

HOW CHILDREN GET TO SCHOOL

School Travel Patterns From 1969 to 2009

Prepared by the National Center for Safe Routes to School



SafeRoutes
National Center for Safe Routes to School



Report Contents

- 1 Introduction
- 2 Key Points
- 3 The Impact on Morning Traffic by Personal Vehicle School Travel
- 4 Usual Travel Mode to School as Reported by Parents
- 9 Travel Mode to School as Reported by Students
- 11 Variation Between Parent-Provided and Student-Provided Information
- 12 About the NHTS
- References
- Acknowledgements

SafeRoutes
National Center for Safe Routes to School



Introduction

How children travel to school has changed dramatically from 40 years ago. Since 1969, there has been a significant rise in the number of kindergarten through eighth grade (K-8th) students driven to school and a decline in walking and bicycling to school. Over the past 15 years however, the changes in school travel have been more modest.

From 1995 to 2009 the percentage of students driven to school in personal vehicles increased while walking and school bus use dipped slightly and bicycle use stabilized. Conversely, during this same time period there was no significant change in school travel trends among K-8th grade students living within one mile of school.

This report describes how student school travel in the U.S. changed from 1969 through 2009 using information from the 2001 and 2009 National Household Travel Survey (NHTS) and the 1969 and 1995 Nationwide Personal Transportation Surveys (NPTS). The report presents the two measures of school travel captured by the NHTS and NPTS: **usual** school travel mode as reported by parents (1969, 2009), and the school travel mode as reported by students **on the day** they completed a travel diary (1995, 2001 and 2009). Table 1 provides a summary of the differences between the two measures. As the only nationally representative data on student school travel, the NHTS and its predecessor, the NPTS, provide a means of monitoring trends in school travel.¹ The travel information presented in this report can be used as national benchmarks by communities, schools and Safe Routes to School programs to better interpret their results.

Table 1. Two School Travel Measures Captured by the NPTS and NHTS for 1969-2009

Travel mode measures	Survey question	Respondent	NPTS and NHTS school travel data collection years			
			1969	1995	2001	2009
Usual school travel mode	On most school days, how did [...] usually get to school?	Parents	X			X
Travel diary day school travel mode	How did you get to school today?	Students		X	X	X

The following school travel information is based on published work by McDonald and colleagues¹ and subsequent work supported by the National Center for Safe Routes to School. For details on the methods used to define students and school trips see 'U.S. School Travel 2009: An Assessment of Trends' by McDonald and colleagues in the August 2011 issue of the *American Journal of Preventive Medicine*.

Key Points

- Personal vehicles taking K-12th grade students to school accounted for five to seven percent of vehicle miles traveled (VMT) and 10 to 14 percent of all personal vehicle trips made during the morning peak period in 2009.
- Among parents who drove their children to school, approximately 40% returned home immediately after dropping their children at school.
- In 1969, 48 percent of K-8th grade students usually walked or bicycled to school. By 2009, only 13 percent of K-8th grade students usually walked or bicycled to school.
- Distance between home and school was strongly associated with how children get to and from school. The percentage of children who walked to and from school is greater among those who live closer to school.
- In 1969, 89 percent of K-8th grade students who lived within one mile of school usually walked or bicycled to school. By 2009, only 35 percent of K-8th grade students who lived within a mile of school usually walked or bicycled to school even once a week.
- In 2009, more students arrived at school by personal vehicle than depart by that mode. The majority of these school departure trips shifted to riding the school bus or walking.
- From 1995 to 2009 the share of K-8th grade students that arrived to school by personal vehicle increased from 45 percent to 51 percent while walking to school decreased from 12 percent to 10 percent and arriving by school bus decreased from 39 percent to 36 percent. For K-8th grade students living within one mile of school there was no statistically significant change in travel modes over this 15 year period.
- The percentage of K-8th grade students who live less than one mile from school has declined from 25 percent in 1995 to 22 percent in 2009.
- The NHTS provides a means of monitoring trends in school travel and provides national benchmarks that communities, schools and Safe Routes to School programs can use.



