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Evaluation of Safe Routes to School Programs: Qualitative and Quantitative Analysis of Parental Decision-Making

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Evaluation of Safe Routes to School Programs: Qualitative and Quantitative Analysis of Parental Decision-Making

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Evaluation of Safe Routes to School Programs:
Qualitative and Quantitative Analysis of Parental Decision-Making

Research Report

OTREC-RR-11-01

by

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16. Abstract

In the United States, walking to school declined from 42% of 5-18 year olds in 1969 to 16% in 2001[1]. The US Department of Transportation has responded to this dramatic decrease by funding the Safe Routes to School program for $612 million in SAFETEA-LU. The program's funding emphasize infrastructure improvements such as completing sidewalks and adding crosswalks by requiring between 70% and 90% of funding be allocated toward infrastructure. However, recent research shows that 2 of 3 children who currently are driven to school, but live close enough to walk, do so because it is more convenient for parents[2]. Currently, policymakers and planners have few tools to estimate the effectiveness of SRTS interventions.

This research project fills the research gap by developing a stated preference survey to better understand how SRTS interventions affect rates of walking. The stated preference survey identifies how parental attitudes and time constraints affect intervention effectiveness. A unique aspect of this study is the comparison of the results of the stated preference experiments with on-the-ground evaluations of Portland's SRTS program which were collected concurrently for a separate project.

The second component of the project was a series of focus groups with parents of grade levels at selected schools participating in the SRTS program. Results from the focus groups provide more in-depth information about parental attitudes and time constraints as they affect their decisions about their child's transportation to school. In addition, it will enhance the program evaluation and provide valuable data to help program better target their program efforts toward parents.

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DISCLAIMER

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EXECUTIVE SUMMARY

In the United States, walking to school declined from 42% of 5-18 year olds in 1969 to 16% in 2001[1]. The U.S. Department of Transportation has responded to this dramatic decrease by funding the Safe Routes to School program for $612 million in SAFETEA-LU. The program's funding emphasize infrastructure improvements such as completing sidewalks and adding crosswalks by requiring between 70% and 90% of funding be allocated toward infrastructure. These programs emphasize infrastructure improvements such as completing sidewalks and adding crosswalks. However, recent research shows that two out of three children who currently are driven to school, but live close enough to walk, do so because it is more convenient for parents[2]. Currently, policymakers and planners have few tools to estimate the effectiveness of SRTS interventions.

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The second component of the project was a series of focus groups with parents whose children attend selected schools participating in the SRTS program. Results from the focus groups provide more in-depth information about parental attitudes and time constraints as they affect their decisions about their child's transportation to school. In addition, it will enhance the program's evaluation and provide valuable data to help better target program efforts toward parents.

Research Aims

- Develop protocols and test stated preference survey of parents with elementary-school age children;
- Identify how parental attitudes influence children's mode choice for school trips;
- Combine stated preference data with information on school mode shift (being collected by PSU under a separate project) to assess how well the stated preference survey reflected actual behavior;
- Assess effectiveness of stated preference survey as a tool to evaluate SRTS interventions; and
- Use focus group data to enhance program evaluation and refinement.

Findings

This study provided a more nuanced understanding of factors not traditionally analyzed. The focus group research found that the presence of a parent mentor or champion and specific encouragement programs, such as Walk and Bike to School Days, were most effective in influencing transportation choices. And, while the focus groups confirmed distance and

convenience as primary factors in commute mode decisions, they also revealed that parents often use multiple travel modes within a day, a week or over the course of a year.

The study also provided insight on which methods were most likely to supply this nuanced information For example, the focus groups identified seeing other children walking and biking to school and the presence of adult crossing guards as important factors in mode choice. The stated preference survey, which differentiated between traveling with and without an adult, also showed these two variables to be important for parents to allow their children to travel independently. However, the revealed preference data did not show these to be significant.

The stated preference survey also provided information on the demographic factors affecting whether children are allowed to walk or bike to school without an adult, showing that younger children and girls were more likely to travel with parents. The web survey reinforced the importance of parental availability to take children to school. Focus groups had identified this as an important issue.

The stated preference surveys suggested the need to develop robust sets of attitudinal questions that could be used as latent variables to improve mode choice prediction and provide insights into how attitudes influence behavior.

1.0 BACKGROUND AND RESEARCH OBJECTIVES

1.1 BACKGROUND

In the United States, walking to school declined from 42% of 5-18 year olds in 1969 to 16% in 2001 as more parents choose to drive their kids to and from school (McDonald, 2007a). This shift from walking to driving has deprived children of an opportunity for daily physical exercise and has contributed to the overall decrease in physical activity levels that have helped spur significant increases in childhood obesity rates (U.S. Department of Health and Human Services, 2000). More school commute trips by car have also contributed to greater congestion and decreased air quality. In some places, the additional school-related auto trips have generated between 20 and 30% more morning traffic (Safe Routes to School National Partnership & Hubsmith, 2007). Recognizing these negative impacts, the U.S. Department of Transportation included $612 million of funding for Safe Routes to School (SRTS) programs in SAFETEA-LU, which was signed into law on August 10, 2005. These programs encourage walking and biking for children in kindergarten through 8th grade through infrastructure improvements, such as additional sidewalks and crosswalks, as well as encouragement, enforcement, and education programs.

While the shift from walking and biking to cars has been caused in part by increases in distances between schools and residences, recent research shows that one in two children are currently driven to school even if they live within a mile of the school (McDonald, 2007a). Studies have demonstrated that major factors influencing this preference for driving are parental attitudes, perceptions, and employment-related time constraints (Black et al., 2001). Safety from traffic and from strangers are the primary concerns cited by most parents (Bradshaw, 1995; Dellinger, 2002; DiGuiseppi et al, 1998; Johshi, 1995; McMillan 2005, McMillan, 2003; NHTSA, 2004), while perceived travel distance also plays an predominant role (Dellinger, 2002; Joshi, 1995; McMillian 2003; Yarlagada & Srinivasan, 2007). When neighborhood safety, personal security, and distance concerns are absent from parents' minds, Kerr et al (2006) found that their children were five times more likely to actively commute to school. Parents' perceptions of their neighborhood's level of social cohesion have also been found to influence their mode choice (McDonald, 2006, 2007c), as has the nearby presence of other children (Timperio et al, 2006), and the parents' perceived value of opportunities for their children to socialize with other children (McMillan, 2006). Parents' employment status and work schedule flexibility have also been determined to impact school commute mode choice (Black et al, 2001; Bradshaw, 1995; DiGuiseppi et al, 1998; Schlossberg et al, 2006; Yarlagada & Srinivasan, 2007).

Despite their newness, preliminary evidence suggests that SRTS programs can increase walking and biking (National Highway Traffic Safety Administration, 2008). However, these studies are often based on a limited number of school sites or lack controlled comparisons. A recent evaluation of the SRTS program by the General Accounting Office (2008) noted a need for high-quality evaluations of the program's effectiveness. Because of the central role that parental attitudes, perceptions and time constraints are known to play in school commute mode choice, it

is quite likely that the increases in active mode shares at SRTS schools are due at least in part to program-induced changes in some or all of the parental variables outlined above. Unfortunately, while the parent survey evaluation tool developed for the model federal SRTS program does gather some information on certain parental attitudes and perceptions, the information it generates is too limited in scope and clarity to provide useful information and feedback to program managers. For example, the survey identifies time constraints as a barrier to walking or bicycling with their children to school, but does not provide insight about the differential between their walking time and driving time, or what they factor into their time equation. Other tools that could better inform how SRTS programs may or may not be affecting parental concerns and constraints have not yet been tested or implemented. Without such research, program managers will remain constrained in their efforts to refine programs to more effectively address this key set of variables influencing school commute mode choice.

This research project sought to address this gap by developing and implementing two new tools in Safe Routes to School program evaluation: a stated preference parent survey and focus group research. These instruments were designed to gather detailed data about how parental attitudes and time constraints affect decisions about their children's school commute mode choices, and the effectiveness of program interventions in influencing parental variables. The data and outcomes will help improve SRTS programs, and will address acknowledged gaps in our understanding of how the various parental concerns and constraints interact with each other (Timperio, 2006) and how they impact children's mode choices (McDonald 2007c, 2008b).

1.2 RESEARCH OBJECTIVES

The primary objective of this project was to gather data about how parental attitudes and time constraints affect decisions about children's transportation modes to school. Research has shown that three out of four parents driving their child less than one mile to school cite convenience as a reason (McDonald & Aalborg, forthcoming). This study used focus groups to better understand reasons for driving and to identify policy solutions that address parents' concerns. In addition, we used analysis of revealed and stated preference surveys to estimate the effectiveness of SRTS interventions (especially the encouragement and education components). This aspect of the study provides valuable information on the effectiveness of existing program elements in changing parents' choices about their children's travel modes.

A secondary objective of this study was to develop and test two methods of program evaluation and information gathering around Safe Routes to School that are not typically used in current program evaluations: stated preference surveys and focus groups. These instruments were designed to gather detailed data about how parental attitudes and time constraints affect decisions about children's school commute modes, and the effectiveness of program interventions in influencing parental variables.

The data and outcomes will improve SRTS programs by providing program administrators with information about redesigning or adding program elements that may help change parents' attitudes and decisions about driving their children to school. The findings will also address acknowledged gaps in our understanding of how the various parental concerns and constraints

interact with each other (Timperio, 2006) and how they impact children's mode choices (McDonald 2007c, 2008b).

Specific project objectives included:

1. Developing protocols and testing a stated preference survey of parents with elementary-school age children;
2. Identifying how parental attitudes influence children's mode choice for school trips;
3. Combining stated preference data with information on school mode shift (being collected by PSU under a separate project) to assess how well the stated preference survey reflected actual behavior;
4. Assessing the effectiveness of a stated preference survey as a tool to evaluate SRTS interventions;
5. Developing protocols and using focus groups to obtain in-depth information about parental attitudes and influences on children's mode choices for school trips and the potential for SRTS programs to affect those attitudes and behaviors; and
6. Testing focus group techniques as a method to collect data and conduct program evaluation for SRTS programs.

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Research on children's school commute choices has overwhelmingly found that parents' beliefs and attitudes have a large influence on children's transportation decisions. For example, a Seattle study of students and parents found that parental concerns across 11 areas - including crime, traffic, provision of pedestrian facilities, distance to school, time, after-school activities, convenience, children traveling alone to school, and children's dislike for active commuting - were the strongest explanatory variables for children's active commute rates. Children were five times as likely to actively commute when parents had few concerns as compared to when parents cited many concerns (Kerr et al., 2006). Because parents and other caregivers, rather than children, often have the final say about school travel choices, this paper examines different parental characteristics and attitudes to determine their impact on transportation decisions for children's travel to and from school. Variables explored here include parents' socio-economic status, parents' perceptions of environmental variables such as distance and weather, and parental attitudes. Additionally, findings on children's preferences and their impact on commute choices are included.

2.2 METHODS

We searched peer-reviewed journal articles for studies on how parental characteristics and attitudes influenced children's transportation mode choices to and from school. We searched for English-language articles published before October 2009 using the following electronic databases:

- Academic Search Complete
- Academic Search Premier
- Education Full Text
- ERIC
- MedLine
- SpringerLink
- TRIS

Search terms included combinations of the following: *students, parents, transportation, school, active commute, active commuting, active transport, Safe Routes to School, safe routes, walking, bicycling, walk, bicycle, and walking school bus*. Articles were selected for inclusion here if: 1) they studied a Western culture similar to the U.S., including Australia, the UK and Western Europe, 2) they studied children's transportation choices for travel to and from school, or 3) they explored parental influences on children's commute choices, including socio-economic factors, parental attitudes and parental perceptions. We also reviewed the bibliographies of articles

meeting inclusion criteria to identify any referenced sources that may not have been revealed in our database searches.

2.3 SUMMARY OF THE LITERATURE

2.3.1 Safety Concerns

Parental concerns about children's safety, both crime and traffic-related, have been found to be one of the biggest barriers to allowing children to walk to school. Several studies have found parents report both traffic and neighborhood safety concerns as reasons for not allowing their children to walk (Kerr et al., 2006; Heelan et al., 2008; Baslington, 2008). Parents' perception of safety was not associated with their level of education (Zhu & Lee 2009). Overall, "stranger danger" concerns about neighborhood safety and crime have been shown to be stronger than parental concerns about traffic safety (McDonald & Aalborg, 2009).

