Travel to School in California

Findings from the California - National Household Travel Survey

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Executive Summary

School-aged children merit special attention for safety planning, and recently have been the focus of public health initiatives to increase their physical activity. As a result, many officials and policy makers are interested in information on children's daily travel, and especially their travel to school. To provide that needed information the State of California purchased a supplemental sample to the 2009 National Household Travel Survey (called the CA-NHTS in this report) which contains data on the general travel of residents of California and allows detailed analysis of children's travel to school. This report finds that:

- Overall walking was the second most common form of travel in California, and people in California walked more than comparable people in the nation as a whole.
- Children walked at higher rates than other age groups, but walking declined significantly at driving age—dropping more than 20 percent.
- Children in California walk to school at two and a half times the rate of children nationwide, and bicycle to school at twice the rate of school children nationwide. 26-31 percent of children in California walk or bicycle to and from school, compared to rates nationally of only 12-15 percent.
- While nearly a quarter of school-aged children in California walked to school and another two percent usually bicycle, more than half arrived in a private vehicle (car, van, or SUV) and about one out of seven usually traveled to school in a school bus. Over three out of five schoolchildren arrived to school between 7 and 8 am.
- Children aged 5-15 in California have increased walk trips per capita about 10 percent since the 2001 NHTS, although nationwide there was not an increase in reported per capita walk trips by children
- Altogether two-thirds of the school-aged children in the state lived within two miles of their school and more than half of them arrived to school in a private vehicle. These children were more likely to be from higher income households where both parents work. Girls who lived within walking or bicycling distance were more likely than boys to be driven to school.
- Parents (of children who lived two miles or less from school but did not usually walk or bicycle) expressed concerns about the speed and amount of traffic along the route as the most serious issues in their decision not to allow their children to walk or bicycle to school.
- Walking to school plays a key component in children's daily activity. Children in California who usually walked to school averaged two and one-half times as many daily walks for all reasons compared to children who usually arrived at school in a private vehicle.

Policy makers, planners, and community groups in California want to increase the number of children that walk and bicycle to school for a number of important reasons. Walking or bicycling to school:

- Provides healthy daily activity that children might otherwise not engage in: daily activity has been shown to improve academic performance[1],
- Lessens the congestion around schools during morning and afternoon drop-off/pick-ups,
- Provides an opportunity for children to learn to travel safely in their community,
- Reduces fuel use and harmful emissions caused by vehicles around schools, and
- Increases the sense of community and livability in a neighborhood.

To effectively craft policies that provide measurable results, decision makers need detailed information about children's travel to school and the barriers and concerns parents express in allowing their children to walk or bicycle to school. This report presents analysis of the CA-NHTS to shed light on these topics.

1. Overview

The decline in children's active travel (e.g., walking and cycling) to school and other destinations over recent decades is a concern for planners and policy makers interested in public health. Walking and bicycling to school provides needed regular physical activity for children that can improve health, aid in cognitive development, reduce traffic congestion, and improve air quality.

Davis, et al notes that "the majority of US youth are of healthy weight, but the majority of US adults are overweight or obese. Therefore, a major health challenge for most American children and adolescents is obesity prevention—today, and as they age into adulthood."[2] While the prevalence of childhood overweight and obesity has increased considerably during the past decades, physical activity is an important preventive measure and active travel can play an important role. In a large Danish study, Østergaard et al. concluded that walking and bicycling to school was associated with lower odds of being overweight or obese.[3] Promoting active travel to school might be an important way to promote physical activity in children.[4]

Walking to school becomes a positive feedback loop that is correlated with walking for all purposes. Research findings on youth physical activity overwhelmingly conclude that schoolchildren who walked or bicycled to school were more physically active overall than schoolchildren who arrived by vehicle.[5] The findings of the present report show that children who walk to school average 2 ½ times as many walks per year than children who are driven to school.

Research on active and sedentary behavior in children underlines the important role parents play in encouraging activity. Schools also have an important role to play, and they can improve children's health by offering healthy food and snacks on campus, providing nutrition and physical activity curricula in health classes, and by providing opportunities for activity.[6] Unfortunately, due to increased competition for classroom time, there has been a decline in the number of children and adolescents who participate in a daily physical education class (from 42 percent to 32 percent) as well as a decline in the amount of time spent being physically active during class.[1] But schools can also help increase children's activity levels by participating in programs like Safe Routes to School that encourage more

children to walk and bicycle to school. According to new research reported by Basset, et al "of the various policies and built environment changes examined, the largest effects were seen with mandatory physical education, classroom activity breaks, and active commuting to school.[7]"

Increased physical activity in children can not only increase health but can improve cognition.[8] Regular physical activity can improve cerebral blood flow, general circulation, mood, concentration, memory, and classroom behavior, and therefore might lead to better academic performance in school-aged children.[9] The decline in walking and bicycling noted in the NHTS data for teens of driving age is problematic since the plasticity of the brain during adolescence is greatest and declines in physical activity at that age miss an opportunity to stimulate learning and academic performance.[7]

"While active transport should be encouraged among all school-aged children, walking and bicycling to school may provide an important source of habitual physical activity for adolescent girls, in particular, among whom low and declining physical activity levels have been reported world-wide". [10] Importantly, the analysis in the present report finds that girls who live within 2 miles of school are more likely to be driven to school than comparable boys.

Encouraging more children to walk and bicycle to school could reduce traffic congestion, air pollution, and carbon emissions. During the morning peak period—7 to 9 am—from September to May, private vehicle travel to school (including parents dropping children and teens driving themselves accounted for 10%–14% of all private vehicles on the road nationwide and 5%–7% of vehicle miles of travel (VMT) in that time period.[5] According to MacDonald, 44 percent of parents who drive their children to school return home.[11] These trips might be converted to walk and bicycle through education that targets the parents and programs that address parents' concerns about allowing their children to walk and bicycle to school. The findings of the present report indicate parents are concerned about traffic safety—the very area the Safe Routes to School program targets.

The analysis that follows details the characteristics of children's travel to school in California and its largest metro areas. State and local planners, policy makers, and advocates can use the findings presented here to reach out to parents and schools and government officials in their areas to encourage programs and policies that support safe and healthy travel by children in their daily commutes to school.

2. Introduction

School-aged children merit special attention for safety planning, and recently have been the focus of public health initiatives to increase their physical activity. As a result, many officials and policy makers are interested in information on children's daily travel, and especially their travel to school.

The National Household Travel Survey (NHTS) is conducted every 5-7 years by the US DOT and provides a snapshot of travel for the nation. States and local areas are able to purchase additional samples to provide data for performance measurement and local planning. The State of California purchased a supplemental sample to the 2009 National Household Travel Survey (called the CA-NHTS in this report) which allows detailed analysis of the module about children's travel to school. Households with at least one child aged 5-15 (21 percent of households in the state) were asked to report the usual travel to school for one randomly selected child. The supplemented sample size and careful data weighting and analysis provide reliable statistics to describe children's travel to school, which has been a major data gap for planners and policy makers.

The analysis presented in this report provides a significant opportunity for California decision-makers to better understand trends in walking in California, how walking in California compares to the rest of the nation, how children's travel to school fits into their overall daily travel, and parent's concerns about allowing their children to walk to school.

The data presented here can be used to create benchmark statistics for performance measures. The travel patterns and relationships shown here can help inform policy makers about important differences between groups based on their income levels, race and ethnicity, and geographic factors such as urban and rural households. The information on what parents worry about when their children travel to school, such as crime or traffic, can be used to alleviate the concerns through better safety planning and enforcement, education campaigns, and the development of innovative practices such as walking school buses.

This report is not meant to be an exhaustive study of the data available in the CA-NHTS. In addition to the information on children's travel to school, the CA-NHTS has detailed information about all trips taken by members of each sampled household for all purposes and by all means of transport. The full 2009 NHTS (including the core data for California and all 50 states) can be accessed at http://ornl.nhts.gov. The California Department of Transportation commissioned a report ("Walking and Biking in California") on the findings of the CA-NHTS for pedestrian activity and especially pedestrian exposure which includes detailed background information on the conduct of the survey, calculation of weights, and the reliability of the overall estimates. This report can be obtained from the CA-Davis/ULTRANS website at http://www.its.ucdavis.edu/?page_id=10063&pub_id=1661. As a data resource, the CA-NHTS is available for further analysis by researchers, policy-makers, and others interested in daily travel, travel by children, commute behavior, or other important characteristics of travel and vehicle use in the State of California.

The remainder of this report is divided into five chapters. Chapter 3 presents information about walking in the context of daily travel. Chapter 4 provides a big-picture overview of trends in school travel in the US, including changes in mode of travel and distance to school. Chapter 5 presents the characteristics and patterns of children's travel to school in California and the largest counties and metro areas. Chapter 6 looks at the characteristics of the children and their household—age, race and ethnicity, income levels and auto availability—and describes the travel patterns of different socio-economic groups. Chapter 7 explores some of the perceptions and barriers parents reported about letting their child walk or bicycle to school. The final chapter describes the data source in more detail, and presents margins of error for key estimates.

3. Walking in the Context of Daily Travel

California is different than the rest of the nation—people in California walk more than comparable people in the nation as a whole—about 10-25 percent more in each of the NHTS data collections over the last two decades (1990-2009). The walking share and per capita rates in California were higher for every age group compared to people in the rest of the country. This is important to note because sometimes when local data is not available planners and policy makers might consider using national averages for setting benchmarks, analyzing safety data, or developing performance measures. Comparison of the NHTS data over time indicates those national averages will underestimate the amount of walking in California.

But, as shown in Figure 1, daily travel in California is primarily vehicle travel. Eight out of ten trips, including those on weekends and holidays, are by private auto--35.6 percent of all trips are people driving alone and 44.9 percent are people traveling with others. Walking is the second most common form of travel, accounting for 13.5 percent of all trips (walking for exercise and walking the dog are included) and transit, including all bus and rail, carries 3.2 percent of daily travel by residents of the state.