The Impact on Morning Traffic by Personal Vehicle School Travel

The percentage of morning rush hour traffic attributable to personal vehicles taking students to school in 2009 is shown in Table 2. For students in grades K-12th, parents driving students and teens driving themselves to school accounted for two to three percent of all the personal vehicle trips made during 2009. When only morning peak travel during the academic year is considered, personal vehicles taking students to school accounted for 10 to 14 percent of all the personal vehicle trips made from 7:00 am to 9:00 a.m. during September through May 2009. Among the parents who drove their children to school, approximately 40% returned home immediately after dropping their child at school.

Parents driving students and teens driving themselves to school contributed one to two percent to the overall annual vehicle miles traveled (VMT) in the country and five to seven percent of VMT during the morning peak period of the school year.

Table 2. Morning School Travel by Personal Vehicle as a Percentage of All Travel in 2009

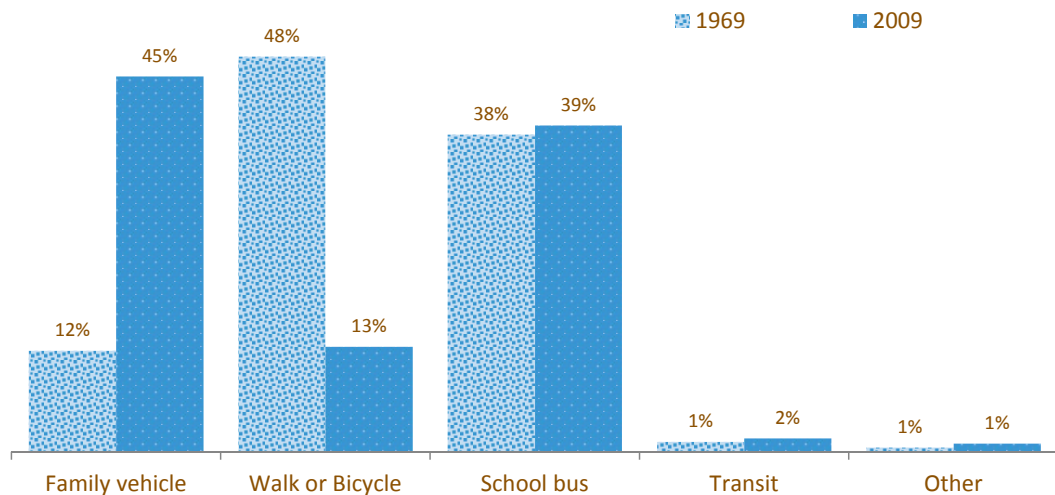
	Total travel in 2009	Travel from 7-9 a.m. during Sept-May
Percentage of personal vehicle trips that were made for morning school travel	2-3%	10-14%
Percentage of vehicle miles traveled by personal vehicle for morning school travel	1-2%	5-7%

Usual Travel Mode to School as Reported by Parents

The 1969 NPTS and 2009 NHTS included a section that allowed parents to report how their children ages five to 14 years old (K-8th grade) usually got to school. Parents were asked “On most school days, how did [...] usually get to school?”

Figure 1 show that in 1969, 48 percent of K-8th grade students usually walked or bicycled to school and 12 percent arrived by personal vehicle. These percentages are nearly reverse in 2009 when 13 percent usually walked or bicycled to school and 45 percent of students arrived by personal vehicle. The percentage of students that arrived by school bus changed little over this same 40-year period, increasing from 38 to 39 percent.

Figure 1. Comparison of the Usual Travel Mode To School for K-8th Grade Students, 1969 and 2009



In both 1969 and 2009 the percentage of K-8th grade students who usually walked and bicycled to school, as reported by parents, declined as distance increased. However, as shown in Table 3, within all three distance categories there were substantially higher percentages of students who usually walked or bicycled to school in 1969 compared to 2009.

In 1969, for students living less than one mile from school, 89 percent of students usually walked or bicycled to school, seven percent usually arrived by personal vehicle and four percent usually arrived by school bus. In 2009, 35 percent of students living less than one mile from school walked or bicycled while 43 percent of students arrived by personal vehicle and 20 percent arrived by school bus.