Numerous studies have reported strong parental concern about neighborhood safety (Hume et al., 2009; McDonald & Aalborg, 2009; Timperio et al., 2006; Fesperman, Evenson, Rodriguez, & Salveson, 2008; Eyler et al., 2008; Schlossberg et al., 2006; NCSRTS, 2010; Martin & Carlson, 2005). Stranger danger may be more of a concern for parents of younger children than adolescents, as was found by Hume et al. (2009). While parents in the majority of these studies cite safety concerns as a reason preventing active commuting, research on the correlation between parental concerns about stranger danger and active commute rates is mixed. McMillan (2007) found a negative correlation between caregivers' neighborhood safety fears and their children's active commute rates, but Timperio et al. (2006) found that the active transportation rates of children whose parents reported strong concern about strangers were not significantly different from other children.

Issues involving traffic safety - including traffic speed, traffic volume, intersection and crossing safety, and availability of sidewalks - were also among the most frequently reported reasons that parents either allowed or disallowed their children to walk or bike to school (Hume et al., 2009; McMillan, 2007; Timperio et al., 2006; Fesperman et al., 2008; Eyler et al., 2008; Schlossberg et al., 2006; Martin & Carlson, 2005; Heelan et al., 2008; NCSRTS, 2010; Zhu & Lee, 2008). Multiple studies found parental concerns about traffic safety to be positively correlated with driving to school and negatively correlated with active commute rates (Hume et al., 2009; McMillan, 2007; Timperio et al., 2006; Wen et al., 2008; Kweon et al., 2006). Hume et al. (2009), Heelan et al. (2008) and Wen et al. (2008) found that dangerous street crossings and intersections in particular were a concern, while Fesperman et al. (2008) found that stationing crossing guards at key intersections alleviated some parental concerns.

Other research suggests that parents' perceptions of traffic safety may be more influential than actual conditions. Research by Schlossberg et al. (2006) found that the presence of a major road or railroad along the route to school did not influence walking rates, and McMillan (2007) found that parents' perceptions of the urban form have more of an impact on children's commute choices than objectively measured urban form variables, such as availability of sidewalks. General bicyclist and pedestrian infrastructure improvements were also reported to increase parents' stated willingness to allow their children to walk or bike to school (Schlossberg et al.,

2005). However, Jensen (2008) found that major changes in road design and traffic did not significantly change children's choice of transportation mode, suggesting that transportation decisions are influenced by a range of factors beyond traffic safety.

2.3.2 Physical Factors: Distance and Weather

Distance has been shown to be an important variable affecting school commute choices. Numerous studies have found that students living closer to school are more likely to walk or bike (Schlossberg et al., 2006; NCSRTS, 2010; Yarlagadda & Srinivasan, 2008; Babey et al., 2009). Students living farther from school are more likely to be driven to school (Wen et al., 2008), but Schlossberg et al. (2006) found that while distance to school did predict children's likelihood of walking to school, it did not predict whether children would be driven to school.

Parents commonly cite the distance to school as a barrier to walking or biking (Martin & Carlson, 2005; NCSRTS, 2010). Parents of students who do not walk or bike to school were much more likely to report distance as a barrier for active commuting than parents of students who walked or biked (Kweon et al., 2006). Schlossberg et al. (2006) found that parents drove to school at similar rates regardless of how far they lived from school, but cited different reasons. For example, distance was a factor for parents living 1.5 miles or more from school, while parents who drove their children a shorter distance to school were more likely to mention bad weather or fear of strangers as their motivation (Schlossberg et al., 2006). Zhu and Lee's (2008) finding that parents with higher education were more likely to perceive the distance to school to be close enough for their children to walk suggests that parents may perceive distance differently than actual distance.

Weather has also been cited by parents as a barrier to allowing their children to walk to school (Martin & Carlson, 2005). Findings suggest that weather may be more of a factor for parents who live close enough to school to allow their children to walk or bike. These parents presumably do allow their children to walk or bike on some days, but they may be influenced by the weather to vary their mode. A tally of national SRTS program data shows that parents who allow their children to walk to school were more likely to cite weather as an impediment to active commuting than those who did not allow their children to walk to school (NCSRTS, 2010). Schlossberg et al. (2006) found that parents who live closer to school were more likely to identify weather as a reason for driving their children to school than parents who live farther away. However, an analysis of actual weather conditions and daily student commute data revealed only minor differences in travel modes, suggesting that weather may be more of an excuse than a permanent barrier (NCSRTS, 2010).

2.3.3 Social Aspects

Previous research has found that having other children to walk with is a predictor of children walking to school (Zhu & Lee, 2009). Several studies have found that parents are more likely to feel comfortable about allowing their children to actively commute to school if the child has friends or a group to travel with or there are other children from the neighborhood traveling to school (Timperio et al., 2006; Heelan et al., 2008; Schlossberg et al., 2005). Timperio et al. (2006) also found that having other children in the neighborhood increase the likelihood of active

commuting, social cohesion and neighborhood trust were not mentioned in any studies as an influence on travel mode choices. Parents did identify a social benefit from traveling with other children as a reason to walk or bike (McMillan, 2007; Eyler et al., 2008). In contrast, fear of bullying did not emerge in any of the studies as a concern preventing parents from allowing their children to walk or bike to school.

Increasingly, parents are accompanying their children to school. Parents report that multiple modes of school travel allow them the opportunity to spend time with their children: UK researchers have found that parents identify their desire to spend time with their children as one of the primary reasons for driving their children to school (Bradshaw, 1995; Joshi & MacLean, 1995, cited in McDonald & Aalborg, 2009), while Eyler et al. (2008) found that parents valued the opportunity to spend quality time with their children during the walk to school. Research has found that parents are increasingly unwilling to allow their children to travel to school without adult supervision (Hume et al., 2009; McDonald & Aalborg, 2009) and Zhu and Lee (2009) found that 75% of parents accompany their children when walking. At the same time, Babey et al. (2009) found that adolescents whose parents were not present after school or knew little about their whereabouts were more likely to actively commute. Together these findings suggest that while children may be willing to walk or bike to school, part of the reason for the decline in active commuting rates stems from declines in parental willingness to allow their children to travel unaccompanied, in part because of their desire to spend time with their children, combined with the inability or unwillingness of adults to accompany their children on foot or bike.

2.3.4 Individual Values and Cultural Norms

Both parental attitudes towards active transportation and their own utilization of active transportation modes were positively associated with their children walking or biking to school (Zhu & Lee, 2009). Similarly, McMillan (2007) found that parental approval of children using active transportation to travel to school was a positive predictor of increased student walking and bicycling rates. An Australian study by Wen et al. (2008) found that children of parents who used active travel modes to get to work were more likely to walk to school. Other findings suggest that while parental support for active transportation may be necessary, more active participation may not be correlated with walking and biking behavior. Fesperman et al. (2008) found that parental involvement in active transportation to school programs were not necessary for success, and Babey et al. (2009) found no relationship between parents walking for transportation and their children's likelihood to actively commute.

American cultural norms beyond individual parents' preferences have also been attributed to parents' preference for driving their children to school. Societal perceptions that "good" mothers drive their children to and from school, and that cars are an important tool for mothers may shift commute decisions in favor of driving (Dowling, 2000, cited in Baslington, 2008; Descartes, Kottak, & Kelly, 2007). Eyler et al. (2008) found that cultural norms of preferring automobile travel over walking or biking were seen as a barrier to active commuting. In comparisons between children of parents born in the U.S. and abroad, children of U.S.-born parents have been found to be significantly less likely to walk or bike to school after controlling for other variables, suggesting that American auto-oriented culture has some influence on commute choices (McMillan, 2007; Martinez et al., 2008). Further, Martinez et al. (2008) found that the longer

foreign-born parents lived in the U.S., the more likely parents were to drive their children to school and their children were less likely to walk.

Different gender norms for boys and girls may affect parents' school commute decisions, but research results are mixed. Several studies have found no difference in use of various commute modes for boys and girls (Kerr et al., 2006; Wen et al., 2008), but others have found that boys are more likely to use active commute modes than girls (Yarlagadda & Srinivasan, 2008; Babey et al., 2009; Davison et al., 2008).

2.3.5 Children's Abilities and Preferences

Parents' perceptions of their children's physical skills and safety skills have been shown to influence commute decisions. Several studies found that parents were concerned that their children's backpacks and other bulky items like musical instruments were too heavy for them to walk (Schlossberg et al., 2006; Kweon et al., 2006). Active commuting behaviors have also been shown to relate to parents' perceptions of their children's maturity (Heelan et al., 2008), while negative parental perceptions of their children's road safety skills made parents more likely to drive (Wen et al., 2008).

Although much research on school commute patterns is premised on the assumption that parents make the final commute decisions, several studies have found that children's preferences do play a role in parental decision-making. Heelan et al. (2008) and Kweon et al. (2006) found that commute behaviors differed significantly based on parents' perceptions of their children's interest in walking or biking, while Wen et al. (2008) found that parents who drove their children were more likely to state that their children did not like to walk.

2.3.6 Convenience and Schedules

Researchers have consistently found that parents cite the convenience of driving as an influence on their commute choices, and believe driving saves time compared to walking or biking. Several studies have found that parents who stated that it was more convenient to drive were less likely to allow their children to walk or bike to school (McMillan, 2007; McDonald & Aalborg, 2009; Fesperman et al., 2008; Zhu & Lee, 2009) Parents frequently cite lack of time, coupled with a belief that that driving is faster and that walking or biking would take too much time, as a reason for driving (McDonald & Aalborg, 2009; Fesperman et al., 2008; Eyler et al., 2008; Zhu & Lee, 2009). Kweon et al. (2006) found that concerns about lack of time were much higher among parents whose children did not walk or bike. However, perceptions of time and convenience may be more influential than actual time costs of different travel modes. Heelan et al. (2008) found that children of parents citing time constraints as a concern were less likely to use active transportation, despite further research suggesting that parents waste significant amounts of time waiting in their cars to pick children up from school.

The relative convenience of driving to school is also connected with parents' schedules, particularly for working parents. Studies have found that parents find driving to be more convenient because it fits their schedules (McMillan, 2007), particularly because they can drop their children off at school and then continue on to work or other destinations (McDonald &

Aalborg, 2009; Schlossberg et al., 2006). The convenience of dropping children off in the morning on the way to work has been shown to translate into higher driving rates in the morning than the afternoon, when fewer parents report that it is convenient to pick up their children on the way home from work (Schlossberg et al., 2006). Yarlagadda and Srinivasan (2008) found that mothers who work full time are less likely to walk their children to school, and more likely to drive their children to school on days when they work. Yarlagadda and Srinivasan (2008) also found that the flexibility of parents' work schedules influenced commute choices: fathers with little to no work flexibility were less likely to drive their children, while fathers with some schedule flexibility were more likely to drive. However, Wen et al. (2008) found no association between the parents' employment status and parents' likelihood to drive their children to school. Children's schedules also influence parental commute decisions. Studies show that parents cite their children's before- or after-school activities as a reason for driving or a barrier to active commuting (Schlossberg et al., 2008; Eyler et al. 2008; Kweon et al., 2006).

2.3.7 Socio-Demographic Factors

The majority of studies have consistently found that household income and socio-economic status are inversely related with active commuting rates (McMillan, 2007; McDonald, 2007; Yarlagadda & Srinivasan, 2008; Babey et al., 2009; Zhu & Lee, 2009). However, Jensen (2008) found no relationship between family income levels and transportation mode choice when effects of car ownership were controlled for, and Wen et al. (2008) found no difference in parent's education levels between those who drove their children to school and those who did not. Kerr et al. (2006) found income was not related to active commuting rates in neighborhoods with low walkability, but that high-income children were actually more likely to walk than low-income children in highly walkable neighborhoods.