Figure 1 Mode Share of Daily Travel in California, All Days and All Purposes, People aged five and older,

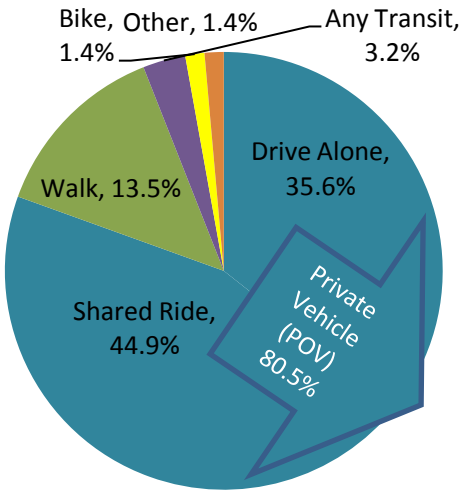
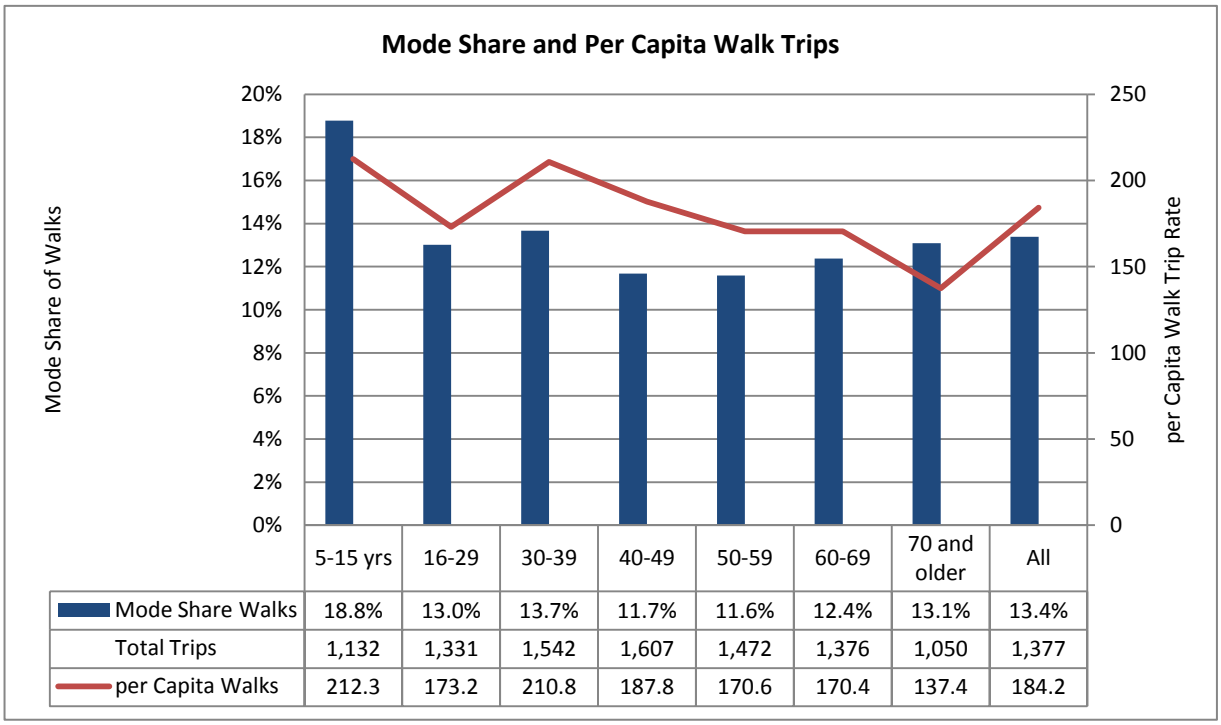


Figure 2 shows that children walk at higher rates than other age groups, and those rates show a significant decline when children reach driving age. These are annual estimates—the mode share and trips per person per year--including weekends and holidays.

Figure 2 Mode Share for Walking and per Capita Walks by Age Group, California 2009



	5-15 yrs	16-29	30-39	40-49	50-59	60-69	70 and older	All
Mode Share Walks	18.8%	13.0%	13.7%	11.7%	11.6%	12.4%	13.1%	13.4%
Total Trips	1,132	1,331	1,542	1,607	1,472	1,376	1,050	1,377
per Capita Walks	212.3	173.2	210.8	187.8	170.6	170.4	137.4	184.2

Two different estimates--mode share and per capita trip rates--are presented in Figure 2. The figures for people aged 16-29 and 30-39 are a good example of the difference between these two estimates.

In California, people aged 16-29 made 13.0 percent of their daily trips by walking while people aged 30-39 made 13.7 percent of their daily trips by walking (shown as the blue bar: 'Mode Share'). On the other hand, people aged 16-29 years old walked 173.2 trips per person per year while people aged 30-39 each walked 210.8 trips per year (shown as the red line: 'per Capita').

While the mode share estimates are very close—just about 0.7 percentage points more for people aged 30-39 (13.7 percent of all trips compared to 13.0 percent)—the per capita estimates are quite different. The per capita rates show about 22 percent more walking by people aged 30-39 compared to 16-29 year olds (210.8 trips per capita divided by 173.2). It is important to note that on average people aged 30-39 travel more than 16-29 year olds—their per capita rate for all trips is 1542 compared to 1330 for the younger age cohort or about 15 percent more overall travel.

Mode share (the proportion of travel by any one means) is a common benchmark statistic. However, the 'share' of any one category of travel is impacted by changes in travel by other means. For example, in the 2009 NHTS total travel by all means was slightly lower than in previous years with unprecedented

declines in the amount of vehicle travel. These changes were especially apparent in younger drivers--people aged 16-29 drove less, but also reduced their overall travel. The declines in vehicle travel shifted the proportion of trips by other modes upward; but these mode shifts were not necessarily the result of increases in the amount of travel by the other modes.

Per capita rates are the sum of all trips (for instance all walk trips) divided by the number of people (for instance within an age group). Per capita estimates are useful in that they describe travel behavior for the whole population--not just people who traveled on the sample day. Per capita rates are suitable for applying to census data for small-area estimation or forecasting. In trend analysis using per capita rates also helps mitigate the impact of changes in the population proportion by age over time.

This last point is important to keep in mind when setting performance measures that will be tracked over long time periods. Like the US population in general the population in California is aging, which means the percent of people in the older age categories is growing. At the same time, the 2010 Census marked a decline of almost 200,000 children under 10 years old in California[12] and the overall share of younger people in the state is shrinking. If this trend continues, walk trips as a percent of all trips—the mode share for walk--could decline simply because a greater proportion of people are of driving age. Per capita trip rates are useful where the population is changing in size or characteristic.

This report uses both measures to examine the characteristics of travel by school children in California. For the reports of children's usual means of travel to and from school, the percent of children in each category (private vehicle, school bus, walk, bicycle, etc.) is shown. For estimates regarding the amount of walking by different ages—in total or on an average day—per capita rates are shown. And in some cases both estimates are given.

Figure 3 shows that during the 1990s and early 2000s, an average Californian child walked about once every other day for all purposes (185 per capita walks divided by 365 days per year is about 50 percent of the days). In contrast children of the same age in the rest of the nation made between 150 and 165 walk trips per capita—that amounts to 15-23 percent more walking on average for children who live in California when compared to the rest of the country.

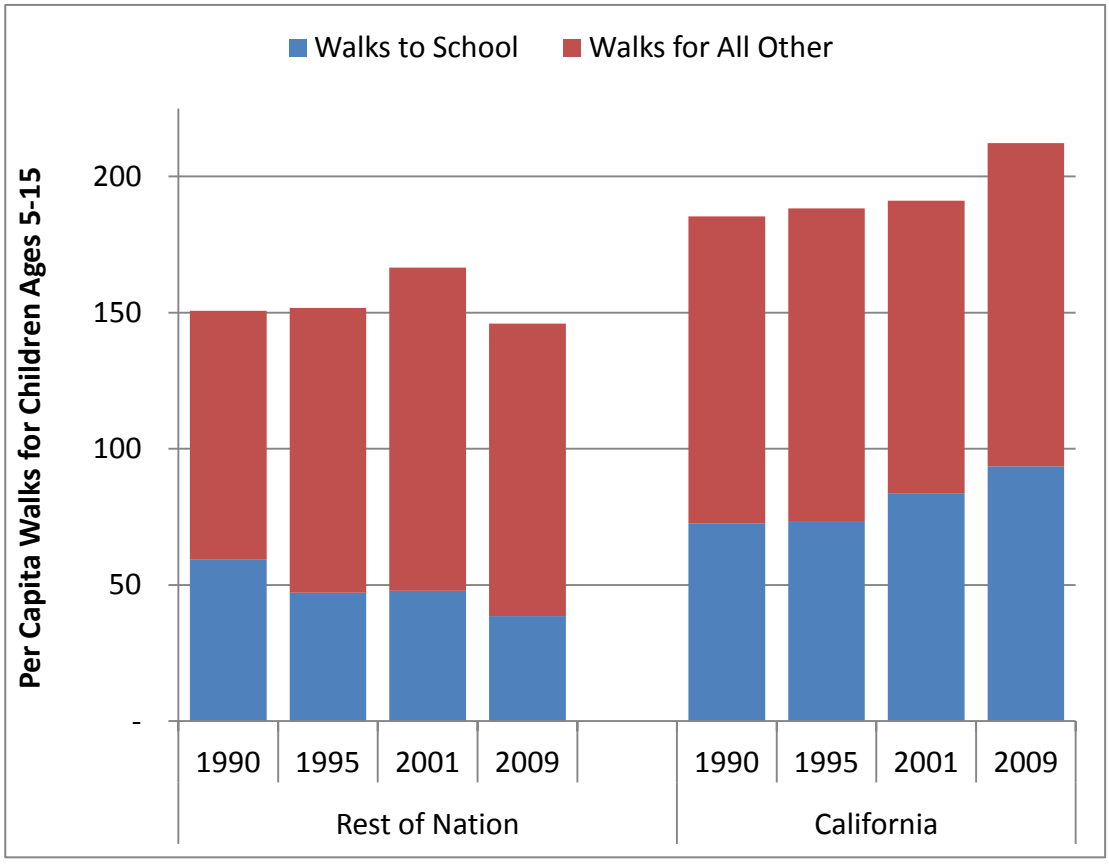
The latest data for California shows about a ten percent increase in reported walking by children compared to the previous NHTS (212 walk trips per capita compared to 191 reported in 2001 for children aged 5-15). However, the walk trips reported for children in the rest of the nation did not reflect any increase in reported walking.

Figure 3 also shows the proportion of children's daily walks that were in travel to school. In the rest of the nation, trends show steady or declining per-capita rates of walking and declining proportions of children's daily walking that is to and from school. In contrast, in California the proportion of all walking that was in school travel increased in the last two decades, and the per capita rates of walking followed suit. In the latest data (2009), children in California increased the proportion of daily walks that were to and from school (93 per trips per capita for 5-15 year olds) and increased the per capita rates of walking overall (212 walks per capita for children aged 5-15) while children in the rest of the country saw a

declining proportion of walks to and from school (38 per capita) and fewer walks overall (146 per capita).

These data help illustrate the important role walking to school plays as a key component of children's daily activity[13]. Walking to school is an anchor for daily walking; over time populations with high proportions of children walking to and from school are also populations with higher per-child walking rates. Children in California who usually walk to school average 172 walks per year compared to just 72 walks per year for children who usually arrive at school in a private vehicle. Looking forward, policy makers and advocates can anticipate greater overall walking in areas where children are encouraged to walk to school.

Figure 3 Trends in Per Capita Walk Trips for School Travel and All Other Purposes, Children aged 5-15 in California and the Rest of the Nation, 1990 to 2009



4. Trends in Overall School Travel

Like all trip-making, travel to school in the US has changed dramatically over the last 40 years. The change that is most apparent is the increase in children being driven to school. The NHTS data from 1969 shows that about 15 percent of school children ages 6-12 arrived at school in a private vehicle whereas in 2009, 44 percent of all school children were driven to school (see Figure 4). According to independent research by Noreen McDonald[14], distance and convenience are important factors explaining this trend.