Table 3. Comparison of Usual Travel Mode To School by Distance to School for K-8th Grade Students, 1969 and 2009

Distance from home to school	Travel mode	Travel to school [†]	
		1969	2009
Less than 1 mile	Personal vehicle	6.9%	42.8%
	Walk/Bicycle combined	88.6%	35.2%
	–Walk	N/A	33.0%
	–Bicycle	N/A	2.2%
	School bus	3.8%	20.4%
	Transit	0.0%	1.0%
	Other	0.7%	0.6%
	Total	100%	100%
1–1.99 miles	Personal vehicle	14.3%	53.4%
	Walk/Bicycle combined	55.1%	5.6%
	–Walk	N/A	4.0%
	–Bicycle	N/A	1.6%
	School bus	29.0%	37.7%
	Transit	0.8%	2.5%
	Other	0.9%	0.8%
	Total	100%	100%
2 or more miles	Personal vehicle	15.7%	43.6%
	Walk/Bicycle combined	8.0%	1.7%
	–Walk	N/A	1.6%
	–Bicycle	N/A	0.1%
	School bus	72.0%	51.8%
	Transit	3.6%	1.7%
	Other	0.7%	1.3%
	Total	100%	100%

[†] The usual travel mode **from** school was not collected in 1969.
N/A — Not assessed.

Table 4 allows for a comparison between how parents reported their K-8th grade students usually arrived **to** and departed **from** school 2009. A higher percentage of students usually arrived at school by personal vehicle than left by personal vehicle. The majority of these school departure trips shifted to riding the school bus or walking. More specifically, 12 percent of students usually walked to school and 15 percent usually walked from school while 45 percent usually took the personal vehicle to school and 39 percent usually left school by personal vehicle.

Table 4. Comparison of Usual Travel Mode To and From School for K-8th Grade Students in 2009

Travel mode	2009	
	Travel to school	Travel from school
Personal vehicle	45.3%	39.0%
Walk	11.7%	15.0%
Bicycle	1.0%	1.0%
School bus	39.4%	41.9%
Transit	1.6%	2.0%
Other	1.0%	1.0%
Total	100%	100%

Table 5 provides a more detailed picture of the information in Table 4 by showing how students usually traveled to and from school by the distance they lived from school in 2009. A comparison of school arrival and departure travel modes in Table 5 reveals a pattern within each distance category; more students arrived to school by personal vehicle than left school by personal vehicle. Across all distance categories, the majority of these

school departures shifted away from personal vehicle to riding the school bus or walking. For example, among those students living one-quarter to one-half mile from school, 46 percent arrived by personal vehicle, but 34 percent left school by personal vehicle (Table 5). At the same time, 30 percent of students living this distance from school walked and 21 percent rode the bus to school while 40 percent left school by walking and 23 left riding the school bus.

Table 5. Comparison of Usual Travel Mode To and From School by Distance to School for K-8th Grade Students, 2009

Distance between home and school	Personal vehicle	Walk	Bicycle	School bus	Transit	Other	Total
Trips TO school							
Less than ¼ mile	29.9%	55.3%	0.9%	12.5%	0.9%	0.6%	100%
¼ mile up to 1/2 mile	45.5%	30.4%	2.2%	21.1%	0.4%	0.4%	100%
½ mile up to 1 mile	52.4%	15.1%	3.3%	26.9%	1.5%	0.7%	100%
1 mile up to 2 miles	53.4%	4.0%	1.6%	37.7%	2.5%	0.8%	100%
More than 2 miles	43.6%	1.6%	0.1%	51.8%	1.7%	1.3%	100%
Trip FROM school							
Less than ¼ mile	23.7%	60.8%	0.9%	13.4%	0.5%	0.7%	100%
¼ mile up to 1/2 mile	34.2%	39.9%	2.2%	22.7%	0.7%	0.3%	100%
½ mile up to 1 mile	44.7%	21.2%	3.4%	27.7%	1.9%	1.2%	100%
1 mile up to 2 miles	44.8%	7.9%	1.6%	42.1%	2.9%	0.8%	100%
More than 2 miles	39.4%	2.6%	0.1%	54.4%	2.3%	1.2%	100%