The majority of previous research has found a positive relationship between car ownership and children's likelihood of traveling to school by car (McDonald, 2007; Baslington, 2008; Rodriguez, 2009; Timperio et al., 2006; Wen et al., 2008). Zhu and Lee (2009) also found a negative correlation between household car ownership and children's likelihood of walking to school, but used car ownership as a proxy for family socio-economic status and did not control for other socio-economic variables. After controlling for such variables, a few studies have found no relationship between household car access and the probability of children walking or bicycling to school (McMillan, 2007; Davison et al., 2008).

Differences in commute modes related to family race or ethnicity were also observed in multiple studies, with minority students more likely to use active commute modes (McDonald, 2007; Yarlagadda & Srinivasan, 2008; Babey et al., 2009). However, further analysis by McDonald (2008) found that while there are differences in observed biking and walking rates across racial and income groups, those differences are attributable to underlying factors including minority and low-income students living closer to school, having lower household incomes, and less vehicle access. After controlling for these factors, researchers found no differences among racial groups in walking or bicycling rates (McDonald 2008). Similarly, Wen et al. (2008) found no difference between commute modes attributable to language spoken at home, although Eyler et al. (2008) found that lack of English language skills were cited as a barrier to participation in active commute programs.

Family composition was also found to be an influence on commute choices. Previous research has shown that children from families with more than one child in the household are more likely to use non-auto modes of travel (McMillan, 2007; Yarlagadda & Srinivasan, 2008; Kweon et al., 2006; Zhu & Lee, 2009).

3.0 FOCUS GROUP RESEARCH METHODS

3.1 INTRODUCTION

Four school sites, organized as two pairs of schools, were selected to host focus groups for parents on their children's transportation choices using a multistage selection process. We began with a broad pool consisting of all of the public elementary schools in the Portland Public Schools system in Portland, OR. From the total population of schools, we selected potential sites based on geographic criteria. Portland is divided east/west by the Willamette River, and we limited our potential school sites to those on the inner east side, where the terrain is generally less hilly and more uniform. We considered only neighborhood schools with designated attendance areas, excluding charter schools or schools that only host magnet programs, to ensure the majority of students at each site were located within a reasonable distance from school to make walking or biking a feasible alternative. Although the size of schools' catchment areas varies, students rarely live more than two miles from their designated neighborhood school.

Among the schools on the east side, those selected for initial consideration were in primarily residential areas with relatively flat terrain, full sidewalks, and a grid system of streets with good connectivity in the surrounding neighborhoods. Using the initial school selections, we developed a school selection matrix to match schools on the basis of socioeconomic status (SES) indicators and more specific geographic location. We created four subgroups of potential school pairs: high SES schools in Southeast Portland, low SES schools in Southeast Portland, high SES schools in North or Northeast Portland, and low SES schools in North or Northeast Portland. Initially, the presence or absence of a Safe Routes to School (SRTS) program was included as a variable, but later dropped due to the overwhelming presence of SRTS programs at Portland schools and difficulty finding non-program schools. Additionally, we excluded schools with large non-English speaking populations from consideration because of our lack of capacity to conduct multilingual focus groups.

Based on the matrix, we initially identified one pair of schools from each of the four subgroups as possible sites, for a total of eight schools. Each pair consisted of two schools with similar SES indicators that were located in the same neighborhood. The initial pairings included two pairs of schools with low SES indicators and two pairs with high SES indicators, in order to yield one high SES and one low SES pair for inclusion in the study. The comparison between high SES schools and low SES schools allowed us to investigate any differences in parental attitudes stemming from SES. We sought to attract one of the two pairs of schools from each of the geographic areas under consideration, with one from Southeast Portland and one from North/Northeast Portland.

We initially approached all eight schools in the four pairs through phone calls to the school principals. The two pairs included in this study were selected based on the responsiveness and interest expressed by the principals of both schools in the pair. If only one school in the pair was interested, neither school in the pair was selected to host a focus group. We selected one pair of

schools with high SES indicators in Southeast Portland to participate, along with one pair of schools with low SES indicators in North Portland.

Of the four schools initially selected to participate, one school was eventually excluded from the study due to low participant interest (discussed below). We selected another school with similar geographic location and SES indicators, Beach Elementary School, as a replacement. However, it was not as close of a demographic match to its pair, Humboldt Elementary, as originally desired. Beach was selected because of time constraints and the limited pool of potential focus group sites that were compatible with Humboldt.

Table 3.1: Focus Group School Site Characteristics

	Student population	Grade levels[1]	% Free or reduced lunch	% of minority students[2]	% of English language learners
Humboldt	275	PK-8	99.6%	85.1%	13.1%
Beach	538	PK-8	59.9%	67.1%	20.4%
Duniway	423	K-5	14.4%	15.9%	1.4%
Abernethy	392	K-5	18.4%	15.8%	1.8%

Notes:
1. Due to ongoing conversion within PPS from middle schools to K-8 schools, different schools host a variety of grade levels.
2. Includes students who reported their racial/ethnic background as African American, Hispanic, Asian, Native American and Multiple Races.

Data source: Portland Public Schools, 2009

3.2 SCHOOL GEOGRAPHY AND TRANSPORTATION OPTIONS

All four schools included in this study are located in well-established residential neighborhoods on the east side of Portland with traditional street grid patterns laid out in the early 20th century as "streetcar suburbs." All four of the schools are neighborhood schools, with a designated attendance area. The size of the schools' catchment areas vary depending on the neighborhood residential density and size of the school, but do not extend farther than two miles from any of the schools included here. In addition to the students within the designated catchment area, PPS has established a "School Choice" district-wide transfer policy that allows students to select a school outside of their neighborhood, which means that every school has a mix of neighborhood and transfer students. The percentage of neighborhood students compared to transfer students at each school is shown in Table 2.

Table 3.2: Neighborhood School Enrollment and Transfer Enrollment

	% of students from neighborhood	% of transfer students
Humboldt	60.4%	39.6%
Beach[1]	48.7%	51.3%
Duniway	72.3%	27.7%
Abernethy	82.9%	17.1%

Notes:

1. Beach has a large percentage of transfer students because it serves as both a neighborhood school and a Spanish immersion magnet program, which attracts students from outside the designated attendance area.

Data source: Portland Public Schools, 2009

3.2.1 Humboldt School

Humboldt is located in a residential area of North Portland. The main school entrance is on a one-way residential street, which is designated as a school zone with speed bumps and an extended crosswalk with bulb-outs directly in front of the school. There is a minor arterial directly north of the school that is slated for future speed bumps and a reduced speed limit, due in part to parental concerns about student safety. The nearest signalized crosswalk on the arterial is located one block east of the school. The catchment area is divided by one east/west minor arterial, and a north/south arterial couplet that is also a designated bike route.

There is parking along North Gantenbein Avenue, a one-way street in front of the school, where parents frequently drop off and pick up their children, but parents sometimes use side streets as well. There is also a parking lot for the school accessible from Gantenbein, and although parking is reserved for teachers, parents sometimes pull in to drop off their children. There is rarely congestion on Gantenbein or the adjacent streets, in part because of the one-way traffic and the relatively small school population.

There are several bike racks located on school grounds within the playground. During the school day, a closed gate secures the playground area and the bike racks but provides access before and after school. The racks, which are not covered, are lightly used and rarely fill up. Humboldt is served by a school bus, and is located within one-quarter mile of a public bus stop. A portion of Gantenbein directly in front of the school entrance is reserved for school bus parking.

3.2.2 Beach School

Beach is located in a residential area of North Portland and is located on residential streets. There are two marked crosswalks at the main crossing points to the school. One of the residential streets along the east side of the school is currently used as a drop-off and pickup location. The same street is also designated as a bicycle boulevard; participants in the focus group reported that there is a high level of congestion and potential for conflict between users of different modes at this site as a result. Parents worked with PBOT to design traffic changes to the street to be implemented in the near future, which will include conversion to one-way traffic and intersection bulb-outs at the corners.

The catchment area for Beach straddles two major east/west arterials, a major north/south arterial that incorporates light rail tracks, and a north/south grade-separated interstate highway. The nearest east/west arterial to the school has an elevated pedestrian bridge directly south of the school.

Parents who drive to school currently use the residential street to the east side of the school as a drop-off and pickup area. However, the street is also a bicycle boulevard, which creates multimodal congestion and has been identified by parents as a safety hazard. As of next year,

the street will be closed to car traffic and parents will be able to drop their children on two other streets to the west and south of the school, as well as use the school parking lot for drop-offs and pickups.

Bicycle parking was previously located behind the school, but three additional staple racks were added in front of the school last year. In response to increased demand that has exceeded bike parking capacity, additional racks will be installed before the end of the school year. Beach is served by a school bus, but is more than one-half mile from the nearest public transportation stop.

3.2.3 Duniway School

Duniway is located in the heart of a large residential neighborhood, and the catchment area does not cross any major arterials. There are three crosswalks on the residential street on the north side of the school, two at four-way intersections and one at a three-way intersection. There are crossing guards at the crosswalks, and traffic cones put out during school rush hours at the three-way intersection, which is a congested spot with pickups, pedestrian traffic, and no stop signs.

There is no formal drop-off or pickup area, nor a parking lot for parents' use. The street to the north of the school is used as a popular drop-off location, which contributes to congestion at several intersections. The intersection at the southeast corner of the school property that currently has no stop signs is also an area of concern, having been the site of several minor bike and car accidents.

There are several bike racks located near the school, but they are not enough to meet demand for bike parking on sunny days. There are no covered racks for parking on rainy days. There is a public bus that stops less than a quarter mile away from Duniway, but it has infrequent service. The school is also served by a school bus.

3.2.4 Abernethy School

Abernethy is located within a distinct residential neighborhood bounded by arterials. The catchment area for the school crosses several of these arterials, including an east/west arterial to the south with a signalized crossing for the school, a north/south arterial couplet to the west, and a minor arterial with traffic calming improvements to the east. There are several crosswalks on the residential streets directly adjacent to the school, including one at a T-junction in the front of the school with ADA curb ramps and a marked crosswalk, a four-way crosswalk at the intersection to the northeast of the school with ADA curb ramps, and a midblock crosswalk on the street just north of the school.

Parents who drive to school can drop off their children directly in front of the school, but there is no parking along the front of the school. Some parents do park temporarily and run into the school, and police occasionally warn parents or write tickets to discourage this. Parents also use the residential streets behind the school and to the north for both drop-offs and parking, but are not allowed to park near the crosswalk on the street to the north. There is no parking lot for parent use.

The school has added multiple bike racks over the past several years to meet growing demand. There are several located in front of the school, but the majority has been added behind the school, near the gazebo on the playground that also serves as the informal gathering and check-in spot for students who have walked or biked to school. There is a school bus serving Abernethy, and the school is also within one-quarter mile of a public bus stop.

Table 3.3: Comparison of Transportation Options at Study Sites

	School bus	Public bus (within ¼ mile)	Parking lot for parents	Designated drop-off/pickup area	Bike racks
Humboldt	Yes	Yes	No	No	Yes
Beach	Yes	No	No	Yes	Yes
Duniway	Yes	Yes	No	No	Yes
Abernethy	Yes	Yes	No	Yes	Yes

3.3 SAFE ROUTES TO SCHOOL PROGRAM CHARACTERISTICS

SRTS programs are run and administered by the City of Portland Bureau of Transportation (PBOT). The program started in 2001 and began with preliminary pilot programs at five schools. A comprehensive pilot program, modeled after the successful Marin County program, was launched in 2005 with eight schools and more to be added in subsequent years. As of 2010, the program serves 72 schools, covering almost every elementary and K-8 school in the city. The SRTS program focuses on Education, Encouragement, Engineering, Enforcement, and Evaluation in an Equitable manner (6 'E's). SRTS involves parents, students, community groups and government agencies to help improve walking and biking routes to school and to encourage children to use active transportation means. PBOT staff work with parents and teachers at each school who tailor the program to meet school-specific needs. PBOT community partners include the Bicycle Transportation Alliance (BTA), the Willamette Pedestrian Coalition, the Alliance for Community Traffic Safety, and Alta Planning + Design to design the program and deliver program services. The program helps each school and surrounding neighborhood analyze existing conditions through community-led activities such as surveys, walkabouts, mapping, Walk and Bike to School Days, and bicycle and pedestrian safety education classes. Additionally, SRTS provides funding for engineering improvements near schools to improve walking and biking facilities. The exact mix of SRTS activities varies from school to school, as shown through a comparison of the four study sites, in part because different schools receive different amounts of funding either directly from PBOT or through grants.