Children live further from school than they did forty years ago. Like households, schools have sprawled out into the suburbs since 1969, smaller schools have consolidated, and overall school districts are larger. Sometimes schools are re-built into modern campuses that discourage walking.[15]

National and local policies concentrate on encouraging children who live less than two miles from school to walk or bicycle to school. In 2009, more than half of children in the US lived more than two miles from school (see Figure 5) and another 19 percent between one and two miles with only 29 percent of school children less than one mile from school. Note that these percents differ slightly from those shown in Figure 6 because children who are home schooled or did not report distance were not included to compare with the earlier data from 1969.

In California in 2009 more children reported living within walking and bicycling distance to school compared to the nation as a whole (see Figure 6)—62.4 percent of children aged 5-15 live two miles or less from school, and 41.6 percent lived within one mile of school.

Figure 4 Percent of Children by Mode of Travel to School in the US, 1969 and 2009

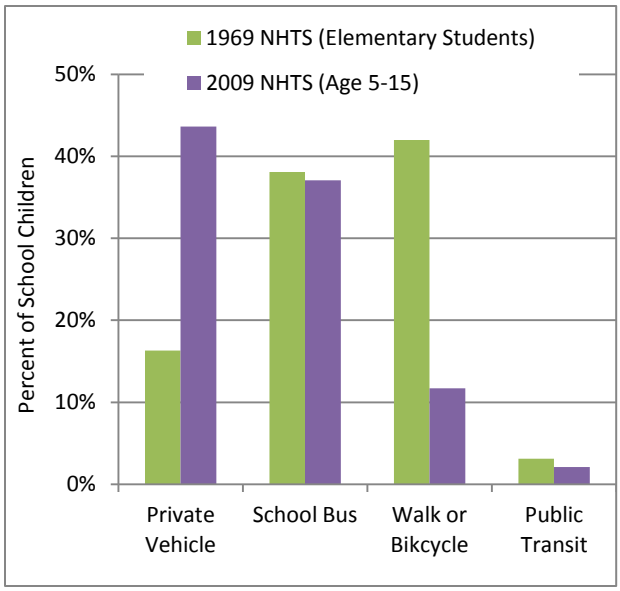
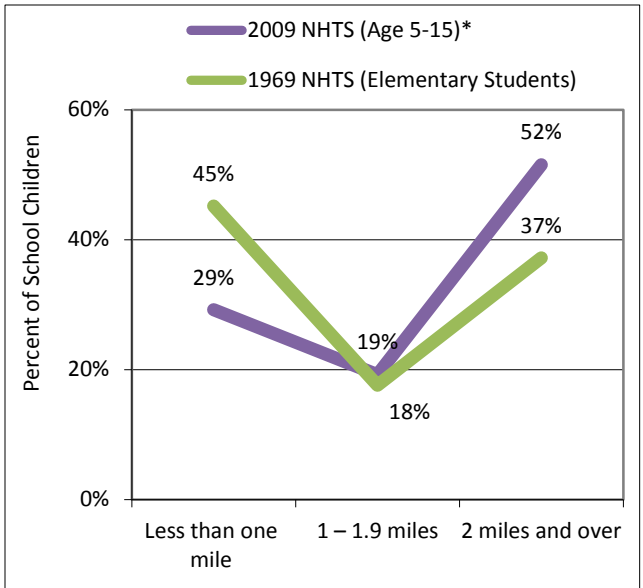
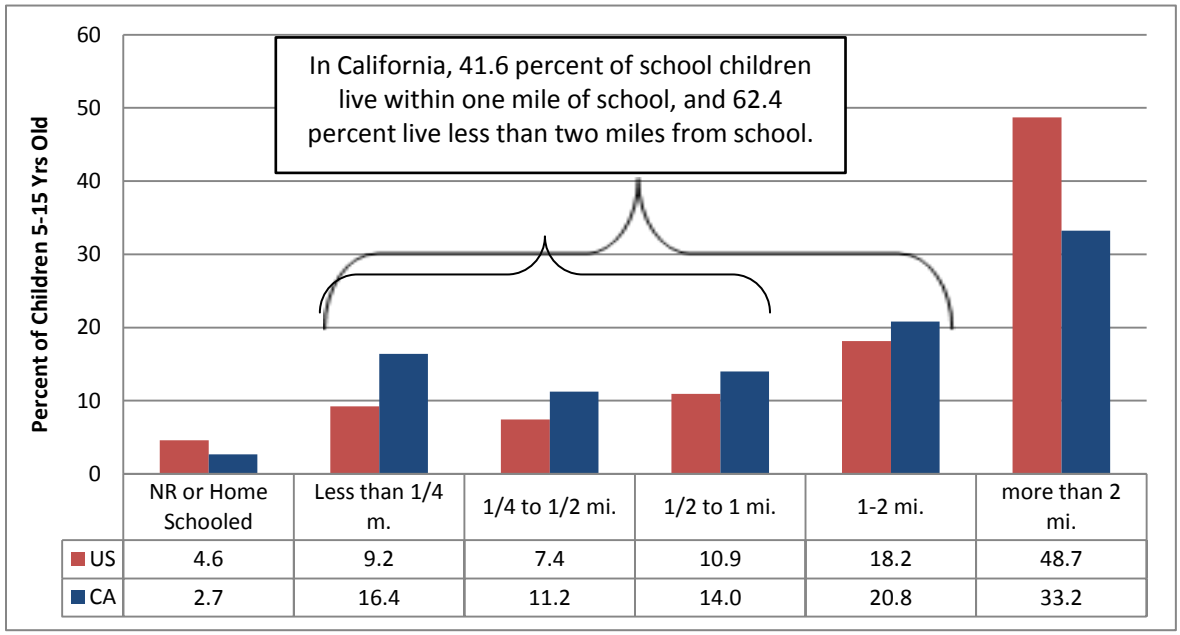


Figure 5 Percent of Children by Distance to School in the US, 1969 and 2009



Note: The 2009 percents do not include the children who did not report distance or are home schooled.

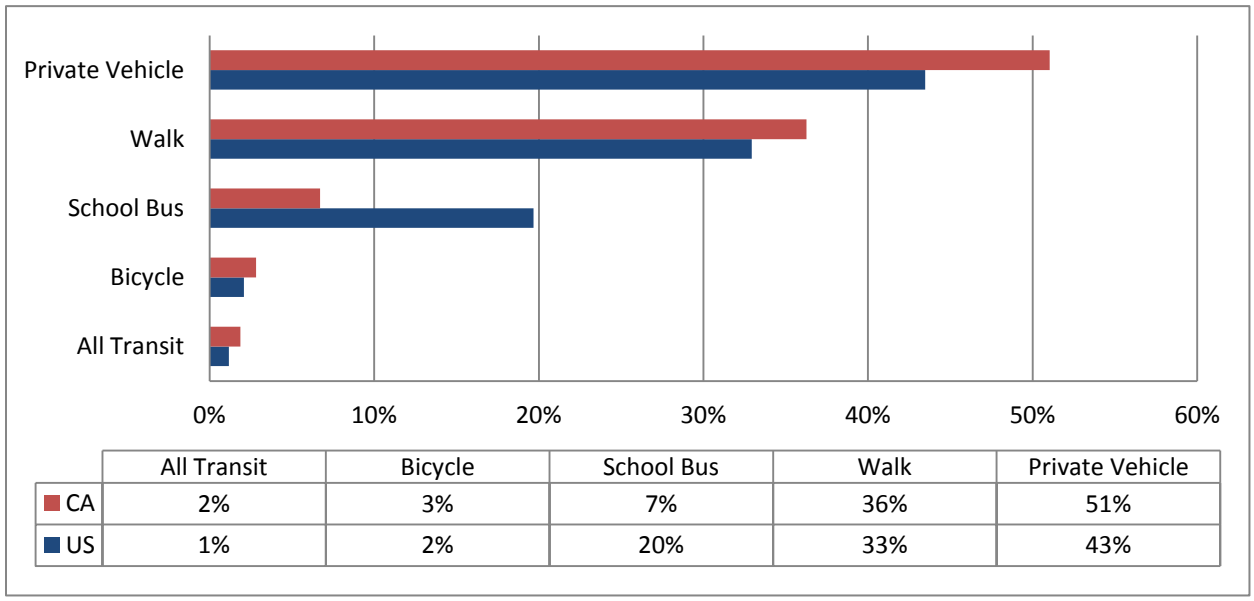
Figure 6 Percent of Children (5-15 yrs) by Distance to School in 2009—US and CA



	NR or Home Schooled	Less than 1/4 m.	1/4 to 1/2 mi.	1/2 to 1 mi.	1-2 mi.	more than 2 mi.
US	4.6	9.2	7.4	10.9	18.2	48.7
CA	2.7	16.4	11.2	14.0	20.8	33.2

Of the children who lived within two miles of their school, more Californian children arrived by vehicle and more walked to school compared to the nation as a whole (Figure 7). The children who lived within two miles of school were much less likely to travel by school bus in California compared to the rest of the nation.

Figure 7 Percent of Children by Means of Travel to School: Children Who Live Within Two Miles of Their School, US and CA



	All Transit	Bicycle	School Bus	Walk	Private Vehicle
CA	2%	3%	7%	36%	51%
US	1%	2%	20%	33%	43%

Policy makers, planners, and community groups in California are concerned about the changes in children's travel to school for a number of important reasons. Walking or bicycling to school:

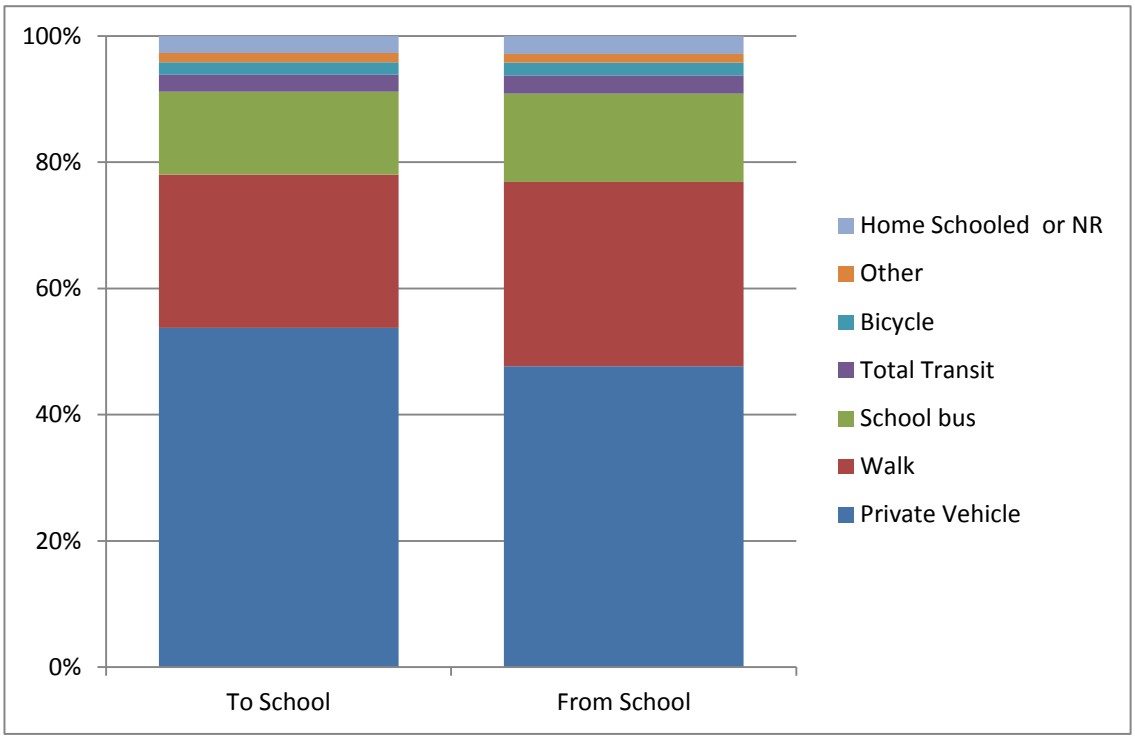
1. Provides healthy daily activity that children might otherwise not engage in, with attendant benefits to academic performance,
2. Lessens the congestion around schools during morning and afternoon drop-off/pick-ups,
3. Provides an opportunity for children to learn to travel safely in their community,
4. Reduces fuel use and harmful emissions caused by vehicles around schools, and
5. Increases the sense of community and livability in a neighborhood.