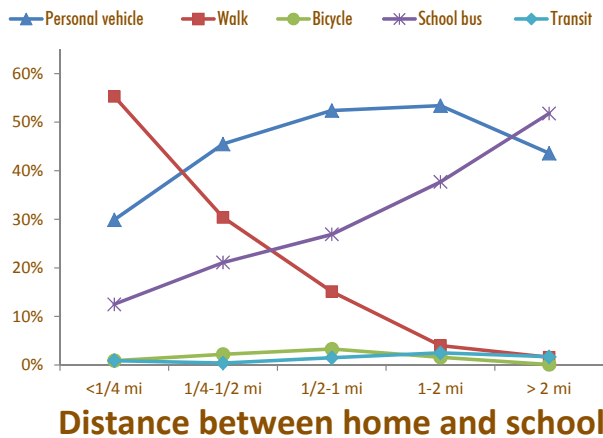
Figures 2 and 3 provide a graphical representation of the information from Table 5 and show that across distance categories the distance between home and school is strongly and inversely related to walking to and from school. For students living within a one-quarter mile of school, walking was the leading travel mode to school (55 percent) and from school (61 percent). Figure 2 shows that for the four distance categories that range from one-quarter mile to more than two miles, the percentage of students within each distance that usually walked to school were 30 percent, 15 percent, 4 percent and 2 percent respectively.

Among students living within one-quarter mile of school, very few bicycled to (1 percent) and from (1 percent) school. Bicycling was highest, at 3 percent, among those living one-half to one mile from school and it declined to 2 percent among students living one to two miles from school and the percentage becomes negligible at distances over two miles.

Among students living one-quarter mile up to one-half mile and one-half mile up to one mile from school—a distance often considered easily walkable and bikeable—the personal vehicle was the leading travel mode usually taken to school. The percentage of students who usually rode the school bus increased as distance increased (Figure 2). Figure 3 illustrates how the afternoon mode travel patterns closely resemble the morning patterns.

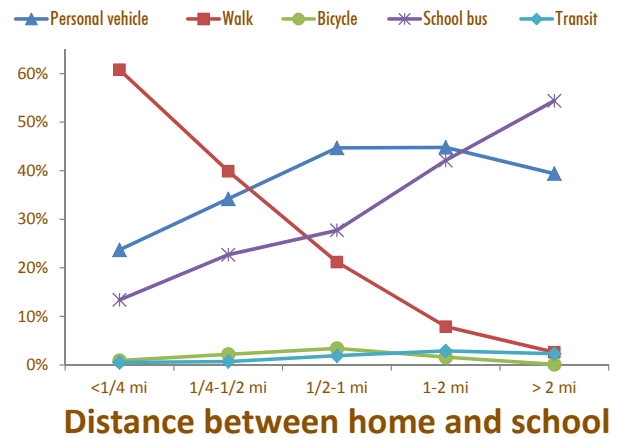
These findings may suggest that to increase walking and bicycling to and from school, initial efforts might focus on students living within one mile of school. Opportunities also may exist to increase walking for the morning journey to school since a higher percentage of students usually walked from school than walked to school.

Figure 2. Usual Travel Mode To School by Distance to School for K-8th Grade Students, 2009



The “Other” mode category is not shown in the figure.

Figure 3. Usual Travel Mode From School by Distance to School for K-8th Grade Students, 2009



The “Other” mode category is not shown in the figure.

HOW CHILDREN GET TO SCHOOL: SCHOOL TRAVEL PATTERNS FROM 1969 TO 2009

Table 6 shows that in 2009 approximately 31 percent of K-8th grade students lived one mile or less from school while 20 percent lived between one and two miles of school and half of all students lived beyond two miles of school.

Although 31 percent (Table 6) of the students lived within one mile of school, only 35 percent (Table 3) of those students usually walked or bicycled to school. For the remaining 65 percent of students living within one mile of school but who did not usually walk or bicycle, opportunities may exist to get a segment of these students walking and bicycling to school.



Table 6. Distance to School for K-8th Grade Students in 2009

Distance from home to school	2009
< ¼ mile	10.5%
¼-½ mile	8.2%
½ - 1 mile	11.9%
1-2 miles	19.6%
2+ miles	49.8%
Total	100%



In 2009, among the K-8th grade students that usually walked to school, 50 percent lived less than one-quarter mile from school and 87 percent lived one mile or less from school (Table 7). Please note that the travel information in Table 7 is different than the information shown earlier in Table 5.* Among students that usually bicycled, 65 percent lived one mile or less from school. Almost 29 percent of students usually driven to school in the personal vehicle lived one mile or less from school, whereas 16 percent of usual school bus riders lived one mile or less from school and 65 percent lived beyond two miles of school.