Several of the main program components offered as part of the SRTS program include:

- Free informational resources through SmartTrips, which offers maps, activity books and safety information about walking, biking, public transit and carpool options. All families at SRTS schools are eligible to receive materials, and schools receive $5 for each form returned to use for SRTS programs.

- Pedestrian safety classes for 2nd graders and bicycle safety for 5th graders led by BTA staff, a bicycling advocacy and educational organization that works with PBOT to design and deliver classroom programs.
- Engineering improvements, including crosswalk improvements, intersection bulb-outs, bicycle boulevards, and bike racks.
- Walk + Bike Challenge Month in May, a competition among schools which encourages students to walk or bike to school for the month.
- International Walk/Bike to School Day, held every year in October, which encourages students to walk or bike to school. Participating schools often organize school-wide events promoting walking and biking, and recognizing students who participate.
- "Stop and Walk" program, which encourages parents who normally drive their children to school to drive only part way instead, and then park and walk the rest of the way to school. The program aims to promote physical activity for children, and decrease traffic congestion, air pollution, and traffic safety risks near schools.
- Walking School Buses, a technique pioneered in Australia, brings students who live close to each other together to walk to school in a group, led by parent volunteers. Buses normally have a set route and set stops to pick up passengers, with parents trading off "driving" duties.

The four schools selected are all neighborhood elementary schools that are part of the Portland Public Schools (PPS) system. The first pair is Humboldt Elementary School and Beach Elementary School, as shown in Table 1. Both have similarly low SES indicators, are located in North Portland and have SRTS programs. The second pair is Duniway Elementary School and Abernethy Elementary School, which are located in Southeast Portland and have similarly high SES indicators. Duniway and Abernethy both have SRTS programs.

3.3.1 Humboldt School Program

Humboldt began its SRTS program in the 2007/2008 school year. Engineering improvements that have been completed as part of the SRTS program include an improved crosswalk in front of the school, conversion to one-way traffic in front of the school instead of two-way, and speed bumps coupled with a lower speed limit on an adjacent arterial. Program components include participation in the International Walk/Bike Day. Humboldt also facilitates the PBOT/BTA-sponsored annual pedestrian safety classes for 2nd graders and bike safety classes for 5th graders.

3.3.2 Beach School Program

The SRTS program at Beach started in the 2008/2009 school year, and parents participating in the focus group reported strong participation and enthusiasm for the program so far. Program components include the PBOT/BTA-led education classes for 2nd and 5th graders on pedestrian and bicycle safety, respectively; engineering improvements, including installation of new bike racks and a new bicycle boulevard next to the school; and implementing the PBOT "Stop and Walk" program. The school has a strong parent advocate group that coordinates SRTS activities and has sponsored a range of school-specific events, including a bike fair for parents to test out a variety of kid-friendly bikes from local bike shops, a "bike fairy" who delivers prizes to student

bikers, and mentoring for other parents who are new to biking to school with their children. The school also participates in the May Walk + Bike Challenge and the International Walk/Bike to School Day. The SRTS team has completed an inventory of future traffic improvement priorities such as reduced parking and parking lot reconfiguration. Other future plans include expanding participation on Walk/Bike to School Days, including having the principal lead the ride one morning, and installing more bike racks to meet burgeoning demand.

3.3.3 Duniway School

Duniway's SRTS program began in 2008/2009. Duniway has a strong parent advocate for bike issues who has helped guide the SRTS program and the school's Green Team, which also addresses school transportation issues. The parent advocate has participated in trainings offered by the city and promotes several walk and bike events throughout the year. The school participates in the International Walk/Bike to School Day in the fall, as well as organizing a "flower parade" on Earth Day. Every last Friday of the month is Bike/Walk to School Day with incentives for students who participate and monthly raffles for larger prizes. The school also participates in the May Walk + Bike Challenge, and encourages walking and biking with organized rides every Friday. For organized rides and walks, many participants meet at a central meeting point and travel to school together, while others start from locations closer to their homes. Although some families informally walk or bike to school throughout the year, there is no organized walking school bus. There is growing interest in the "Stop and Walk" program. At present, the school has not received funding through PBOT for any engineering improvements, and they have not been selected to participate in the annual pedestrian and bicycle safety classes.

3.3.4 Abernethy School

Abernethy's SRTS program is one of the earliest in Portland, having begun in the 2005/2006 school year. The school has two parent coordinators who oversee the SRTS program and promote walking and biking. Every Friday is designated as a bike/walk day and parents organize prizes for students who participate, in addition to the school's participation in International Walk/Bike to School day and the Walk + Bike Challenge in May. The school offers PBOT/BTA-sponsored pedestrian safety classes in 2nd grade and bicycle safety classes in 5th grade. Some parents have also formed a walking school bus to get to school together. Engineering improvements at the school have included new ADA curb ramps and crosswalks at two corners, and the addition of multiple new bike racks. The parent SRTS coordinators also connect parents to low-cost gear sales, including bicycle helmets. Although not a formal program, the parent advocates make themselves available to other parents for advice or any other help to make walking and biking more accessible, which has mostly consisted of offering route suggestions to other interested parents.

Table 3.4: Comparison of SRTS Program Components

	Year of Inception	PBOT/BTA safety classes	International Bike / Walk to School Day	May Walk + Bike Challenge	Stop and Walk	Walking School Bus	Engineering Improvements	Other
Humboldt	2007	Y	Y	N	N	N	• Intersection bulb-out and crosswalk at arterial near school • Speed bumps and low speed limit on nearby arterial • Crosswalk with bulb-outs directly in front of the school • Conversion to one-way traffic in front of the school	• None
Beach	2008	Y	Y	Y	Y	N	• Additional bike racks • Bicycle boulevard adjacent to the school • Conversion to one-way traffic alongside the school • Intersection bulb-outs and crosswalks at corner nearest to the school	• Strong parent advocate • Bike fair for parents to try out new family bikes • Mentoring for parents new to biking • "Bike fairy" distributes incentives for kids periodically
Duniway	2008	N	Y	Y	Y	N	• None	• Last Friday of each month is Bike/Walk Day with prizes • Organized group rides to school for events like Earth Day • Strong parent advocate
Abernethy	2005	Y	Y	Y	N	Y	• ADA curb ramps and crosswalks at two corners • Multiple additional new bike racks	• Strong pair of parent advocates • Informal mentoring for new parents • Walk/Bike Days every Friday with incentives

3.4 FOCUS GROUP METHODOLOGY

3.4.1 Focus Group Recruitment

At each study site, we worked with the presidents of the schools' Parent-Teacher Associations (PTAs) to recruit participants for the focus groups. The principals at three schools referred us to the PTA presidents. At the fourth site, we were referred directly to the PTA president by the PTA president at a different school. The PTA presidents served as the parent contacts between our research team and the parent population at each school.

The parent contacts led the recruitment of participants for the focus groups with guidance from us. Dates and times for the focus group were selected in consultation with parent contacts to determine times that would be convenient for parents and would not conflict with other school events. We instructed the parent contacts to recruit 12-15 parents with a range of transportation preferences for their children, and provided general information about the study to share with prospective participants. We also provided incentives in the form of $250 for each PTA participating, and $20 gift certificates for each individual participant. Only one parent per household was eligible to participate in the study to avoid repetition of information. Parent contacts were advised to advertise the study using whatever means of communication were most prevalent at their school, including posters hung in the hallways at schools, handouts sent home with students, emails, and electronic postings on school websites. Interested participants responded directly to the parent contacts, and parent contacts sent email reminders or called parents the day before the study to confirm their participation.

Turnout for the focus groups was high at all of the study sites, with the exception of one school that was deselected from the study because of a lack of interest. Interest at Duniway and Abernethy was greater than the desired size of the focus group, so the parent contacts used a waiting list and a random drawing, respectively, to select 15 parents at each school to participate. Humboldt also had a significant number of interested parents who all attended the focus group. At Sabin Elementary School, which was originally selected as the fourth focus group site, we worked with the parent contact to select a date and provided the same information to the parent contact, who distributed it to parents at the school using established means of communication. However, no parents expressed interest in participating, which led to the cancellation of the Sabin focus group. The parent contact hypothesized that parents were simply too busy with back-to-school events that week, including a major auction to raise funds for the school, to attend the focus group. We selected Beach as an alternate site based on a referral from the Sabin PTA president, and we were able to work successfully with the parent contact at Beach to arrange a focus group. Turnout at Beach was strong, and all the parents who expressed interest were included in the focus group. The parent contact at Beach hypothesized that the high interest was related to pending traffic changes next to the school intended to minimize conflicts between drivers, pedestrians and bicyclists.

3.4.2 Focus Group Demographics

Focus groups are best used as a tool for collecting a snapshot of group opinions, rather than a representative sample of a target population (Morgan, 1993). Importantly, there is often a self-

selection bias because those who volunteer to participate may have particularly strong feelings about the subject that motivates them to attend, or because the time commitment required is more of a burden for certain demographic groups, like single mothers, for example. With this study, there is the potential for two types of self-selection bias. First, participants may be those who already have a strong interest in biking and walking, despite working with parent contacts to promote the focus groups as a discussion of all transportation options. Second, some participants may have been motivated to attend the focus group not because of interest or knowledge about transportation choices, but to receive the $20 gift cards advertised as an incentive for participation. However, this is less likely to distort the range of opinions expressed in the focus groups because only parents of children attending the selected school sites were eligible to participate in the focus group, and thus all potential participants had some degree of knowledge about their children's transportation choices to school.

A total of 59 parents participated in the four focus groups. Combined demographics for participants are presented in Table 3.5. This data came from a written survey conducted at the close of each focus group.

Table 3.5: Focus Group Demographics (n=59)

	%	#
Gender		
Male	16.9%	10
Female	83.1%	49
Missing/Refused	-	-
Age		
18 – 29 years	6.8%	4
30 – 39 years	39.0%	23
40 – 49 years	47.5%	28
50 – 59 years	3.4%	2
60 years or older	1.7%	1
Missing/Refused	1.7%	1
Race or Ethnicity		
White or Caucasian	59.3%	35
Black or African American	13.6%	8
Hispanic or Latino/Latina	1.7%	1
American Indian or Alaskan Native	1.7%	1
Native Hawaiian or Pacific Islander	0.0%	0
Asian	0.0%	0
Other	0.0%	0
Missing/Refused	25.4%	15
Parents with Children by Grade[1]		
Younger than Kindergarten	50.0%	23
Kindergarten through 5th Grade	NA	NA
Kindergarten	21.7%	10
1st Grade	30.4%	14
2nd Grade	21.7%	10
3rd Grade	17.4%	8

[1] Only respondents from Duniway were given the options "Kindergarten through 5th Grade" and "6th through 8th Grade," and were not given the individual grades from Kindergarten to 8th Grade. As such, the figures presented in this section represent the percentage of applicable respondents only.

4th Grade	10.9%	5
5th Grade	10.9%	5
6th through 8th Grade	NA	NA
6th Grade	6.5%	3
7th Grade	2.2%	1
8th Grade	2.2%	1
9th through 12th Grade	2.2%	1
Missing/Refused	2.2%	1
Morning Mode of Travel		
Walking/By Foot	47.5%	28
Driven by a family member	52.5%	31
Carpool	3.4%	2
Public Transit	3.4%	2
School Bus	13.6%	8
Biking	50.8%	30
Other	10.2%	6
Missing/Refused	-	-
Afternoon Mode of Travel		
Walking/By Foot	49.2%	29
Driven by a family member	52.5%	31
Carpool	1.7%	1
Public Transit	3.4%	2
School Bus	20.3%	12
Biking	44.1%	26
Other	13.6%	8
Missing/Refused	-	-
Attending Neighborhood School		
Yes	78.0%	46
No	22.0%	13
Missing/Refused	-	-
Length of Time in Current Neighborhood		
0.5 – 1.0 year	5.1%	3
1.5 – 3.0 years	10.2%	6
3.5 – 5.0 years	18.6%	11
6.0 – 8.0 years	23.7%	14
9.0 – 11.0 years	16.9%	10
12.0 – 18.0 years	13.6%	8
26.0 – 40.0 years	5.1%	3
Missing/Refused	6.8%	4
Active Involvement in PTA or Parent Groups		
Yes	69.5%	41
No	27.1%	16
Missing/Refused		2

Note: cumulative percentages may be greater than 100% due to rounding up to the nearest decimal

The total number of participants for each focus group ranged from 13 to 17 parents. The participants were overwhelmingly female, with females comprising 64% to 100% of the different focus groups. Providing race and ethnicity data was optional for participants, but among those

who responded, none of the Duniway participants were minorities and one Abernethy parent was a minority, while Humboldt had seven participants who were minorities and Beach had two parents who were minorities. Age ranges of participants spanned from 18-29 to 60 years or older, with the majority of participants between 30 to 39 and 40 to 49. At Duniway, 38% were 30 to 39 years old, and 62% were 40 to 49 years old. At Abernethy, 14% of parent participants who provided data were 30 to 39, 72% were 40 to 49, and 14% were 50 to 59. At Humboldt, participants were relatively younger overall but the group also included the oldest participants, with 24% of participants in the 18 to 29 range, 53% between 30 and 39, 18% between 40 and 49, and 6% that were 60 or older (these were grandparents and/or caregivers). At Beach, 50% of participants were between 30 and 39 years old, 43% were 40 to 49, and 7% were 50 to 59.