To effectively craft policies that provide measurable results, decision makers need detailed information about current travel to school and the characteristics of children who currently walk, bicycle, or arrive in vehicles, and the barriers and concerns parents express in allowing their children to walk or bicycle to school. Each of these is explained further in this report.

5. Means of Travel to School in California

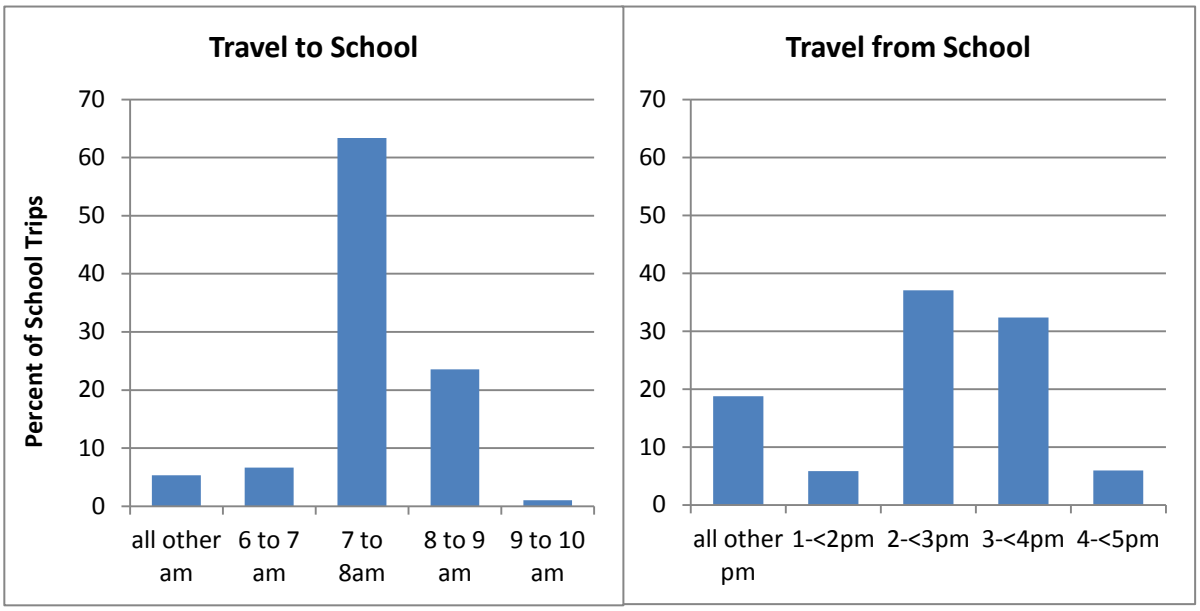
School children have different travel patterns on the morning trip to school compared to the afternoon trip from school (to home, to after-care, or to activities). Figure 8 illustrates the slight imbalance between the means of travel in the morning and afternoon. Importantly, walking is more common on the trip from school in the afternoon—24.3 percent of children in California walk *to* school while 29.2 usually walk *from* school.

Figure 8 Percent of Children by Means of Travel To and From School, California



The biggest difference between the morning and afternoon travel was the time of arrival and departure at school. More than three out of five school children arrived at school between 7 and 8 am, and almost a quarter more between 8 and 9 am. Those two morning hours accounted for nearly 90 percent of children's usual arrivals at school. The afternoon school departures were not so concentrated—the hour between 2 and 3 pm accounted for 37 percent of school trips, and the hour between 3 and 4 pm another 32 percent.

Figure 9 Percent of Children by Time of Arrival to and Departure from School



More than half of all school children in California arrived at school in a vehicle (53.7 percent shown in Table 1), nearly a quarter walked to school (24.3 percent), and 13.1 percent usually arrived in a school bus. Just about one-third as many children in California usually took a school bus compared to children across the nation (13.1 percent compared to 37.1 percent for the US). In the afternoon, fewer children in California left school in a private vehicle (47.6) and more walked (29.2), and just slightly more took a school bus or transit.

Local planners and advocates want the most geographically specific data possible to help craft targeted plans and policies. Section 5.2 of this report discusses the statistical significance of the estimates at various levels of geography. The CA-NHTS travel to school data is best used to describe the characteristics of school travel within each of the most populous counties, and between the selected counties and the state overall. Although the natural tendency is to want to compare Los Angeles and Orange counties, the sample sizes are just not large enough to make those comparisons meaningful.

In other words, the CA-NHTS travel to school data can be used to compare Los Angeles County to the State: for instance the data show that more children walked to school in Los Angeles County than in the

State as a whole in 2009. But the data cannot be used to compare Los Angeles County to Orange County. Even though the estimate of how many schoolchildren walked to school in Los Angeles County looks higher than the estimate in Orange County (32.3 compared to 25.9), the margins of error overlap which means the percents are not significantly different.

Given the cautions not to compare estimates between counties or between metropolitan planning areas, the percent of children by their usual means of travel to and from school are shown in Tables 1, 2 and 3. Table 1 compares the US to California, Table 2 shows the estimates for each of the selected counties, and Table 3 shows estimates of the usual travel to and from school for the largest metropolitan planning regions (see Appendix C for a map of the counties within the largest metropolitan planning regions)

Table 1 Percent of Children (5-15 yrs) by Means of Travel to and from School in 2009 — US and California

To School:	**Private Vehicle**	**Walk**	**School bus**	**Any Transit**	**Bicycle**	**Other**	**Home Schooled or NR**
Nationwide	43.6	10.7	37.1	2.1	1.0	0.8	4.7
California (all)	53.7	24.3	13.1	2.7	2.0	1.5	2.7
From School:	**Private Vehicle**	**Walk**	**School bus**	**Any Transit**	**Bicycle**	**Other**	**Home Schooled or NR**
Nationwide	37.3	14.3	39.4	2.5	1.0	0.8	4.7
California (all)	47.6	29.2	14.0	2.9	2.0	1.4	2.9

Table 2 – Percent of Children (5-15) by Means of Travel to and from School for Selected Counties in California

Los Angeles County	**Private Vehicle**	**Walk**	**School bus**	**Total Transit**	**Bicycle**	**Other**	**Home Schooled or NR**
To School	51.0	32.3	7.7	3.8	1.1	1.1	3.0
From School	44.2	38.1	7.8	4.2	1.1	1.4	3.3
Orange County	**Private Vehicle**	**Walk**	**School bus**	**Total Transit**	**Bicycle**	**Other**	**Home Schooled or NR**
To School	51.9	25.9	12.5	1.5	1.6	3.0	3.5
From School	50.4	26.4	14.6	1.2	1.9	1.9	3.5

Riverside County	Private Vehicle	Walk	School bus	Total Transit	Bicycle	Other	Home Schooled or NR
To School	50.0	24.9	15.4	0.0	3.2	2.4	4.3
From School	38.3	36.6	17.1	0.5	3.2	0.0	4.3

San Bernardino County	Private Vehicle	Walk	School bus	Total Transit	Bicycle	Other	Home Schooled or NR
To School	63.2	15.0	18.8	0.0	0.1	0.4	2.5
From School	53.0	21.3	20.1	1.4	0.1	1.6	2.5

San Diego County	Private Vehicle	Walk	School bus	Total Transit	Bicycle	Other	Home Schooled or NR
To School	61.1	19.1	11.8	2.7	1.4	1.6	2.5
From School	55.4	23.1	13.5	2.7	1.4	1.6	2.3

Santa Clara County	Private Vehicle	Walk	School bus	Total Transit	Bicycle	Other	Home Schooled or NR
To School	62.7	26.1	1.2	0.5	5.5	2.0	2.1
From School	55.8	31.8	1.9	0.5	5.5	2.5	2.1

Table 3 – Percent of Children (5-15) by Means of Travel to and from School for the Largest Metro Planning Areas

San Francisco Bay Area Region (MTC)	Private Vehicle	Walk	School bus	Any Transit	Bicycle	Other	Home Schooled or NR
To School	58.1	22.5	6.1	4.0	4.8	2.7	1.9
From School	52.1	26.4	6.8	5.2	4.8	2.7	2.0

Sacramento Region (SACOG)	Private Vehicle	Walk	School bus	Any Transit	Bicycle	Other	Home Schooled or NR
To School	59.2	16.7	12.3	4.7	3.1	1.4	2.5
From School	55.9	18.2	14.4	4.7	2.8	1.4	2.5

San Diego Region (SANDAG)	Private Vehicle	Walk	School bus	Any Transit	Bicycle	Other	Home Schooled or NR
To School	61.1	19.1	11.8	2.7	1.4	1.6	2.5
From School	55.4	23.1	13.5	2.7	1.4	1.6	2.3

6-County Southern California Region (SCAG)	Private Vehicle	Walk	School bus	Any Transit	Bicycle	Other	Home Schooled or NR
To School	53.4	27.1	11.4	2.4	1.3	1.4	3.1
From School	46.7	32.4	12.3	2.8	1.4	1.3	3.2

Table 4 shows the percent of children by distance to school for selected counties. For example, in Los Angeles County 19.4 percent of school-aged children lived within ¼ mile of their schools, 10.7 lived ¼ to ½ mile, 16.6 lived between ½ to one mile, and 27 percent lived more than two miles from their schools. In Orange County, 16 percent of children lived less than ¼ mile from school, 14.9 percent lived between ¼ and ½ mile, 12 percent lived ½ to one mile, 17.4 percent lived 1-2 miles from school, and 33 percent lived more than two miles from school.

These distance estimates are important because they define the number or percent of school children who would potentially be able to walk or bicycle to school—that is the target population for policy initiatives or performance standards related to encouraging children to walk to school. In Los Angeles County, approximately 67.2 percent of the children aged 5-15 lived within two miles of school and could presumably walk or bicycle. In Orange, Riverside, San Bernardino, and San Diego counties about 60 percent of children lived within walking or bicycling distance to school and in Santa Clara 72.7 percent could conceivably walk or bicycle to school.

