike. Table 12 includes the age data on bikers and Table 13 includes the age data on walkers. Because of the uneven distribution of the age groups, the column titled, "Percent of Age Group Trips," may provide a better indicator of how much walking or biking each age group does. This percent is the number of bike trips divided by the total number of trips. Surprisingly, out of the 208 trips taken by 20 to 24 year olds, not a single one was on bike or foot. Children (5-14), as well as the age group between 45 and 54, do the most walking and biking.

Bike Trips

Of the 3,183 trips taken, 83 (2.6%) of them were on bicycle. Figure 1 shows the purpose of the bike trips and Figure 2 shows the distance that was traveled. The main purpose of a trip taken by bicycle (other than returning home) was for recreational purposes. The most common distance traveled during these bicycle trips is between a ¼ mile and a ½ mile. Table 14 shows how the distance of the bike trips relates to the purpose of the bike trips.

Table 12
What Age Groups Bike?

Age Group	Total Number of Trips	Number of Bike Trips	Percent of Age Group Trips	Percent of all Bike Trips
5 - 14	326	29	8.9 %	34.9 %
15 - 19	226	2	0.9 %	2.4 %
20 - 24	208	0	0 %	0 %
25 - 34	315	7	2.2 %	8.4 %
35 - 44	672	16	2.4 %	19.3 %
45 - 54	679	19	2.8 %	22.9 %
55 - 64	425	10	2.4 %	12.0 %
65 +	272	0	0 %	0 %
TOTAL	**3123***	**83**	**2.66 %**	**100.0 %**

***60 trips are not included in this table since they did not list the age of the participant**

Table 13
What Age Groups Walk?

Age Group	Total Number of Trips	Number of Walking Trips	Percent of Age Group Trips	Percent of all Walking Trips
5 - 14	326	53	16.3 %	21.3 %
15 - 19	226	16	7.1 %	6.4 %
20 - 24	208	0	0 %	0 %
25 - 34	315	10	3.2 %	4.0 %
35 - 44	672	22	3.3 %	8.8 %
45 - 54	679	71	10.5 %	28.5 %
55 - 64	425	48	11.3 %	19.3 %
65 +	272	29	10.7 %	11.6 %
TOTAL	**3123***	**249**	**7.97 %**	**100.0 %**

***60 trips are not included in this table since they did not list the age of the participant**

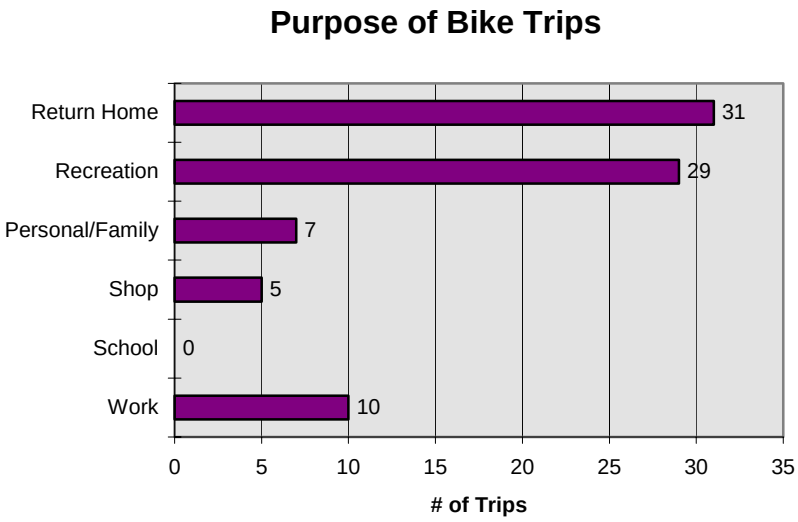

Figure 1

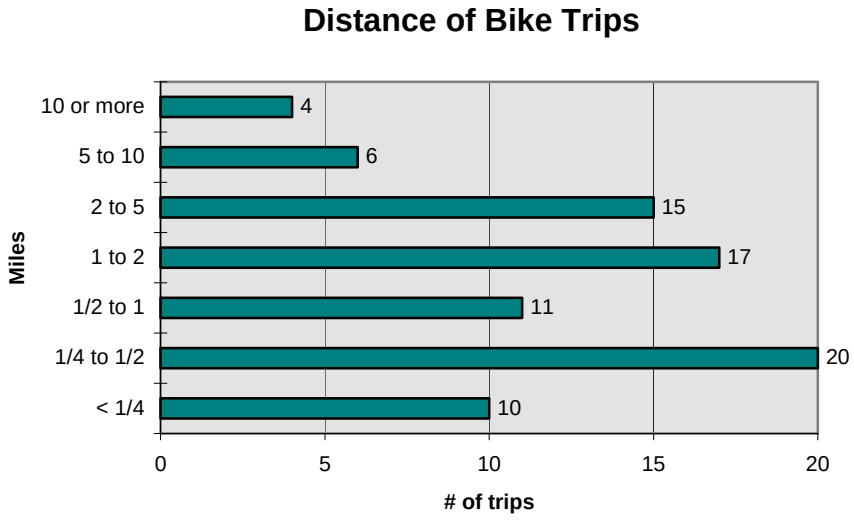

Figure 2

Table 14
Bike Trip Purpose by Bike Trip Length

	Less than ¼ mile	¼ to ½ mile	½ to 1 mile	1 to 2 miles	2 to 5 miles	5 to 10 miles	Over 10 miles
Travel to work	-	5	1	3	-	1	-
School	-	-	-	-	-	-	-
Shopping	1	1	1	1	1	-	-
Personal or family business	-	3	2		1	-	1
Recreational or Social or Fitness	5	3	2	6	9	2	2
Other	-	-	1	-	-	-	-
Return Home	4	8	4	7	4	3	1