Table 3.6: Focus Group Comparison

	Date	Time	Location	# of participants	Female	Male	# of minorities[1]
Humboldt	Thursday, January 28, 2010	6:30-8 p.m.	Parent Room	17	17	0	7
Beach	Wednesday, March 10, 2010	6:30-8 p.m.	Library	14	9	5	2
Duniway	Tuesday, December 15, 2009	7-8:30 p.m.	Library	13	10	3	0
Abernethy	Thursday, January 21, 2010	6:30-8 p.m.	Library	15	13	2	1

Notes:
1. Minorities include Black, Hispanic, Native American, Pacific Islander, Asian and Other. Providing racial data was optional for participants; 25% of overall participants did not supply racial information.

3.4.3 Focus Group Implementation

We partnered with the Survey Research Lab (SRL) at Portland State University to develop questions for the focus groups and facilitate the discussions. The initial development of the focus group questions was informed by our familiarity with SRTS research, both what has been discussed in the literature and unanswered questions. Additionally, researcher Dr. Noreen McDonald at the University of North Carolina had previously completed a survey of parents in the San Francisco area about their children's transportation choices and their reasons for driving them to school. Her work and findings from that survey heavily informed the questions we developed through several meetings with SRL staff and conference calls with all research team members. SRL staff finalized the wording for the questions to ensure they were open-ended and not leading. PSU's Human Subjects Review Committee approved the instruments and methods used for this study, and parent participants in the focus groups gave their verbal consent to participate.

Two professionals from the SRL led the focus groups; one served as the facilitator and led the discussion, while the other took detailed, de-identified notes on her laptop to capture the discussion. Participants were asked if they would consent to an audio recording of the discussion, and participants at all four groups assented. SRL staff used the recording to verify and supplement their notes taken during the focus group. All SRL staff members are trained to securely handle and use sensitive personal data to maintain confidentiality. After SRL staff

finalized their transcription of each discussion using the recording for verification, the recordings were destroyed.

The final, de-identified notes were imported into the qualitative data analysis program Atlas.ti and sections of the text were tagged with relevant codes representing themes occurring within the data. These codes were then organized into broader categories. The text that fell within these broader categories was then analyzed and synthesized to produce the findings summaries. Findings were analyzed to compare results from the higher SES schools, Abernethy and Duniway, with results from the lower SES schools, Beach and Humboldt.

4.0 FOCUS GROUP FINDINGS

4.1 TRAVEL MODES USED FOR SCHOOL COMMUTES

Overall, participants reported that they used a variety of travel modes for their children's school commutes. The most commonly used modes were driving, walking and biking, but participants also reported using public transportation, school buses, carpools, walk pools and scooters. While some participants used a single mode consistently, many participants used a mix of modes, either using different modes in the morning compared to the afternoon, or different modes on different days. Participants from high SES schools used a greater variety of modes compared to participants from low SES schools, who were more likely to use fewer modes in total and use the same mode consistently. Among the high SES schools, driving was common in the mornings, particularly if parents were running late or the weather was bad, and walking was more common in the afternoon when parents reported they had more time available. There was less variation between morning and afternoon commute modes at the low SES schools, except for parents who shared responsibility for their children's commute and had a different individual picking up or dropping off their children.

4.2 INFLUENCES ON TRAVEL MODE CHOICE

Parents' mode choices for their children's commute to school were influenced by a variety of factors that affected both the modes available to them and their daily decisions between various modes. The first three influencing factors - distance, safety and weather - mostly mirror the findings of previous studies. However the comparison of findings from the parents from lower and higher SES schools highlights some important differences, as described below. The other influential factors include convenience and schedules, social aspects, children's abilities and preferences, and socio-demographic factors. In some cases, the findings confirm results from previous studies. In other cases, the results provide additional or new information on the influential factors, and in a few cases, contradict the findings of earlier research.

4.2.1 Distance

For most parents, distance influenced their most frequently used commute mode and their perception of what modes were feasible because of the direct connections between distance and travel time. At distances over one mile, the relative time advantage of motorized travel can be substantial. Distance was one of the most influential factors affecting commute choices for parents at high SES schools. Participants who lived within a mile of the school were more likely to walk or bike on a regular basis, while those who lived farther from school were more likely to drive or take public transportation, although they would occasionally make the effort to bike or walk when the weather was nice or they had extra time. Hills or indirect routes amplified the effects of distance and made walking or biking more challenging.

4.2.2 Traffic and Neighborhood Safety

Participants from both groups noted that traffic safety was a concern influencing their mode choice. Parents from high SES schools reported that traffic made it harder for them to bike with their younger children, who were less visible and less skilled. Parents from the low SES schools reported that they had traffic safety concerns regarding several streets and major street crossings in the neighborhood that were difficult to cross, which made biking seem dangerous. These parents were particularly reluctant to consider their children crossing the streets without an adult. Participants at all schools noted that adding crossing guards, particularly adult crossing guards, at major crossings would make it easier to walk and make them feel more comfortable allowing their children to walk alone. Parents at one low SES school also expressed some concern about the general safety of the neighborhood, including the presence of drug activity.

4.2.3 Weather

Weather emerged as a significant variable affecting parents' day-to-day choices between various modes, if more than one mode was available to them. For parents at all schools who used multiple modes of transport, several reported that they were more likely to walk or bike when the weather was nice, and drive when it was raining. A few parents at high SES schools reported that they biked or walked regardless of the weather, although some noted they were less likely to walk or bike in the rain in the morning because their child might be wet and cold all day, and that they had trouble finding proper rain gear for their kids and getting their kids to wear it. Several parents at low SES schools who primarily relied on one mode of transportation reported that weather had little to no influence on their decision because they had no other choices.

4.2.4 Convenience and Family Schedules

A large number of participants reported that other scheduling variables had an impact on their travel mode choice decisions and that they often tried to combine trips when driving their children to or from school. Several parents at the low SES schools reported that their work schedules were an important factor in coordinating their children's commutes, either influencing their own mode choice in order to be able to drop off their children or necessitating that they make other arrangements for their children to get to and from school. For many parents, the timing of the school start and their work made it impossible to bike or walk with their child, and so they preferred to drop their child off on their way to work or have their children be taken to school by another adult. Work schedules were not brought up by parents at high SES schools as a main factor influencing their commute choices. Parents at high SES schools described a variety of arrangements they had come up with to work around their work schedules, including sharing responsibility for the school commute with their partners, having flexible work schedules, and using a babysitter or daycare.

Parents at high SES schools were more likely to report that they varied their commute in response to their children's schedules, particularly if they had more than one child and/or if the child(ren) had after-school activities or child care. Several parents reported that they avoided biking on days when their children had after-school activities because it was often too late and dark to bike when the activities were finished, or because the children took a bus from school to

their after-school activity and had no way to bring the bike home. Several participants who had children in more than one school reported difficulty coordinating the multiple commutes, which influenced their choice of modes. For some this meant taking all the children in the car, while others relied on neighbors or other family members to help, or sending their children on the school bus if it were available. A few participants at low SES schools mentioned that they drove in order to drop multiple children off at different locations, but did not talk in detail about how family schedules affected their commute choices.

4.2.4.1 Perceived Convenience

The relative convenience of different travel modes played a role in commute decisions by both sets of parents, although it emerged as a stronger overarching factor among parents at the high SES schools. Contrary to earlier research which found or assumed that driving was more convenient, this study found parents at the high SES schools who lived closest to school largely reported that walking was the quickest and most convenient travel mode for them, while some parents living a slightly farther distance from school reported that biking was more convenient than driving and faster than walking, although some parents who walked and biked also reported that they sometimes drove when they were running late because they felt it was faster. Parents at the low SES schools who had access to a car reported similar perceptions of convenience.

4.2.4.2 Coordinating Bike Logistics

The findings revealed several important factors related to the logistics of bicycle travel. Several participants from the high SES schools noted that dealing with bikes can be a challenge, primarily if they are using a different mode in the morning and afternoon. These parents are deterred from biking in the morning if their children use a different commute mode in the afternoon or are picked up by another caregiver because of difficulties picking up the bike and getting it home by car or bus. Another participant reported that the different trailer and tag-along parts she needed to take her children by bike only fit her husband's bike, meaning she usually drove her children to school instead. Participants varied in their response about the ease of using bicycles, especially in the morning, with some parents finding it easier to get bikes out than get all their children into car seats, while others found getting all the bikes and gear more time-consuming than putting their children into the car.

4.2.4.3 Parking and Traffic

Parents at the high SES schools generally, but not unanimously, agreed that parking was difficult at their school, which affected their perception of the relative convenience of different modes. Those who lived closer to school found walking or biking faster and easier that driving and trying to park. Others noted that particular street layouts in their neighborhoods made driving less direct, and walking and biking relatively more attractive. Some parents reported that school policies that required parents to come inside to pick up or drop off their children, rather than dropping them off or picking up outside, make it easier to walk or bike instead of driving and trying to park.

Several participants at one of the lower SES schools also observed problems stemming from congestion around the school during pickup and drop-off times. Some viewed the congestion as

more of a traffic safety issue for pedestrians and bicyclists while others saw it as a deterrent to drive because of the time and hassle.

4.2.5 Child's Abilities and Preferences

4.2.5.1 Child's Age and Physical Capacity

Similar to previous research, this study found that parents' perceptions of their child's physical abilities and safety skills influenced their commute decisions. Parents at high SES schools in particular reported that their children's physical capability, directly related to the child's age, was a determining factor influencing their commute choices. Some parents noted that while the distance to school might be walkable or bikeable for an adult, it was too far for their child, particularly in the afternoon after a full day of school. As a result, parents were more likely to drive, particularly in the afternoons, even if they walked or biked in the mornings. Parents with younger children also reported that they felt their children had not yet developed the physical skills and awareness to ride bikes safely or the traffic safety skills to cross streets.

4.2.5.2 Children's Preferences

While parents at all schools were aware of their children's commute preferences and were sometimes able to accommodate them, they stated that those preferences had little overall effect on their families' commute choices in comparison to other factors, like distance and schedules. Findings were similar for both low and high SES schools. This contradicts studies such as Heelan et al. (2008) and Kweon et al. (2006) that found children's preferences do play a role in the parental decision-making about mode choice. Several participants reported that their children would like to bike or walk, but they chose to drive because of the distance to school. Other parents reported that their children sometimes complained about walking or biking, particularly when the weather was bad, but it had little effect on their choice.

4.2.6 Social Aspects

4.2.6.1 School Culture

Parents generally reported that a positive environment at school that encouraged walking and biking influenced their own motivation to walk or bike. In particular, parents at the high SES schools reported that they and their children were motivated to try walking or biking so that they could participate in Bike and Walk to School Days. Participants also reported that their children felt pride in biking. Parents at one of the low SES schools in particular reported that their children were also very proud to walk or bike, and supported other students who walked or biked.