Table 4 Percent of Children by Distance to School in the Largest Counties

Geographic Area:	NR or Home Schooled	Less than 1/4 mi.	1/4 to 1/2 mi.	1/2 to 1 mi.	1-2 mi.	More than 2 mi.
Los Angeles County	5.8	19.4	10.7	16.6	20.6	27.0
Orange County	6.6	16.0	14.9	12.0	17.4	33.0
Riverside County	4.3	19.8	5.1	8.0	28.0	34.9
San Bernardino County	2.8	11.7	14.6	12.2	18.1	40.6
San Diego County	5.0	12.3	10.9	13.8	19.9	38.2
Santa Clara County	2.1	20.8	12.6	13.3	26.0	25.2

The distance to school for children aged 5-15 in the largest metro planning regions is shown in Table 5. In the San Francisco Bay Area Region, 64.6 of school children lived within walking or bicycling distance to

school, in the Sacramento Region 60.9 percent, in the San Diego Region 56.8 percent and in the 6-County Southern California Region 64 percent of children lived within walking or bicycling distance to school.

Table 5 Percent of Children by Distance to School in the Largest Metro Planning Areas

Geographic Area:	NR or Home Schooled	Less than 1/4 mi.	1/4 to 1/2 mi.	1/2 to 1 mi.	1-2 mi.	More than 2 mi.
San Francisco Bay Area Region (MTC)	2.1	16.3	11.5	14.2	22.6	33.3
Sacramento Region (SACOG)	2.9	9.7	14.6	14.9	21.8	36.3
San Diego Region (SANDAG)	5.0	12.3	10.9	13.8	19.9	38.2
6-County Southern California Region (SCAG)	5.2	17.5	11.3	14.4	20.8	30.8

Of course, there is a relationship between distance and means of travel to school. Table 6 shows the percent of children by their usual means of travel by distance to school in California in two ways. The top of the table--the distribution within each distance category--shows that of all school children who lived within ¼ mile of their schools, 71.7 percent usually walked and 25.4 percent arrived in a private vehicle. For children who lived between ¼ and ½ mile from school, 37.3 percent usually walked and more than half (52.6 percent) usually travelled by private vehicle to school.

The bottom of the table—the distribution within each type of travel means--shows that 48.3 percent of children in California who walked to school lived within a quarter mile from their school, and that overall 82.8 percent of those who walked lived one mile or less from school (the sum of 48.3, 17.2, and 17.3 percent). Another 10.3 percent lived between one and two miles, and 3.5 percent who walked lived more than two miles away from their school. Of the children who arrive at school in a private vehicle, 34 percent lived less than one mile (the sum of 7.7, 11, and 15.3 percent), 25.2 percent lived between one and two miles from school, and 39.7 percent live over two miles from school.

Table 6 Percent of Children by Means and Distance for Travel to School—State of California

	NR or Home Schooled	Less than 1/4 m.	1/4 to 1/2 mi.	1/2 to 1 mi.	1-2 mi.	More than 2 mi.	Total
Distribution of Means of Travel within each Distance Category							
Private Vehicle	12.3	25.4	52.6	58.7	65.1	64.2	53.7
Walk	18.9	71.7	37.3	30.0	12.0	2.5	24.3
Any Transit	1.1	0.4	0.4	2.0	3.8	4.4	2.7
School Bus	2.1	0.3	5.9	4.9	13.4	26.6	13.1
Bicycle	2.2	0.9	2.9	3.6	3.8	0.5	2.0
NR or Home Schooled	63.4	1.3	0.9	0.8	1.9	1.8	4.2
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Distribution of Distance within each Means of Travel Category							
Private Vehicle	1.0	7.7	11.0	15.3	25.2	39.7	100.0
Walk	3.4	48.3	17.2	17.3	10.3	3.5	100.0
Any Transit	1.7	2.4	1.6	10.5	29.4	54.5	100.0
School Bus	0.7	0.4	5.1	5.2	21.2	67.4	100.0
Bicycle	4.7	7.0	16.4	24.9	39.0	8.1	100.0
NR or Home Schooled	--	15.9	7.1	7.9	28.2	40.9	100.0
All	4.3	16.4	11.2	14.0	20.8	33.2	100.0

There were not enough samples to analyze the means of travel within each distance category for each of the largest counties. Statistical checks showed that only two counties-- San Bernardino and San Diego-- had significant differences in the estimates between the percent of school children who usually walked or bicycled (combined) and those who usually travelled to school in a vehicle for children who lived within two miles or less of their schools (combined distances). In San Bernardino this was a result of so few children who walked compared to those who were driven. In San Diego the estimates were more certain because of the greater number of children included in the supplemental sample. Los Angeles, Orange, Riverside, and Santa Clara counties could not be separately analyzed even with the distance categories combined into two miles or less and more than two miles from school. The estimates for the means of travel to school, even just comparing walk and bicycle with private vehicle, were not statistically different by distance for these counties (see Section 5.2 for more details).

However, the differences between private vehicle and walk/bicycle combined were statistically different for children who live two miles or less from their schools in the largest metro planning regions. Table 7 shows that in the 6-county Southern California planning region (SCAG) 51.2 percent of children who lived two miles or less from school usually travelled by private vehicle, 41.2 percent walked or bicycled, and 7.6 percent used other means. In the San Diego planning region (SANDAG) 60 percent of children who lived two miles or less from school travelled in a private vehicle, 31.2 percent walked or bicycled, and 8.8 percent used other means.

These data are best used to describe the characteristics of travel to school within each of the largest planning areas and not to compare one planning area to another. However limited comparisons can be made: the percent of schoolchildren who lived two miles or less from school and who walked to school or arrived in a private vehicle are statistically the same for the State, the San Francisco Bay Area Region (MTC), and the 6-County Southern California Region (SCAG), but the estimates of walking and bicycling for both MTC and SCAG are statistically higher than for the Sacramento Region (SACOG) and the San Diego Region (SANDAG). That is, more children who lived two miles or less from their schools walked or bicycled to school in the SCAG and MTC regions compared to the SACOG and SANDAG metro planning areas.

Table 7 Percent of Children by Means of Travel for Students two miles or less from School by Metro Planning Region

Geographic Area:	Private Vehicle	Walk or Bicycle	All Other (inc. NR and Home Schooled)	Total
6-county Southern California Region (SCAG)	51.2	41.2	7.6	100
San Francisco Bay Area Region (MTC)	52.5	40.3	7.2	100
Sacramento Region (SACOG)	56.8	29.6	13.6	100
San Diego Region (SANDAG)	60.0	31.2	8.8	100
California Statewide	51.0	39.1	9.9	100

6. Characteristics of School-Aged Children and Their School Travel

Although distance is one of the major factors affecting how children travel to school, other factors clearly play a role. Even for schools within walking or bicycling distance—that is two miles or less—half of the schoolchildren in the State arrived at school in a private vehicle (car, van, SUV, etc.). This section describes the characteristics of schoolchildren and their households and specifically looks at schoolchildren whose schools are within walking or bicycling distance.

First of all, Table 8 compares some characteristics of households that had at least one school-aged child to households without school-aged children in California and selected metro regions. Overall, households with school children were more likely than other households to have a vehicle, were less likely to be owned (except in the San Francisco Bay Area Region), and reported overall less household income.

Table 8 Characteristics of Households with and without School-Aged Children

	With School Aged Children	No School Aged Children	All
Percent of Households without a vehicle Statewide:	4.4	5.9	5.6
San Francisco Bay Area Region (MTC)	3.0	5.7	5.5
Sacramento Region (SACOG)	1.0	3.9	3.7
San Diego Region (SANDAG	3.7	4.7	4.6
6-county Southern California Region (SCAG)	5.5	6.4	6.3
Percent of Households where Home is Owned Statewide:	52.7	59.8	59.1
San Francisco Bay Area Region (MTC)	63.5	61.8	63.3
Sacramento Region (SACOG)	60.6	69.4	68.6
San Diego Region (SANDAG	51.7	58.3	57.7
6-county Southern California Region (SCAG)	48.4	56.9	56.1

Mean Income of Households Statewide:	$ 61,860	$ 62,031	$ 62,014
San Francisco Bay Area Region (MTC)	$ 76,176	$ 80,821	$ 76,591
Sacramento Region (SACOG)	$ 64,167	$ 66,124	$ 64,356
San Diego Region (SANDAG	$ 63,133	$ 64,318	$ 63,245
6-county Southern California Region (SCAG)	$ 58,873	$ 57,400	$ 58,720

Table 9 shows the characteristics of schoolchildren in California and selected planning areas. It is interesting to see the variation shown across the different areas. For example, the MTC region had twice as many school-aged children in private school as the SCAG region (16.9 compared to 8.0) which may account for the smaller proportion of school-aged children in MTC region who lived within walking distance to school (54.6 compared to 75.9 percent in the SCAG region).

Race and ethnicity is another area of difference between the selected regions: the MTC region had twice as many school-aged children of Asian descent compared to the SCAG region (16.5 compared to 6.8), whereas the SCAG region had twice as many school-aged children from Hispanic backgrounds (59.2 for SCAG compared to 29.5 for MTC).

Other important variables include the percent of school-aged children with at least one adult in the household who does not work (this could be a parent, grandparent, or adult sibling). The MTC region had the lowest proportion of school-aged children living in households with at least one non-working adult (50.5 percent), and the SCAG region had the highest proportion (66.9 percent). Interestingly, having a non-working adult in the home is not completely correlated with the percent of children in before/after care—the SANDAG region had the highest proportion of school-aged children in before/after care and the SACOG region had the lowest (18.0 and 12.8 percent respectively).

Table 9 Percent of School Children by Attends Private School, Race and Ethnicity, Before and After Care, and Parents Work in CA and Selected Regions

	San Francisco Bay Area Region (MTC)	Sacramento Region (SACOG)	San Diego Region (SANDAG)	6-County Southern California Region (SCAG)	Statewide
Proportion in Private School:	16.9	7.7	8.1	8.0	9.8
Percent by Age Group:					
5-8 yrs old	33.0	38.1	35.4	33.1	33.7
9-11 yrs old	26.4	22.7	25.1	25.1	25.2
12-15 yrs old	40.7	39.2	39.5	41.8	41.1
Percent by Race/Ethnicity:					
African-American	4.5	8.1	5.0	7.0	6.4
Asian	16.5	6.4	4.6	6.8	8.6
Hispanic	29.5	25.5	40.6	59.2	48.8
Other	4.1	2.0	7.5	2.9	3.5
White	45.4	58.1	42.3	24.1	32.7
Percent in Before or After Care:	16.1	12.8	18.0	13.1	14.2
At least one adult in HH who does not work:	50.5	59.1	62.5	66.9	62.5
Percent Live w/in Two Miles of School:	54.6	41.9	57.7	75.9	67.6

Table 10 specifically focuses on the means of travel and characteristics of children who lived within walking or bicycling distance (that is two miles or less from their schools). Overall (shown on the bottom row), 51 percent of children who lived within walking or bicycling distance usually arrived to school in a vehicle, 39 percent walked or bicycled, and 8.6 percent arrived by school bus or transit. The remainder did not report either means of travel or distance.

The first rows compare the means of travel for school children in public and private school. Just over half of schoolchildren in public school usually arrived in a vehicle compared to almost two-thirds of children in private school.

Some of the other comparisons are intriguing. For example, girls were more likely to be driven than boys, and while they were equally likely to walk to school, boys were more likely to take a school bus compared to girls.