Walking Trips

Of the 3,183 trips taken, 253 (7.9%) of them were done by walking. Figure 3 shows the purpose of the trips taken on foot and Figure 4 shows the distance that was traveled. The main purpose of a trip taken on foot (other than returning home) was for recreational purposes, same as trips taken by bicycle. The most common distance traveled during a walk is between a ½ mile and a mile. Table 15 shows how the distance of the walks relates to the purpose of the walks.

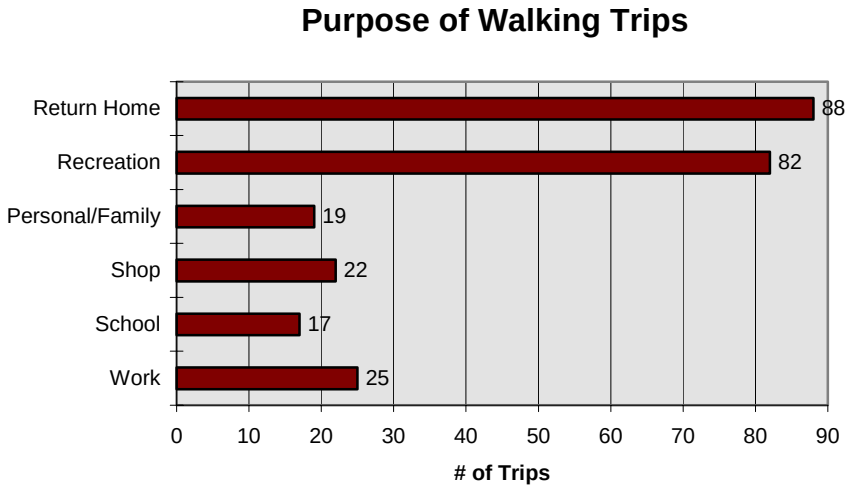

Figure 3

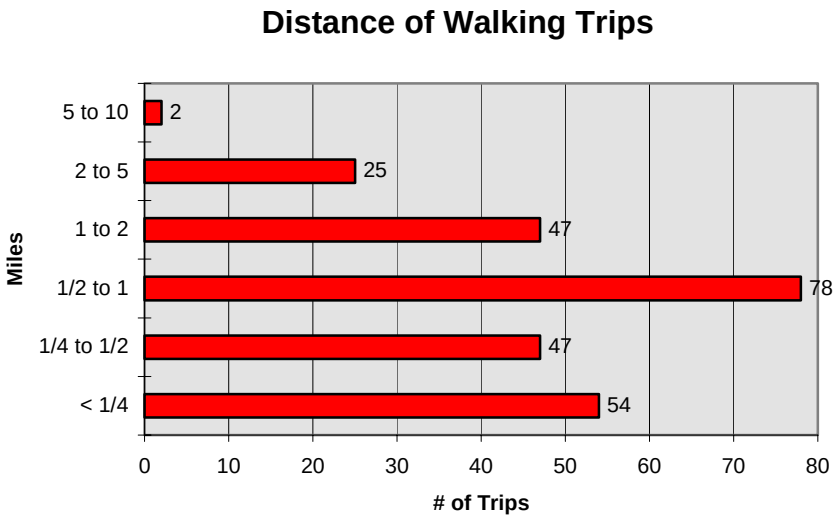

Figure 4

Table 15
Purpose of Walk by Length of Walk

	Less than ¼ mile	¼ to ½ mile	½ to 1 mile	1 to 2 miles	2 to 5 miles	5 to 10 miles
Travel to work	6	12	1	1	-	1
School	5	1	11	-	-	-
Shopping	8	2	10	2	-	-
Personal or family business	3	5	9	2	-	-
Recreational or Social or Fitness	10	12	20	22	17	1
Other	2	-	-	2	-	-
Return Home	20	15	27	18	8	-

Conclusion

The phone and mail portions of the survey produced similar information regarding the focus of the study, walking and biking. The phone survey found that 3.6% of trips are made by bike and 8.1% of trips are walked. Analysis of the trip diaries found that 2.6% of trips are made by bike and 7.9% of trips are walked. The main purpose for traveling by foot and bike (other than to return home) is recreation/social/fitness. Children under the age of 14 do the most biking and walking. The age group 45-64 does more biking than the age group 25-44, as well as much more walking. When the results of the mail and phone portions are combined, approximately 3% of trips are made by bike and 8% of trips are made on foot.