4.2.6.2 Community Connections:

Although less important than the motivation to exercise, some participants at one of the low SES schools in particular reported a desire for community connections influenced them to walk or

bike with their children. These participants noted that observing and interacting with the community gave them a shared adventure to talk and bond over with their child. Participants at low SES schools also noted that increasing connections between parents in the neighborhood by having more kids and families commuting by walking and biking in the neighborhood would help motivate others to do the same. One suggestion was to provide community maps to help parents connect with others in their area as a way to spark connections.

4.2.6.3 Concerns about Other Children

One participant reported concerns about bullying from other children if their child were to travel alone. A few participants at the low SES schools noted that they did not really trust some of the older children in the neighborhood to accompany their children because they did not behave responsibly.

4.2.6.4 Desire to Spend Time Together

Many participants noted that they placed a high value on the quality time that they got to spend with their children during the commute, and that even if their children were ready to travel independently, they wanted to continue accompanying their children.

4.2.7 Socio-Demographic Factors

4.2.7.1 Family Composition

Parents at high SES schools noted that having several children influenced their commute choices in different ways. Parents with larger families reported that they were encouraging their children to learn to travel together without a parent in order to simplify the school commute, especially if they had older children. This is similar to previous research that found children from families with more than one child are more likely to use non-auto forms of travel. However, participants in this study with younger children, coupled with an infant or toddler, based their commute choice on the youngest child, finding it was often easier to walk or drive with a very young child rather than bike

4.2.7.2 Car Access

Several participants at the low SES schools reported that lack of access to a vehicle was a notable factor affecting their commute choices. Some parents stated that their family had only one vehicle, which was primarily used by their partners to get to work in the morning, so driving was not an option. This echoes previous research finding a positive relationship between car ownership and driving to school (Baslington, 2008; McDonald, 2007; Rodriguez, 2009; Timperior et al., 2006; Wen et al., 2008). However, many parents at high SES schools spoke of walking or biking as a lifestyle choice rather than a necessity, implying they could choose to drive if they desired. This confirms other studies finding no relationship between household car access and probability of children walking or biking to school (Davison et al., 2008; McMillan, 2007).

4.2.7.3 Cost

Several participants at the low SES schools noted that biking and walking saved money over other commute options, while cost was not mentioned as an influential factor at the high SES schools.

4.2.8 Other Factors

This study revealed some other factors that influence parental decisions about school commute mode choice that have not been mentioned in previous studies.

4.2.8.1 Parental Attitudes Toward Walking and Biking

Walking and bicycling as a lifestyle choice emerged as a strong influence for some parents at the high SES schools. Overall, most parents had positive attitudes about walking and biking, although many still drove, particularly among the high SES schools. Participants from the high SES schools reported that there was a strong bike culture at the school, and a few stated that they had made choices about where to live based on the bike- and walkability of the neighborhood. Participants at one of the low SES schools also reported similarly positive attitudes and the importance of creating opportunities to walk and bike. For some parents who viewed biking as a

lifestyle choice, they reported that their attitudes about biking to some extent helped them to overcome barriers such as distance or weather. In contrast, parents at the other low SES school did not speak about biking and walking as a lifestyle choice, although a few did speak apologetically about driving, echoing comments from parents at the high SES schools who felt that some parents who drove might feel judged because of their choice.

4.2.8.2 Exercise and Health

With the rise of childhood obesity, increasing children's physical activity has become a paramount public health issue. However, little research on parental attitudes on their children's school commute has examined their desire to increase their child's physical activity level as a factor in their decision-making on mode choice. In this study, parents at the low SES schools reported that the desire for exercise and fresh air for both them and their children influenced their choice to walk or bike to school. Several participants, including one whose child had special learning needs, stated that the opportunity to burn off some energy on the walk or ride to school helped their children focus better at school. Parents at the high SES schools echoed the feeling that biking and walking helped their children burn off some energy and perform better at school, as well as benefit the parents' health.

4.3 EFFECTS OF SCHOOL-LEVEL EFFORTS PROMOTING WALKING AND BIKING

Focus group participants reflected on the effectiveness of several efforts at their schools to promote active transportation, including the presence of peer mentors for parents and champions, Walk/Bike to School Days, and Safe Routes to School (SRTS) programs.

4.3.1 Presence of Mentors and Champions

Parents at three schools, the two high SES schools and one of the low SES schools, reported that the school had a parent committee devoted to sustainability or health issues that had taken on the role of promoting active commuting at their school. While parents at the high SES schools explained that the activities coordinated by these committees, such as Walk/Bike to School Days, did encourage them to walk or bike, they did not report that the members of the committees had any individual impact on their decisions. In contrast, several parents at one of the low SES schools reported that peer-to-peer parent mentoring and outreach from the committee were influential in encouraging them to try biking. Bike mentors at one school offered to ride with other parents new to biking to help them gain confidence, while volunteers at another school said their mentoring usually consisted of looking at maps with other parents to help them pick a route. A few participants suggested that experienced parent volunteers should offer bicycle commuting classes to help parents new to biking improve their skills and ability to keep their kids safe on a bike.

Parents at the other low SES school reported that there were a few teachers at the school who encouraged biking, but that this did not have much influence over their decisions, particularly since many parents at the school have limited commute options to begin with.

4.3.2 Encouragement Programs and Activities

4.3.2.1 Walk and Bike to School Days

Parents at three schools, the two high SES schools and one of the low SES schools, reported that they and their children enjoyed participating in the range of walk and bike events coordinated by the school, including International Walk/Bike Day, a month-long, city-wide Walk + Bike Challenge, and weekly or monthly walk and bike days at the individual school level. Children were reported to be strong advocates for participating in such events, but parents also reported their own enthusiasm to participate. For some participants, desire to participate in the events inspired them to figure out how to walk or bike to school and try it for the first time, which translated into increased walking or biking afterwards. For others who already walked and biked, the events motivated them to put in an extra effort to walk or bike on those days.

4.3.2.2 Safe Routes to School Programs

Participants at all four schools had positive opinions about the SRTS programs at their schools, although there was wide variety in the content of SRTS programs at the different schools and parents' awareness of how the programs worked. SRTS program content was generally more limited at the high SES schools due to city-wide programming decisions, and parents at those schools reported that their favorite aspects of the program were the consistent weekly walk and bike days, and their kids' enthusiasm for it. However, parents noted that some of the walk and bike days were city-wide, SRTS-sponsored activities, while others were coordinated by parents at their own school independent of the program. Parents at one school also mentioned they had received some informational materials through the SRTS program and their children had participated in pedestrian and bicycle safety classes, but there was some confusion about the exact details of these programs and their connection to SRTS.

The low SES schools had more robust SRTS programs with more program components, and parents were generally more aware of the programs. Parents had positive feedback for SRTS programs, including the pedestrian and bicycle safety classes, Bike/Walk to School Days and informational materials. Parents at one of the low SES schools also reported experimenting with a walking school bus that they ultimately found too difficult to organize, and a new "stop and walk" campaign to park a few blocks away from school and walk from there, which they attributed to SRTS. Participants at both schools reported that SRTS has been instrumental in making infrastructure changes around their schools to improve safety, including conversion to one-way streets, narrowed crosswalks and additional bike racks.

5.0 CONCLUSIONS OF FOCUS GROUP RESEARCH

Parents in the four focus groups overall reported significantly higher rates of active commuting than the national average of 13% of all trips to school in 2001 (McDonald, 2007). This may be due to Portland's overall strong biking and walking culture, the location of study sites in well-established, walkable residential areas with small catchment areas, and possible self-selection bias among participants. Although participants' travel patterns may not reflect the travel choices of the greater parent population, either within Portland or across the nation, the focus groups did include parents who used a full range of transportation modes for the school commute, and offered insights into their reasons for using each.

A key insight from this study is that parents often use multiple travel modes within a day, a week or the year, depending on a range of variables. Previous studies have largely classified parents and children as using or not using an active commute mode (Babey et al., 2009; Heelan et al., 2008; McMillan, 2007; Kerr et al., 2006; McDonald, 2007; McDonald, 2008; Rodriguez & Vogt, 2009; Timperio et al., 2006) rather than exploring the mix of modes used by any one child. Certain variables like distance, family schedules and perceptions of traffic and neighborhood safety that were more fixed had an impact on the range of commute options that parents would consider. However, other more temporal variables, particularly the weather, had a bigger influence on parents' day-to-day commute choices between their identified modal options.

Distance emerged as one of the primary factors influencing mode choice, in line with previous research findings (McDonald & Aalborg, 2009; Fesperman et al., 2008; Eyler et al., 2008; Zhu & Lee, 2009). Weather was one of the other primary factors mentioned by a large number of participants.

Participants' reflections on convenience highlighted that while convenience was an important factor influencing their mode choice, they did not necessarily find driving more convenient than active commute modes. Several previous studies have found that parents cite convenience as a reason to drive their children to school,[2] but few have reported on the perceptions of convenience among parents who walked or biked with their children. In this study, many parents reported it was more convenient to drive, particularly if they lived some distance from school, but parents who lived closer to school often reported that it was more convenient to walk or bike. One participant in the course of the focus group questioned her own assumptions about convenience, and concluded that while she typically drove in the mornings to save time when her family was running late, it would likely be more convenient and quicker for her to walk. While distance from school had the biggest impact on the relative convenience of different modes, participants referred to several variables affecting the perceived convenience of different modes, including traffic patterns in the surrounding neighborhood, parking availability near the school, and school drop-off and pickup policies.

Many parents who drove to school reported that linking their child's commute with other destinations increased the convenience of driving, consistent with findings from previous studies on the perceived convenience of "trip chaining" (Baslington, 2008; McDonald & Aalborg, 2009;

Schlossberg et al. 2006; Schlossberg et al. 2009). In this study, more parents reported linking their trip to school with other family trips, such as dropping off another child at a different school or daycare, or running errands, than with a work commute.

Traffic safety and neighborhood safety were mentioned as factors that discouraged parents from walking and driving, consistent with previous research findings. Traffic safety concerns were more prevalent than concerns about neighborhood safety or stranger danger, but overall safety concerns were not as dominating as has been reported in some previous studies (Baslington, 2008; Eyler et al., 2008; Heelan et al., 2008; Hume et al., 2009; Kerr et al., 2006; Martin & Carlson, 2005; Timperio et al. 2006). For many parents, traffic safety concerns did not keep them from walking or biking, but did influence their decision to accompany their children to school to help them navigate difficult streets and crossings.

Concerns about traffic and neighborhood safety were more prevalent among parents at the lower SES schools, which may be located in less desirable neighborhoods. Fewer parents from low SES schools allowed their children to travel independently to school, perhaps in part a result of heightened perceptions of traffic and neighborhood dangers at those schools.

Although parents at both high and low SES schools reported similar utilization of active commute modes, another difference between the two groups was their reasons for active commuting. Upper income parents more commonly spoke of biking and walking in terms of an affirmative lifestyle choice, which may be because they have more flexibility to alter their daily schedules to allow time to accompany their children on foot or on bike, and the financial flexibility to live in neighborhoods more conducive to walking and biking. In contrast, walking and biking are often seen as a necessity for low-income parents regardless of their own commute preferences, schedules or distance from school. Parents with lower incomes may not have access to a vehicle or the flexibility to alter their work schedules or residential locations based on biking and walking opportunities.

Limited car access did translate into higher utilization of active commute modes for parents at low SES schools, which is in line with national research findings that show children of low-income families broadly and families with lower car access in particular are more likely to walk or bike to school (Baslington, 2008; McDonald, 2007; McMillan, 2007; Rogriguez & Vogt, 2009; Tiperio et al, 2006; Wen et al., 2008; Zhu & Lee, 2009).

Desire to spend time together emerged as a powerful motivation for parents to accompany their children to school. A few previous studies have found that parents report the desire to spend time with their children plays a factor in their commute decisions (Bradshaw, 1995; Eyler et al., 2008; Joshi & MacLean, 1995, cited in McDonald & Aalborg, 2009). Findings from this study emphasized that parents particularly valued spending time together walking or biking, with the additional benefit of developing a shared connection with the neighborhood.

The exercise benefits of active commuting were a minor theme in this study, but participants did not highlight the potential for active commuting to help address rising childhood obesity rates as many previous studies have noted. Only a few parents mentioned the need for exercise, which could indicate that obesity is a not concern they have for their children, or they do not see a

connection between active commuting and obesity. The exercise benefits were largely seen as an opportunity for children to release some energy before starting school, rather than a health benefit for them or their parents.