Table 7. Distance to School by Usual Travel Mode for K-8th Grade Students in 2009

Distance from home to school	Personal Vehicle	Walk	Bicycle	School Bus	Transit
< ¼ mile	6.9%	49.8%	8.9%	3.3%	5.5%
¼-½ mile	8.3%	21.4%	17.6%	4.4%	2.2%
½ - 1 mile	13.7%	15.3%	38.7%	8.1%	11.0%
1-2 miles	23.1%	6.7%	30.3%	18.8%	30.4%
2+ miles	47.9%	6.8%	4.4%	65.4%	50.9%
Total	100%	100%	100%	100%	100%

*The following sample interpretations show the difference between the information presented in Tables 5 and 7.

Table 5: Among the students that lived within one-quarter mile of school, 55.3 percent walked to school.

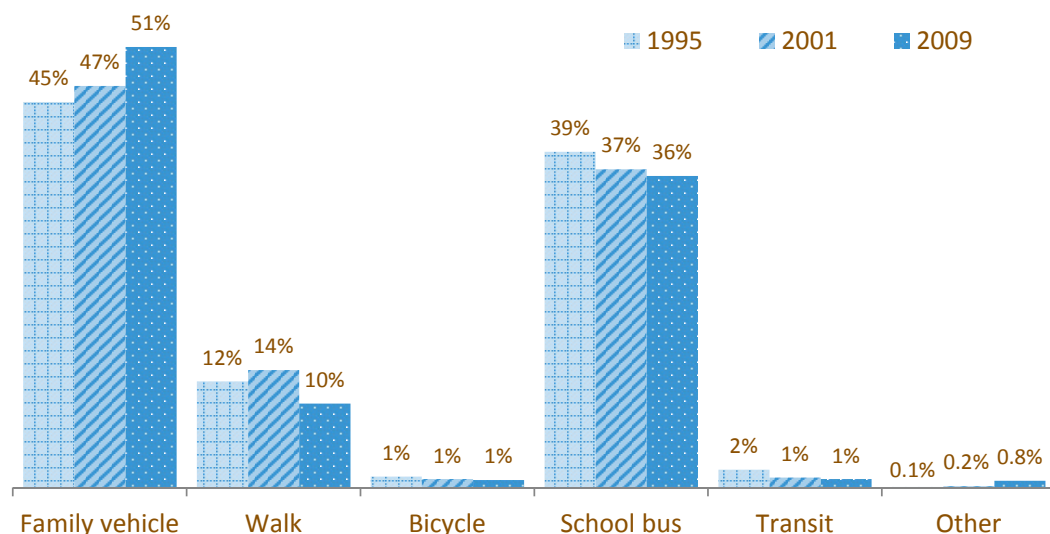
Table 7: Among the students that walked to school, 49.8 percent lived within one-quarter mile of school.

Travel Mode to School as Reported by Students

The 1995 NPTS and 2009 and 2001 NHTS each included a travel diary that was completed by the students. These diaries captured the travel modes used by the respondent on the diary completion day and were the equivalent to asking the K-8th grade students, “How did you get to school today?” The student-provided travel diary information is slightly different than the parent-provided travel information described earlier in this report (refer to Table 1). The diary information shows how students reported they traveled to school **on one particular day**, whereas the parent provided information shows how students **usually** traveled to school on most days.

Figure 4 shows that from 1995 to 2009, the share of K-8th grade students that arrived by personal vehicle increased by six percent and this rise primarily came from declines in walking and school bus use. When examined by distance, no statistically significant changes in travel modes were found among K-8th grade students living within one mile of school during this 15 year period (Table 8), but the percentage of students living within one mile of school declined by a statistically significant three percent (Table 9). McDonald and colleagues suggest that the shift to more K-8th grade students living farther from school likely explains why school arrival by personal vehicle rose and walking slightly declined. The lack of travel mode change among the students living within an easy walking and bicycling distance of school (less than 1 mile) and a greater proportion of students living farther from school highlight the importance of school location and school assignment policies on how students travel to school.¹

Figure 4. Comparison of Travel Mode to School for K-8th Grade Students, 1995-2009



Data are standardized to the 2009 distribution by age, sex, and race.