There are also large differences in means of travel for those within two miles of school by race/ethnicity—Asians and whites were more likely to arrive in a vehicle, Hispanic children were more likely to arrive in a school bus, and African-American children were more likely to use transit.

Not surprisingly, school children from higher income households were more likely to arrive in a private vehicle--almost 65 percent of children from households earning $80,000 a year or more usually traveled to school in a private vehicle compared to just 36.4 percent of those from households with less than $25,000 in annual income.

Table 10 Means of Travel and Characteristics of Schoolchildren who Live Within Walking or Bicycling Distance of School

Characteristics:	Means of Travel for Schoolchildren Two Miles or less from School: Auto	Walk/Bicycle	School Bus	Any Transit	Percent of All Schoolchildren Two Miles or Less from School:
Public School	50.3	39.6	7.0	1.8	95.5
Private School	66.3	27.8	0.0	4.1	4.5
Boys	48.5	38.6	8.0	3.3	50.1
Girls	53.6	39.6	5.4	0.4	49.9
Parents Work	59.8	34.8	3.2	1.5	34.5
At Least One Adult at Home Not Working	46.4	41.3	8.6	2.1	65.5
By Race/Ethnicity[1]:					
Percent African-American	46.8	44.2	--	4.1	5.6
Percent Asian	63.5	30.4	2.3	1.4	7.5
Percent Hispanic	42.0	44.9	9.4	2.7	53.2
Percent White	64.6	29.6	4.6	0.2	30.2
Percent by Income[2]:					
Less than $25K	36.4	47.0	11.0	4.1	31.6
$25-40K	50.4	43.1	4.6	0.6	18.6
$40-80K	59.0	32.5	6.4	1.3	20.1
$80K and more	64.6	30.5	2.8	0.6	26.2
All (Weighted Estimate)	51.0	39.1	6.7	1.9	100.0

1. 3.75 percent designated other races
2. 3.53 percent did not report income

7. Barriers and Concerns about Travel to School

Parents have concerns about allowing their children to walk or bicycle to school, and the Safe Routes to School module of the CA-NHTS asked specifically about some of those concerns. Table 11 shows the issues parents were asked about that influenced their decision to not let their child walk or bicycle to school. Parents of children that already walked or bicycled were not included in this section.

The two issues identified as serious concerns of parents in the decision to allow their child to walk to school were the speed and the amount of traffic along the route (see Table 11). Twice as many parents identified traffic as a concern compared to those who said that traffic was not an issue—43.1 percent of parents were concerned about the speed of traffic and 40 percent were concerned about the amount of traffic along the route.

Table 11 Percent of Parents by the Factors that Concern Them in Letting Their Child Walk or Bicycle to School

	Not an issue	Somewhat of an Issue	Very much or a serious issue	NR	All
Speed of Traffic Along the Way	20.9	34.6	43.1	1.5	100.0
Amount of Traffic Along the Way	21.7	36.9	40.0	1.4	100.0
Distance to School	31.9	29.4	37.0	1.7	100.0
Violence or Crime Along the Way	41.3	32.7	24.0	2.0	100.0
Poor Weather or Climate in Your Area	50.0	37.3	11.0	1.7	100.0

Distance to school was a serious issue for 37 percent of parents whose children did not walk or bicycle to school. In exploring this further, Table12 shows the level of concern parents had about distance by the actual reported distance to school.

The top part of the table shows the level of concern parents expressed by the distance from school. The top row shows that 39.6 percent of parents who indicated distance was not an issue had children who lived within ¼ mile form school (remember, this section was only asked if the child did not walk or bicycle to school). At the other end of the spectrum, 13 percent of parents who indicated distance was not an issue lived more than two miles from their child's school. Of the parents who indicated that distance to school was a serious issue, 12.3 percent lived with ¼ mile from their child's school, and another 7.4 percent lived between ¼ and ½ mile. Less surprisingly, 56.5 percent of parents who indicated distance was an issue lived more than two miles away.

At the bottom of the table the level of concern is shown for each individual distance category. Here the data show that of all the children who live within ¼ miles from their school, 52.3 percent of parents said distance was not an issue in their decision to not have their child walk or bicycle to school, 26.5 percent

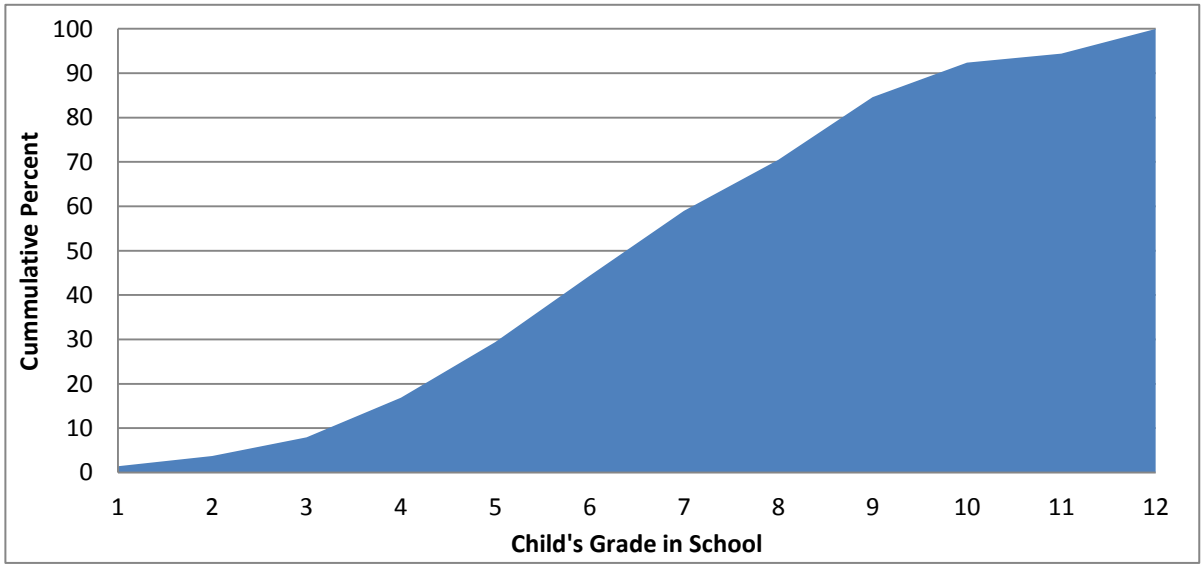
indicated distance was a bit of an issue, and 18.8 percent of parents within ¼ mile of their child's school said distance was a serious issue in allowing their child to walk or bicycle to school.

Table 12 Distance as an Issue in Walking or Bicycling by Actual Reported Distance to School

	Reported Distance to School					
How Serious of an Issue is Distance to School?	**less than 1/4**	**1/4 - 1/2 mile**	**1/2 - 1 mile**	**1-2 miles**	**more than 2 miles**	**Total**
	Percent within level of concern (Row Percent)					
Not an issue	39.6	17.4	18.3	11.7	13.0	100.0
Somewhat of an Issue	21.7	15.0	15.8	26.8	20.7	100.0
Very much or a serious issue	12.3	7.4	7.9	16.0	56.5	100.0
Total	24.1	12.7	13.5	17.8	31.9	100.0
	Percent within distance category (Column Percent)					
Not an issue	52.3	43.6	43.3	20.9	13.0	31.9
Somewhat of an Issue	26.5	34.6	34.5	44.3	19.1	29.4
Very much or a serious issue	18.8	21.5	21.7	33.3	65.5	37.0
Total *	100.0	100.0	100.0	100.0	100.0	100.0

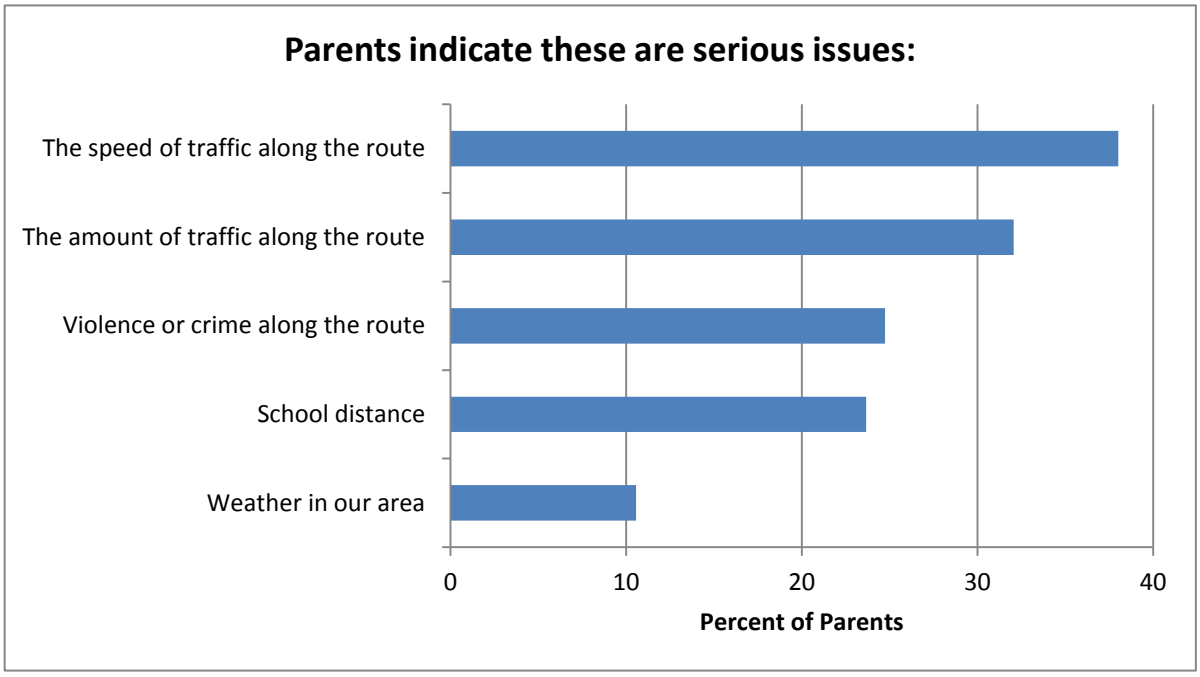
Figure 10 shows the grade at which parents would allow their child to walk or bicycle to school for those who lived within two miles of the school and did not usually walk or bicycle. The fiftieth percentile lies in the sixth grade, which means that half of parents would allow their child to walk or bicycle by sixth grade.

Figure 10 Grade at Which Parents Would Allow Their Child to Walk or Bicycle to School (cumulative percent) –Including Only Those Within Two Miles of School Who Did Not Usually Walk or Bicycle



For parents of children who lived within two miles of school but whose children did not walk or bicycle to school, the amount and speed of traffic along the route were the most serious concerns in their decision not to allow their child to walk or bicycle to school, as shown in Figure 11. These top two concerns are clearly addressable by actions to improve safety near and along the routes to schools in California.