5.1 IMPLICATIONS FOR FUTURE WORK

5.1.1 Directions for Future SRTS Programs

This research found that many parents use a variety of travel modes for their children's school commute that depending mostly on their convenience and the weather on a particular day Given this variability, programs should aim to expand the range of commute options that parents view as feasible, as well as work to encourage parents to choose active commute modes on a daily basis. In addition, incentives such as Bike/Walk to School Days can be powerful motivations for parents to make the effort to walk or bike on a given day, if the parents are already comfortable with those modes.

The strong influence of distance on mode choice indicates that SRTS programs are likely to have little influence on parents and students living far from schools, and future advocacy efforts should expand to focus on school siting and sizing decisions to ensure a larger percentage of students live within a reasonable distance of the school in order to facilitate active commuting.

In terms of outreach, SRTS programs should work to involve parents more closely, given that parents accompany the majority of their young children and report that their preferences, not the children's preferences, determine their travel mode. Several parents were unclear about the exact programs provided through SRTS, which indicates a disconnect between the program and the parents. Given that parents have the largest influence over their children's commute choices, making them aware of SRTS efforts and involving them to the extent possible would likely boost walking and biking rates.

Additionally, parent role models and champions were shown to be successful in motivating parents to use active transportation and should be incorporated into SRTS programs at the individual school level. Parent champions were shown to be effective at both the individual peer-to-peer level encouraging other parents to choose active commute modes, and at the committee level organizing school events like Bike/Walk to School Days that motivated other parents to participate. Parents at three schools responded positively to parent role models, whereas at the one school where the identified walking and biking champion was a teacher, the parents reported he played little role in their commute decisions.

Because older children are more likely to be allowed to travel to school unaccompanied, direct efforts to engage them may be more successful than outreach to younger children that bypasses the parents. SRTS programs that encourage them to choose active transportation are more likely to have a positive impact.

5.1.2 Directions for Future Research

Future research is needed to investigate the specific impact of different SRTS program components on parents' commute choices. The focus groups illustrated that some elements of the SRTS programs at the school level are more effective than others. Bike and walk to school days, parent mentoring and infrastructure improvements were three examples of elements that promoted a desire to walk and bike to school in both children and parents. However, the research found that some parent participants did not know about or understand some of the program components that took place in the classroom, such as the pedestrian education classes. It should be noted that the small sample size of parents who participated limits the ability to generalize these results to all parents or programs.

The variation in travel modes across morning and afternoon, from day to day and month to month, is an intriguing finding from this research that merits follow-up research. Although previous research has shown that commute patterns differ between mornings and afternoons (Schlossberg et al., 2006), the majority of study designs have classified parents and children based solely on their primary commute mode.[3] Further research could reveal more detailed information of the range of variability among parents, what factors affect both the range of options parents consider over the course of the year, and what factors affect daily decisions to use one mode over others. In other parts of the country where the weather is consistently warm and dry for most of the year, seasonal differences might not be as noticeable. But for regions with colder and wetter weather during part of the school year, the seasonal differences warrant further investigation.

Results from this study also indicate that high SES parents employ a greater range of commute options over time, but additional research would be needed to identify what other variables expand or constrict those options for parents. Further research is also warranted to investigate differences between parents of high and low socio-economic status and their school commute choices, particularly statistical survey work. While this study found some predictable variations between the two groups that have been highlighted in previous research, such as lower car access among low-income families, other variations emerged in these focus groups that are worthy of further investigations. For example, parents from the low SES schools in this study reported greater concerns about traffic safety and neighborhood safety. It is plausible that low-income neighborhoods would have greater dangers and that high-income neighborhoods would be safer and more desirable, but given the small sample size and reliance on focus groups rather than statistical surveys, more work would need to be done to see how various dangers, both real and perceived, vary across income levels.

6.0 STATED PREFERENCE RESEARCH METHODS

6.1 INTRODUCTION

Researchers at the Center for Transportation Studies at Portland State University (PSU) and the Department of City & Regional Planning at the University of North Carolina – Chapel Hill (UNC) contracted with the PSU Survey Research Lab (SRL) to assist in developing and conducting a web survey of parents or guardians of elementary-school children in Portland. The goal of the survey was to develop a pilot survey instrument designed to better understand guardians' preferences and behavior around their child's school commute, using both standard survey questions and an experimental stated preference design. A total of 149 surveys were completed by eligible parents during seven weeks in spring 2010.

6.2 SURVEY DEVELOPMENT AND ADMINISTRATION

The SRL assisted the researchers in finalizing the survey questions and programming the final survey instrument into the Qualtrics web survey program for implementation. Once programmed, testing and revision was conducted to ensure appropriate wording of questions, correct functioning of all skip patterns, and the accurate recording of data. The final survey instrument included questions addressing current behavior and attitudes of the respondent and their household related to their child's elementary-school commute, their child's current level of indepence related to travel, and general demographic questions and took respondents twenty to twenty-five minutes to complete. Respondents were asked to complete the questions for their oldest elementary-school child only, in the event they had more than one child in elementary school. The complete survey script can be found in Appendix B of this report.

The survey also included a series of stated preference experiments, where respondents were presented with a number of different hypothetical scenarios related to their school commute, and were asked to choose their first and second choice method for getting their child to school in each scenario. The final survey included a total of 32 different scenarios, each with five options for getting the child to school. The 32 scenarios were split into sets of four, resulting in a total of eight blocks of scenarios. Each respondent was randomly presented with just one of the eight blocks, so that each respondent selected their preferred commute options for four different scenarios. Additionally, the four scenarios within each block were presented to respondents in a random order. A complete list of the stated preference scenarios and options presented to respondents can be found in Appendix C of this report.

The stated preferences tasks varied in terms of the travel time required for each option, who accompanied the child, and the presence of adult crossing guards and other children walking to school. Previous research had identified travel time as a critical factor in mode choice, and the focus groups had noted the importance of adult crossing guards and the presence of other children walking or biking to school. Figure 6.1 shows a representative experiment.

Which of the following would be the **first** and **second best options** for getting your child to school?

In this situation, there **is an adult crossing guard** at major intersections on your child's route to school. You see **other children** in the neighborhood **walking or biking** to school every morning.

Option 1	Option 2	Option 3	Option 4	Option 5
Walk or Bike with a **parent or guardian** Travel Time: 12 **minutes** from home to school	**Walk or Bike alone** or **with a friend** Travel Time: 12 **minutes** from home to school	**Walking School Bus** with a **neighborhood parent** Travel Time: 19 **minutes** from home to school	**Drive** with a **parent or guardian** Travel Time: 7 **minutes driving** and 10 **minutes** to find **parking**	**Drive** with a **neighborhood parent** Travel Time: 17 **minutes** from home to school
First Choice O	O	O	O	O
Second Choice O	O	O	O	O

Figure 6.1: Example Stated Preference Task

The survey went live online on April 12, 2010, and was closed on June 1, 2010, for a total data collection period of seven weeks. However, due to a delay in processing the mailed invitation, households did not receive the invite until the first week of May, resulting in all completed surveys being collected during a shorter four-week period from May 5 to June 1, 2010. Due to logistical constraints, parents could not be re-contacted to increase participation.

6.3 RESPONDENT RECRUITMENT

The target population for the survey included parents with at least one child currently attending an elementary school within the Portland Public Schools (PPS) district. Although parents with children attending a public elementary school within the district were the primary focus for recruitment, parents of children attending non-public schools within the City of Portland were also eligible to complete the survey. The primary mode of recruitment was flyers that were sent to households in the mail along with a Safe Routes to School newsletter. These flyers contained a brief description and a link to the survey online. The accompanying newsletter is sent out by each school once per term to the addresses that parents or guardians provide to the district when their child enrolls at the beginning the year. A copy of the flyer can be found in Appendix D of this report. The flyers were sent to parents at 40 PPS schools. Information about the survey was also included on posters hung at some of the schools, as well as on the Safe Routes to School website. As an incentive to complete the survey, the flyers also informed parents that those who

completed the survey would be entered to win a $50 gift card to Fred Meyer, with one gift card being awarded to a parent from each school.

A single URL, www.schoolcommute.org, was used to redirect participants to the anonymous survey hosted on a Qualtrics account at the University of North Carolina. Once they began the survey, respondents were first asked a series of questions to determine their eligibility to complete the survey. Eligible respondents are those who were currently a parent or guardian of a child who attended elementary school and traveled to that school from the respondent's home at least one day a week. Ineligible respondents are those who were either not currently a parent or guardian of an elementary school student, or whose child did not travel to school from the respondent's home at least one day a week. Respondents whose child was home-schooled were also ineligible to complete the survey.

Once the survey was completed, respondents were then redirected to a separate page where they had the option of providing their preferred contact information to be entered into the drawing. Both eligible and ineligible respondents were given the option of entering the drawing. At this point, respondents were also asked how they heard about the survey. Just over 90% reported learning about the survey from the flyer sent in the mail, while others reported learning about the survey from a poster at the school, the website, or from an email. Table 6.1 details how respondents reported learning of the survey. Respondents were able to select more than one mode, resulting in totals that add up to more than 100%.

Table 6.1: Mode of Learning About Survey (N=149)

Mode	%	#
Flyer sent in the mail	91.9%	137
Poster at the elementary school	2.7%	4
Safer Routes to School Website	2.0%	3
Flyer sent home from school	3.4%	5
Email	1.3%	2
Total	**101.3%**	**151**

6.3.1 Response and Completion Rates

All parents or guardians who had children enrolled in a PPS elementary school were targeted for recruitment through the flyers and posters, and no sampling method was used. It is not possible to determine which individuals may have actually received or seen the invitation to complete the web survey, nor how many individuals within the target population were ineligible to participate in the survey. A survey response rate is typically calculated by dividing the total number of completed surveys by the total number of eligible participants within the recruitment sample. Because of the passive recruitment model used for this survey, it is not possible to calculate a response rate.

It is possible to determine a completion rate for the web survey. Incomplete surveys are those that respondents started but then abandoned, while complete surveys are those in which respondents made it to the final page. The completion rate is the number of complete surveys divided by the total number of respondents who started the survey. A total of 165 surveys were started by respondents. Out of those 165, three respondents were ineligible to complete the

survey based on the initial screening questions, leaving 162 surveys completed by eligible respondents. Out of those 162 surveys, 13 were left incomplete, resulting in a final total of 149 complete surveys and an overall completion rate of 80.2%.

Because respondents could choose not to answer questions throughout the survey, it is also possible to calculate the average proportion of applicable questions answered by respondents. A total of 122 respondents answered 100% of the questions that were applicable to them. The remaining 27 respondents answered between 87.4% and 99.1% of questions that were applicable to them. Out of the 149 finished surveys, respondents, on average, answered 99.6% of applicable questions.

6.4 SAMPLE DEMOGRAPHICS

Adult respondents were asked to describe the travel behavior of their oldest elementary-school age child. The children were approximately evenly divided by sex and grade. Most respondents were white and had college degrees. Just over half of households had two working parents. Of the respondents, 14% were single parents and 32% had a stay-at-home parent.

Table 6.2: Sample Demographics

	Respondent, n (%)	**Child, n (%)**
Sex		
Male	29 (19)	79(53)
Female	118 (79)	70 (47)
Other/Missing	2 (1)	
Race (not mutually exclusive)		
White	130 (89)	135 (91)
Black	4 (3)	6 (4)
Hispanic	6 (4)	12 (8)
Asian	12 (8)	17 (11)
Other	3 (2)	6 (4)
Grade		
PreK/Kindergarten		22 (15)
1st		25 (17)
2nd		21 (14)
3rd		25 (17)
4th		25 (17)
5th		31 (21)
Highest Education		
High School/GED	8 (5)	
Some College	23 (16)	
College Degree	47 (32)	
Graduate School (Degree or some)	70 (47)	
Household Type		
Single Parent	21 (14)	
Two Parents, 1 Employed	47 (32)	
Two Parents, 2 Employed	77 (53)	
Mean HH Size (SE)	2.9 (1.0)	
Mean # of HH Vehicles (SE)	1.7 (0.1)	

6.5 MODE CHOICE MODELS

Discrete choice models were used to analyze the revealed and stated preference data on school trip mode choice. Researchers utilized multinomial logit (MNL) models and mixed logit (MMNL) models. The MNL models were used to identify significant variables, test model structures, and provide starting values to the mixed logit procedures. The mixed logit models relaxed the Independence of Irrelevant Alternative assumption of multinomial logit to allow for more realistic substitution patterns and taste variation across respondents (Train, 2003).