Table 8: Comparison of Travel Mode to School by Distance for K-8th Grade Students, 1995-2009

Distance from home to school	Travel mode	1995	2001	2009
Less than 1 mile	Personal vehicle	46.1%	39.0%	42.1%
	Walk	42.5%	49.3%	39.5%
	Bicycle	2.2%	2.1%	2.4%
	School bus	8.4%	8.8%	15.3%
	Transit	0.8%	0.5%	0.2%
	Other	0.0%	0.3%	0.4%
	Total	100%	100%	100%
1-1.99 Miles	Personal vehicle	57.2%	60.4%	66.2%
	Walk	8.4%	8.8%	6.4%
	Bicycle	4.4%	2.6%	1.4%
	School bus	25.4%	25.8%	24.1%
	Transit	4.5%	2.2%	1.2%
	Other	0.0%	0.2%	0.7%
	Total	100%	100%	100%
2 or More Miles	Personal vehicle	42.3%	47.4%	51.5%
	Walk	0.6%	1.6%	0.3%
	Bicycle	0.3%	0.4%	0.3%
	School bus	54.4%	49.0%	45.9%
	Transit	2.2%	1.4%	1.2%
	Other	0.2%	0.2%	0.8%
	Total	100%	100%	100%

Data are standardized to the 2009 distribution by age, sex, and race.

Table 9: Distance to School for K-8th Grade Students, 1995-2009

Distance from home to school	1995	2001	2009
Less than 1 mile	24.9%	22.5%	21.7%
1-1.99 miles	13.6%	15.1%	16.2%
2 or more miles	61.4%	62.4%	62.2%
Total	100%	100%	100%

Data are standardized to the 2009 distribution by age, sex, and race.

Variation between Parent-Provided and Student-Provided Information

It is worth noting that variation exists in the 2009 data between the parent-reported **usual** school travel mode and the student-reported school travel mode taken **on the particular day** the travel diary was completed. Estimates of walking to school and school bus use were higher and estimates of driving to school were lower for the parent-reported usual travel mode than the student-reported school travel mode information. Deciding which travel data to use (parent-reported usual travel mode or student-reported travel mode on the diary completion day) typically will be determined by the question trying to be answered. Questions about habitual or routine school travel are better answered using the usual travel mode information provided by parents. The student-provided travel information in the diary has the advantage of being specific to the mode used to get to school on a particular day.



When describing changes in school travel patterns over time, it is appropriate to use the travel information from the student-reported travel diary because these data were collected in a consistent manner during the years 1995, 2001 and 2009. The parent-reported 'usual' school travel mode information provides generalized school travel in 1969 and 2009. Differences in the question wording, data collection method, and respondents (parents versus student) between the **usual** school travel mode questions and the travel diary's travel mode data make it inaccurate to compare the 1969 and 2009 **usual** travel mode data to the 1995, 2001 and 2009 school travel mode data from the travel diary.

About the National Household Travel Survey

The U.S. Department of Transportation conducts the National Household Travel Survey (NHTS) to assess the country's transportation patterns every 5 to 10 years. The 2009 NHTS updated information gathered in the 2001 NHTS and in prior Nationwide Personal Transportation Surveys (NPTS) conducted in 1969, 1977, 1983, 1990, and 1995.²

References

1. McDonald N., Brown A., Marchetti L., Pedroso M. (2011). U.S. School Travel 2009: An Assessment of Trends. *American Journal of Preventive Medicine*, 41(2), 146-151.
2. U.S. Department of Transportation, Federal Highway Administration. National Household Travel Survey <http://nhts.ornl.gov>.

Acknowledgements

How children get to school: School travel patterns from 1969 to 2009 was written by the National Center for Safe Routes to School with input from Noreen McDonald, PhD, and the Safe Routes to School National Partnership. The data analysis was conducted by Dr. McDonald of the Department of City and Regional Planning, University of North Carolina at Chapel Hill with partial support from the National Center for Safe Routes to School.

SafeRoutes

National Center for Safe Routes to School