Figure 11 Concerns of Parents of Children who Lived Within Two Miles of School but Did Not Walk or Bicycle to School



8. About the Data Source

8.1 The Sample of School-Aged Children in the CA-NHTS

The CA-NHTS collected data from a representative sample of households in the State of California based on the population density in each area (a population-proportioned sample). However, San Diego County received an oversample as part of a focused and coordinated research effort for pedestrian and bicycle analysis. Overall, 74.3 percent of households contacted completed the survey (a 74.3 cooperation rate) and 28.2 percent of all eligible households that were sampled are included in the final datasets (a 28.2 percent response rate)[1].

[1] Using CASRO method RR3 at: https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/1013/NWAF%20AAPOR%20Outcome%20Rate%20Documentation.pdf?sequence=1

The final sample represents more than 12 million California households, 2.6 million households with school-aged children, and the travel to school patterns of 5.4 million children. Table 13 shows the distribution of samples and the estimated households and school-aged children for the largest counties and the remainder of the state.

According to the CA-NHTS, about one out of five households in California have at least one child aged 5-15 years old. Of the counties with the largest populations (shown in Table 13), San Bernardino has the highest rate of households with school-aged children (28 percent of households) and San Diego the lowest rate (20 percent of all households). In absolute numbers, Los Angeles county had more than 1.5 million children aged 5-15 while Riverside has less than 300,000. Overall the CA-NHTS estimates that there are 5.4 million children aged 5-15 in the State.

Table 13 Number of Sampled Children and Weighted Estimates for Selected Counties, CA-NHTS

County	Sampled Households Unweighted	Estimate of All Households	Estimate of Households with Children 5-15	Unweighted Sampled Children aged 5-15	Weighted Estimate of Children aged 5-15
San Diego	6,002	1,037,955	210,066	1,027	422,971
Los Angeles	3,381	3,172,223	700,599	593	1,533,564
Orange	1,282	877,032	207,290	249	435,515
Santa Clara	849	622,436	128,661	163	242,030
San Bernardino	764	598,007	170,324	154	363,347
Riverside	802	558,811	143,074	152	292,308
Remainder of State	8,145	5,310,295	1,054,539	1,348	2,146,484
Total	21,225	12,176,760	2,614,553	3,686	5,436,220

Appendix A lists the weighted and unweighted sample for all counties included in this analysis (Alpine, Glenn, and Mono counties had no weighted samples). As shown in the Appendix A, most counties had too few samples to make valid estimates for travel to school by children aged 5-15. Only the data records with usable non-zero weights (SFWGT) and with valid responses to at least one question were used in this analysis--in total 43,822 usable records. Margin-of-error estimates were created using the replicate household weights.

The questions included in the Safe Routes to School module are shown in Appendix B. These data were reported by an adult, usually a parent, and include whether the child goes to public or private school, attends before or after care, how far away the school is located, and information on the usual travel characteristics to school for the selected child.

Appendix C shows a map of the boundaries and counties included in each of the planning areas analyzed in this report.

It is important to note that while the CA-NHTS is a rich resource for analyzing travel to school across the State and for some populous areas, it will not give reliable estimates for every county. The goal of the

California add-on to the NHTS was to provide state level statistics and valid estimates for the largest population areas. Planning at the local level requires very specific information, for example counts on one section of one roadway or crossings at an individual intersection. The CA-NHTS does not provide this level of specificity. The statistical level at which the data can be used is discussed in the next section.

8.2 Geographic Level of Analysis

The data about children's travel to school are most useful to the Safe Routes to School program aggregated to the lowest level of geography possible. This section compares the significance of the estimates at county level (the six most populous counties) and at the metro area (the four largest metropolitan planning areas).

In order to make sure that the CA-NHTS data provide statistically significant estimates, the percent of children by means of travel to school were calculated along with the margin of error of (at 90 percent confidence interval) for each of the most populous counties. If the range between the high estimate and the low estimate is wide enough that it overlaps with the range of another county, then the differences are not statistically different. The results of these tests at the county level are shown in Figure 11 and in Table 14.

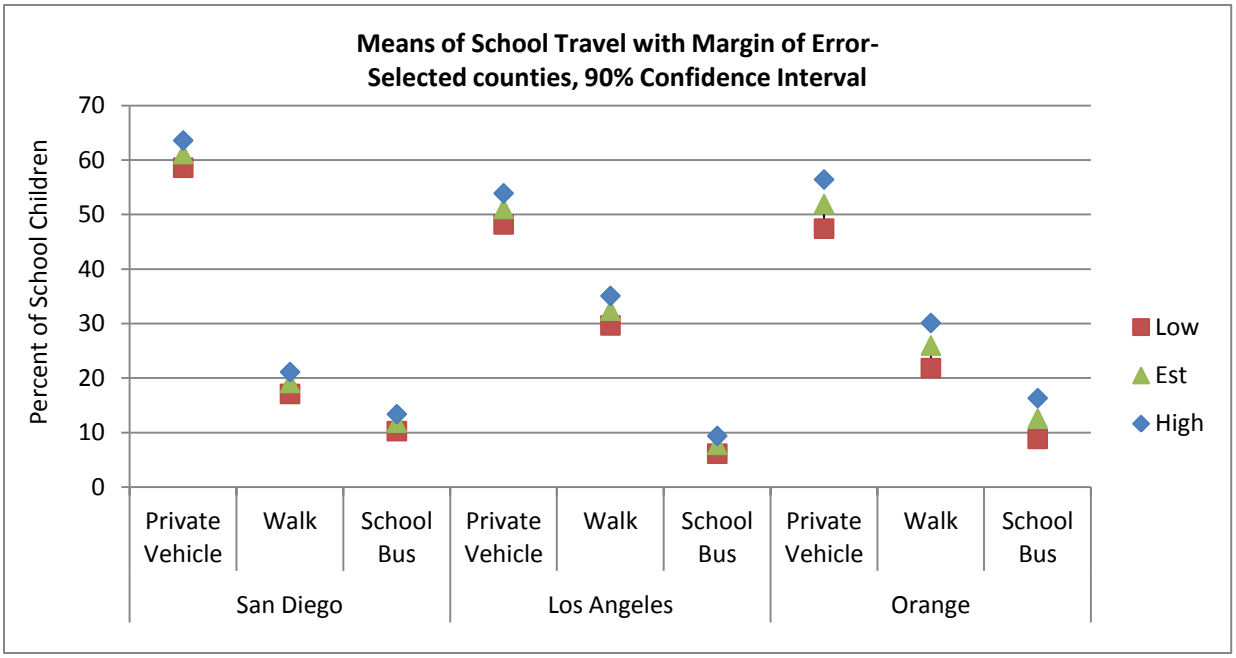
Table 14 shows and Figure 11 illustrates that the data on means of travel to school shows significant differences within the selected counties. That is, within each of these largest counties the estimates for the percent of children who arrive at school in a vehicle compared to those who walk or take the school bus are statistically different. The exception is San Bernardino County where the estimates for walk and school bus are statistically the same.

Comparison between counties is slightly more complicated. San Diego County has statistically higher vehicle use and statistically lower percent of children who walk when compared to Los Angeles County and Orange County, but Los Angeles and Orange County do not have enough samples to differentiate from each other. That is, the samples are not large enough to know for sure that the percent of children who walk to school in Los Angeles County (32.3 percent) is different than the percent of children who walk to school in Orange County (25.9 percent). The margins of error for these two estimates overlap.

Table 14 Percent of School Children by Means of Travel for Selected Counties with Margin of Error

Geographic Area:	Private Vehicle			Walk			School Bus		
	High Est.	Low Est.	Percent by Vehicle	High Est.	Low Est.	Percent by Walk	High Est.	Low Est.	Percent by School Bus
California (all)	54.9	52.6	53.7	25.3	23.3	24.3	14.0	12.3	13.1
Los Angeles	53.9	48.2	51.0	35.0	29.6	32.3	9.3	6.1	7.7
Orange	56.4	47.4	51.9	30.1	21.8	25.9	16.3	8.8	12.5
Riverside	55.3	44.6	50.0	30.1	19.6	24.9	18.5	12.2	15.4
San Bernardino	69.0	57.3	63.1	18.9	11.1	15.0	22.7	14.9	18.8
San Diego	63.6	58.6	61.1	21.1	17.1	19.1	13.3	10.2	11.8
Santa Clara	53.9	48.2	51.0	35.0	29.6	32.3	9.3	6.1	7.7

Figure 12 Percent of Schoolchildren by Means of Travel to School with Margin of Error



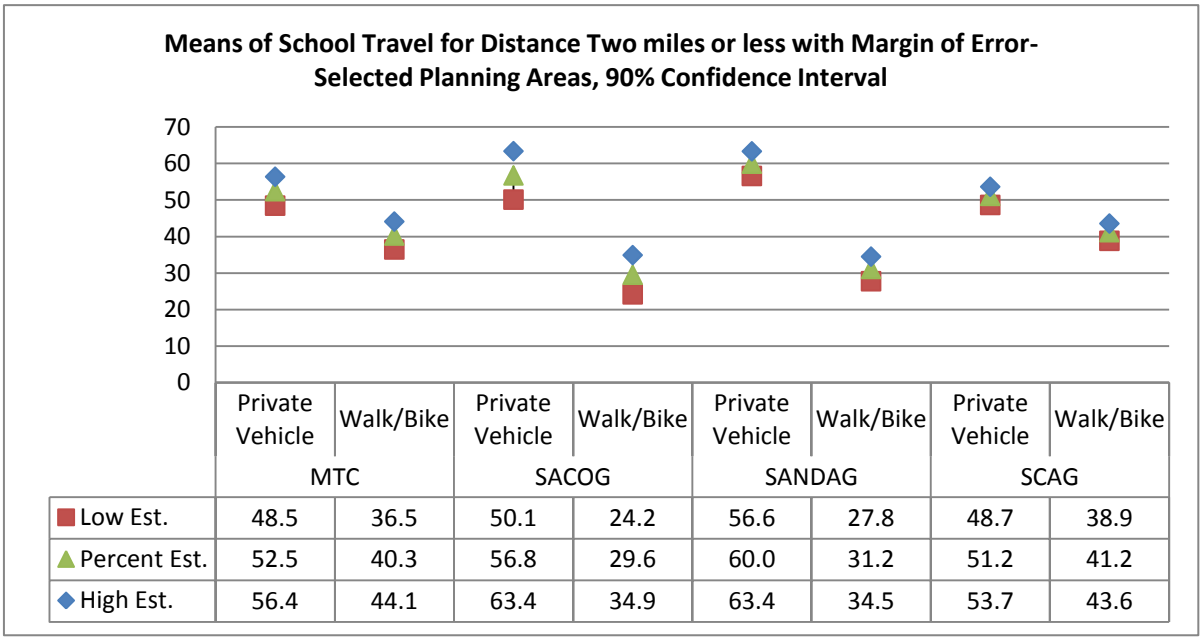
The sample size and margin of error was also checked for the four largest metropolitan planning organizations; MTC (San Francisco Bay Area Region), SACOG (Sacramento Region), SANDAG (San Diego Region), and SCAG (6-County Southern California Region). The results are shown in Table 15. The data in the table shows that the means of travel to school are significantly different within MPO regions, but that comparison between the MPOs is not advised—in most cases the margins of error overlap.

Table 15 Percent of Children by Means of Travel to School for Selected MPO regions with Margin of Error

Geographic Area:	Private Vehicle			Walk			School Bus		
	High est.	Low est.	Percent by Vehicle	High est.	Low est.	Percent by Walk	High est.	Low est.	Percent by School Bus
California (all)	54.9	52.6	53.7	25.3	23.3	24.3	14.0	12.3	13.1
MTC	61.2	55.1	58.1	25.3	19.6	22.4	7.5	4.8	6.1
SACOG	64.2	54.2	59.2	20.0	13.4	16.7	15.8	8.8	12.3
SANDAG	63.6	58.6	61.1	21.1	17.1	19.1	13.3	10.2	11.8
SCAG	55.4	51.4	53.4	28.9	25.3	27.1	12.7	10.1	11.4

The data were further checked to see if any significant estimates could be obtained for means of travel by distance to school categories—with the means of travel combined to private vehicle, walk and bicycle, and all other and the distance categories combined to two miles or less and more than two miles. The differences are significant between walk/bicycle and private vehicle for schoolchildren who live two miles or less from school in all four of the metropolitan planning areas.

Figure 13 Means of Travel for Schoolchildren within Two Miles of School in Selected MPO Regions



	Private Vehicle	Walk/Bike	Private Vehicle	Walk/Bike	Private Vehicle	Walk/Bike	Private Vehicle	Walk/Bike
	MTC		SACOG		SANDAG		SCAG	
Low Est.	48.5	36.5	50.1	24.2	56.6	27.8	48.7	38.9
Percent Est.	52.5	40.3	56.8	29.6	60.0	31.2	51.2	41.2
High Est.	56.4	44.1	63.4	34.9	63.4	34.5	53.7	43.6

The CA-NHTS data should be considered as descriptive of the percent of children by means of travel to school in the State, the largest five counties by population (with caveats for San Bernardino), and the four largest metropolitan planning regions. Data comparisons between counties or metro areas should be checked for significance on the specific variable being analyzed.

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Appendix A – Unweighted and Weighted Sample by County

County	Sample n	Weighted Frequency	County	Sample n	Weighted Frequency
Alameda	138	237,793	**Plumas**	1	944
Amador	7	10,892	**Riverside**	152	292,308
Butte	23	19,476	**Sacramento**	98	156,085
Calaveras	6	7,240	**San Benito**	2	1,963
Colusa	1	2,769	**San Bernardino**	154	363,347
Contra Costa	100	103,165	**San Diego**	1,027	422,971
Del Norte	3	3,901	**San Francisco**	33	48,919
El Dorado	28	26,766	**San Joaquin**	50	94,145
Fresno	66	174,651	**San Luis Obispo**	15	15,765
Humboldt	12	10,442	**San Mateo**	68	106,963
Imperial	14	35,151	**Santa Barbara**	27	51,395
Inyo	2	931	**Santa Clara**	163	242,030
Kern	67	119,130	**Santa Cruz**	28	38,179
Kings	12	38,476	**Shasta**	27	29,843
Lake	7	6,967	**Sierra**	1	505
Lassen	1	1,085	**Siskiyou**	5	7,326
Los Angeles	593	1,533,564	**Solano**	32	38,564
Madera	6	12,153	**Sonoma**	61	78,871
Marin	32	45,722	**Stanislaus**	57	140,095
Mariposa	1	1,158	**Sutter**	7	13,870
Mendocino	11	13,549	**Tehama**	9	10,208
Merced	19	55,276	**Trinity**	2	3,457
Modoc	2	1,706	**Tulare**	35	51,969
Monterey	36	89,951	**Tuolumne**	9	7,552
Napa	10	19,100	**Ventura**	84	97,986
Nevada	4	1,801	**Yolo**	24	32,836
Orange	249	435,515	**Yuba**	7	13,614
Placer	58	66,179			

Appendix B – Travel to School Module of the 2009 CA-NHTS Questionnaire

SECTION F - TRAVEL TO SCHOOL

F1.The Department of Transportation and your local community are interested in providing safe routes to school. My next questions will help identify issues that children might face while traveling to school.

{Does FNAME/AGE/SEX/Do you} attend a public or private school?

PUBLIC	1	
PRIVATE	2	
HOME SCHOOLED	3	GO TO STHANK
REFUSED	-7	
DON'T KNOW	-8	

F2.What is the name of the school {FNAME/AGE/SEX attends/you attend}?

[SCHOOL NAME] _____

[**IF NEEDED:** Knowing the name of your child's school will help identify issues that children might face traveling to school.]

F3.How far {does FNAME/AGE/SEX/do you} live from school? Would you say…

Less than ¼ mile,	1
Between a ¼ to ½ mile,	2
½ mile to 1 mile,	3
1 mile to 2 miles, or	4
More than 2 miles from school?……	5
REFUSED	-7
DON'T KNOW	-8

F4. On most school days, {does FNAME/AGE/SEX/do you} go to before or after-school care outside the home?

BEFORE	1
AFTER	2
BOTH	3
NEITHER	4
REFUSED	-7
DON'T KNOW	-8

F5. On most school days, how {does FNAME/AGE/SEX/do you} usually get to school?

PERSONAL VEHICLES

CAR	1
VAN	2
SUV	3
PICKUP TRUCK	4
OTHER TRUCK	5
RV	6
MOTORCYCLE	7
LIGHT ELECTRIC VEHICLE (GOLF CART)	8

BUS TRAVEL

LOCAL PUBLIC TRANSIT	9
COMMUTER BUS	10
SCHOOL BUS	11

CHARTER/TOUR BUS 12
CITY TO CITY (GREYHOUND/PETERPAN) 13
SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE) 14

TRAIN TRAVEL

AMTRAK/INTER CITY 15
COMMUTER TRAIN 16
SUBWAY/ELEVATED 17
STREET CAR/TROLLEY 18

OTHER

TAXICAB 19
FERRY 20
AIRPLANE 21
BICYCLE 22
WALK 23
SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) 24
OTHER? 91
(SPECIFY)_____

REFUSED -7
DON'T KNOW -8

F6. How many people {does FNAME/AGE/SEX/do you} usually {walk/bike} to school with?

NUMBER |___|___|

REFUSED -7
DON'T KNOW -8

F7. On most school days, how {does FNAME/AGE/SEX/do you} usually leave school?

PERSONAL VEHICLES

CAR 1
VAN 2
SUV 3
PICKUP TRUCK 4
OTHER TRUCK 5
RV 6
MOTORCYCLE 7
LIGHT ELECTRIC VEHICLE (GOLF CART) 8

BUS TRAVEL

LOCAL PUBLIC TRANSIT 9
COMMUTER BUS 10
SCHOOL BUS 11
CHARTER/TOUR BUS 12
CITY TO CITY (GREYHOUND/PETERPAN) 13
SHUTTLE BUS (SUCH AS A SENIOR OR AIRPORT SHUTTLE) 14

TRAIN TRAVEL

AMTRAK/INTER CITY 15

COMMUTER TRAIN 16
SUBWAY/ELEVATED 17
STREET CAR/TROLLEY 18
OTHER
TAXICAB 19
FERRY 20
AIRPLANE 21
BICYCLE 22
WALK 23
SPECIAL TRANSIT FOR PEOPLE WITH DISABILITIES (DIAL-A-RIDE) 24
OTHER? 91
(SPECIFY)_____
REFUSED -7
DON'T KNOW -8

F8.How many people {does FNAME/AGE/SEX/do you} usually {walk/bike} from school with?
NUMBER |___|___|
REFUSED -7
DON'T KNOW -8

F9.How long does it normally take {FNAME/AGE/SEX/you} to get to school?

MINUTES |___|___|___|
REFUSED -7
DON'T KNOW -8

F10. At what grade {would you allow FNAME/AGE/SEX/did you allow FNAME/AGE/SEX/would you be allowed/were you allowed} to walk or bike to or from school without an adult?
[ENTER 0 FOR KINDERGARTEN]
GRADE K-12 |___|___|
NEVER 99
REFUSED -7
DON'T KNOW -8

F11. On a scale of 1 to 5, where 1 means "not an issue" and 5 means "a serious issue" , please tell me how much each of the following affects your decision to allow {FNAME/AGE/SEX} to walk or bike to or from school. On a scale of 1 to 5, how much of an issue is…

	not an issue	a little bit of an issue	somewhat of an issue	very much an issue	a serious issue	rf	dk
a. the distance between home and school? Would you say it's not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue?	1	2	3	4	5	-7	-8
b. the amount of traffic along the route? [Would you say it's not an issue, a little bit of an issue, somewhat of an issue, very much an issue, or a serious issue?]	1	2	3	4	5	-7	-8
c. the speed of traffic along route?	1	2	3	4	5	-7	-8
d. violence or crime along route?	1	2	3	4	5	-7	-8
e. poor weather or climate in your area?	1	2	3	4	5	-7	-8

F12. Are there any other issues that affect your decision to allow or not allow your child to walk or bike to or from school?

<OPEN RESPONSE>

YES 1
NO 2
REFUSED -7
DON'T KNOW -8

END: Thank you for participating in the section about travel to school.

Appendix C – Map of California's Metropolitan Planning Regions and Regional Transportation Planning Regions


CALIFORNIA
Metropolitan Planning Organizations(MPOs)
and
Regional Transportation Planning Agencies (RTPAs)
AMBAG[1] Association of Monterey Bay Area Governments
BCAG Butte County Association of Governments
FCOG Fresno Council of Governments
KCAG Kings County Association of Governments
KCOG Kern Council of Governments
MCAG Merced County Association of Governments
MCTC Madera County Transportation Commission
MTC[2] Metropolitan Transportation Commission
SACOG[3] Sacramento Area Council of Governments
SANDAG San Diego Association of Governments
SJCOG San Joaquin Council of Governments
SLOCOG San Luis Obispo Council of Governments
SBCAG Santa Barbara County Association of Governments
SRTA Shasta Regional Transportation Agency
SCAG[4] Southern California Association of Governments
StanCOG Stanislaus Council of Governments
TCAG Tulare County Association of Governments
TMPO[5] Tahoe Metropolitan Planning Organization
[1] AMBAG includes SCCRTC, TAMC, and SBCOG. All retain RTPA status.
[2] MTC covers a nine county region.
[3] SACOG is the RTPA for Sacramento, Sutter, Yolo, and Yuba Counties. It is the MPO for the federally designated ozone non-attainment area in Sacramento, Yolo, Yuba, Sutter, Placer, and El Dorado Counties. Placer and El Dorado Counties retain RTPA status up to the crest of the Sierras.
[4] SCAG covers a six county region that serve as County Transportation Commissions: ICTC, LAMTA, OCTA, RCTC, SANBAG, and VCTC.
[5] TMPO is a multi-state MPO created by federal law. It covers portions of El Dorado and Placer counties as well as Washoe and Douglas counties in Nevada, and shares board members with the TRPA.
SRTA
BCAG
TMPO
SACOG
MTC
SJCOG
StanCOG
MCAG
MCTC
AMBAG
FCOG
TCAG
KCAG
SLOCOG
KCOG
SBCAG
SCAG
SANDAG
RTPAs within MPOs
MPO Areas
Non-MPO Rural RTPA Areas
California Department of Transportation
Division of Transportation Planning
September 2012