6.5.1 Data

The mode choice models utilized revealed preference data for the 121 respondents with distance and time to school estimates available. Stated preference data came from the choice experiments. After data cleaning, responses were available from 149 individuals making 594 first choices and 576 second choices.

6.5.2 Estimation of Travel Time for Revealed Preference Data

Estimation of travel time and distance by mode was gathered from Google Maps. Discrete choice models have traditionally relied on network skims yielding the zone-to-zone travel times by mode. That approach was not appropriate for this analysis because most trips were short and likely to be contained within a zone. Google Maps offered a means of more accurately estimating route distances and time because, in the Portland area, information about the bike and pedestrian network is included. In practice, this meant that distance estimates by mode varied slightly for some trips, particularly in areas with many one-way roads or bike lanes.

To ensure estimated travel times were reasonable, we compared the Google Maps estimates to the self-reported data from this survey as well as the special section on school travel from the National Household Travel Survey. Google estimates of walk speeds closely matched the self-reported data from Portland and the U.S. The estimates of bike travel times assumed speeds appropriate for adults, but not children. Therefore, estimates of bicycle times were adjusted such that the mean bike travel speed was five miles per hour, which matched the self-reported data from this survey as well as the National Household Travel Survey. Google estimates of auto speeds were higher than the self-reported data. We did not apply any correction factors in this case because there were separate questions in the survey which assessed parking availability. The auto estimate only represented the line-haul, while the self-reported travel times likely included some time to find parking.

Table 6.3: Travel Speeds by Mode from Difference Sources

Mode	Estimated from Google Maps	Self-Reported Portland Survey	NHTS Section F (5-12 year olds)
Auto	21.1 mph	16.1 mph	11.7 mph
Walk	3.2 mph	3.2 mph	2.7 mph
Bike	12.3 mph	5.4 mph	4.8 mph

7.0 WEB SURVEY RESEARCH FINDINGS

7.1 REVEALED PREFERENCE: CURRENT TRAVEL BEHAVIOR

One in three respondents reported that their child usually walked to school and nearly one in 10 reported biking to school (Table 7.1). These modal shares are slightly higher than those reported in the district-wide parent survey that was conducted in spring 2010. Among students who usually walked or biked to school, 81% were accompanied by their parents. The remainder traveled with siblings (6%), other adults (3%), or friends (2%). Eight percent reported traveling by themselves.

Table 7.1: Revealed Preference Mode Choice

	Web Survey		SRTS District-wide Parent Surveys Spring 2010	
Mode	**All Completed Surveys (n=149)**	**Trips Less than 1 Mile (n=92)**	**All Completed Surveys (n=1917)**	**Within One Mile (n=1395**
Walk, Scoot, Skate	34%	49%	29%	36%
Bicycle	9%	10%	7%	6%
School Bus	11%	7%	17%	15%
Auto	46%	35%	44%	40%
Other			2%	2%
Total	100%	100%	100%	100%

Bivariate associations between usual travel mode to school and trip, child and household factors showed unadjusted associations between mode and the parental education, parental schedule flexibility, presence of adult crossing guards near the school, and observing other kids in the neighborhood walking or biking to school (Table 7.2).

Table 7.2: Bivariate Associations with Mode Choice

Variable	Chi-squared Test Statistic	p-value
Trip Characteristics		
Adult crossing guard always or sometimes near school	**6.80**	**0.078**
See other children walking and biking to school	**17.62**	**0.001**
Child Characteristics		
Female	2.57	0.463
Grade	13.41	0.767
White	3.73	0.292
Household Characteristics		
Parent available to take child to school 5 days per week	**13.23**	**0.004**
At least one parent has college degree	**9.07**	**0.028**
Parent has flexible schedule	**26.40**	**0.000**
Household Type	3.82	0.700
<1 vehicle per adult	2.54	0.468
Parent Education	**24.40**	**0.004**
Number of adults	6.54	0.685

Number of children	6.71	0.876
Parent not in paid labor force	1.49	0.684
Single parent	1.43	0.700

Table 7.3 presents five models of revealed mode choice for trips of less than one mile. The reference mode is school bus. The first model includes only travel time as explanatory factors. Each successive model layers in additional variables associated with the trip, the household and the child. The final model presents a constrained model; the model fits the data as well as the full model. The choice sets were limited so that the school bus was not available for trips under 0.3 miles (the shortest school bus trip recorded in the data set).

Table 7.3: Multinomial Models for Trips Less than 1 Mile, Coefficient & P-value

	Travel Time	+ Trip Char.	+ HH Demo.	+ Child Demo.	Final Model
Travel Time					
Walk	-0.351 (<0.001)	-0.343 (<0.001)	-0.400 (<0.001)	-0.394 (<0.001)	-0.412 (<0.001)
Bike	-0.129 (0.16)	-0.114 (0.29)	-0.137 (0.27)	-0.149 (0.32)	-0.190 (0.09)
Drive	-0.393 (0.31)	-0.325 (0.44)	-0.589 (0.21)	-0.566 (0.28)	-0.617 (0.21)
Park	-0.108 (0.47)	-0.125 (0.89)	-0.100 (0.53)	-0.125 (0.50)	-0.0956 (0.54)
Presence of Adult Crossing Guards					
Walk		-1.16 (0.24)	-0.191 (0.87)	-0.604 (0.62)	-0.197 (0.86)
Bike		-1.31 (0.27)	-0.352 (0.78)	-0.479 (0.71)	-0.197 (0.86)
Drive		-0.125 (0.89)	0.953 (0.38)	0.654 (0.56)	0.923 (0.38)
See Children Walking and Biking to School					
Walk		0.754 (0.43)	0.227 (0.83)	1.55 (0.38)	-0.152 (0.87)
Bike		0.818 (0.49)	0.0518 (0.97)	0.898 (0.66)	-0.152 (0.87)
Drive		0.136 (0.88)	-0.527 (0.61)	0.421 (0.81)	-0.152 (0.87)
Parent Available to Take Child to School					
Walk			2.57 (<0.001)	3.55 (<0.001)	2.34 (<0.001)
Bike			0.876 (0.36)	1.80 (0.15)	2.34 (<0.001)
Drive			2.61 (<0.001)	3.55 (0.01)	2.34 (<0.001)
College-educated Parent					

Walk			3.28 (0.01)	3.76 (0.08)	3.68 (<0.001)
Bike			3.33 (0.02)	3.92 (0.09)	3.68 (<0.001)
Drive			3.88 (<0.001)	4.64 (0.02)	3.68 (<0.001)
White					
Walk				3.38 (0.07)	
Bike				3.38 (0.07)	
Drive				1.50 (0.39)	
Female					
Walk				-0.398 (0.63)	
Bike				-0.912 (0.36)	
Drive				-0.306 (0.71)	
Grade					
Walk				0.846 (0.29)	
Bike				0.392 (0.62)	
Drive				0.687 (0.38)	
ASC					
Walk	5.43 (<0.001)	5.25 (<0.001)	2.24 (0.13)	-5.62 (0.35)	2.52 (0.06)
Bike	1.44 (0.12)	1.25 (0.44)	-0.997 (0.52)	-6.37 (0.29)	-1.65 (0.16)
Drive	2.66 (0.01)	2.42 (0.08)	-0.472 (0.71)	-6.37 (0.28)	-0.932 (0.43)
N	91	91	91	91	91
LL	-85.936	-82.819	-73.993	-69.795	-77.243

Note: p-value based on robust standard error

The models in Table 7.3 showed the importance of travel time, and thereby distance, in determining behavior. Environmental factors such as the presence of adult crossing guards and seeing other children walking to school were not significant in these models. Interestingly, the presence of adult crossing guards had a negative impact on rates of walking and biking to school (though not statistically significant). Parental factors, particularly the availability of household adults to take children to school, were important. Children from households with at least one college-educated parent were significantly more likely to be taken to school by their parents – either walking, biking or driving. None of the child's characteristics were statistically significant. This is likely because many parents opted to walk or bike their children to school, so the child's ability to travel independently was not a critical factor for mode choice.

7.1.1 Elasticities

Coefficients in discrete choice models do not contain the quantity of interest – namely the marginal effect of the independent variable on the outcome of interest. Elasticities representing the percent change in the probability of choosing alternative *i* for a 1% change in the independent variable. To calculate the elasticities, individual-level responses to a 1% change in the travel time variables were calculated using the final mode choice model. These individual-level elasticity estimates are then averaged across the sample weighted by the original probability that the individual choose the alternative.

Table 7.4: Elasticity Estimates with Respect to Travel Time

	1% Increase in Walk Travel Time	1% Increase in Bike Travel Time	1% Increase in Drive Travel Time	1% Increase in Park Time
Probability of Walking	-0.013	0.001	0.002	0.000
Probability of Biking	0.015	0.001	0.005	0.001
Probability of Taking the School Bus	0.009	0.001	0.005	0.001
Probability of Driving	0.012	0.002	-0.005	-0.001

The resulting elasticities show school travel mode to be inelastic with respect to travel time (Table 7.4). For example, a 10% increase in walk travel time is associated with a 0.13% decrease in the probability of walking to school. Similarly, increasing drive times by 10% is associated with a 0.05% decrease in the probability of driving to school. This inelastic behavior for trips under one mile may be the result of factors such as schedule flexibility and attitudes playing a larger role in decision-making.

7.1.2 Mixed Logit Models

A random coefficients model was estimated to allow heterogeneous taste variation in the impacts of travel time on mode choice. These models were exploratory and only involved alternative specific constants and travel time as explanatory factors. The small sample size limited the variables that could be tested.

Table 7.5: Mixed Logit Models for Revealed Preference Data for Trips Less than 1 Mile

	Random Coefficients Model [coeff. (p-value)]
Walk Travel Time (neg)	
Mean of ln (coeff)	-0.806 (0.01)
Std Dev of ln(coeff)	0.0851 (0.01)
Bike Travel Time (neg)	
Mean of ln (coeff)	-1.44 (0.05)
Std Dev of ln(coeff)	0.296 (0.70)
Drive Travel Time (neg)	
Mean of ln (coeff)	-0.816 (0.78)
Std Dev of ln(coeff)	3.61 (0.68)
Park Time (neg)	

Mean of ln (coeff)	-1.28 (0.21)
Std Dev of ln(coeff)	0.004 (0.98)
Error Components	
Walk-Bike	
Walk-Bike-Drive	
ASC	
Walk	6.76 (<0.001)
Bike	2.41 (0.12)
Drive	4.22 (0.01)
N	91
LL	-84.938

Note: 1500 random draws used.

The coefficients on the travel time variables were assumed to have independent log-normal distributions because increases in travel time were assumed to decrease utility (or increase if the negative of travel time is entered in the utility functions). Converting the estimates of the mean and standard deviation of ln β, we found the median, mean and standard deviation of β. The resulting mean coefficients on walk and bike travel time are similar to those in the multinomial logit models (Table 7.6). The coefficient on drive travel time has a very large variation, likely indicating some instability in the model due to the small sample size.

Table 7.6: Travel Time Coefficients Based on Random Coefficients-Only Model

	Walk	Bike	Drive	Park
Median	0.447	0.237	0.442	0.278
Mean	0.466	0.275	2.689	0.279
Variance	0.019	0.026	259.972	0.000
Std Dev	0.139	0.161	16.124	0.018

Note: The negative of travel time was entered into the models.
Note: ln β~ N(m,s) then median of β is exp(m+s/2), median is exp(m), and variance is exp(2m+s[exp(s-1]. (Train, 2003, p.154)

7.2 STATED PREFERENCE

The stated preference experiment asked respondents to identify their first and second choice from a set of five alternatives which included:

1. walking or biking with parent or guardian;
2. walking or biking alone or with a friend;
3. walking school bus with a neighborhood parent or retiree as leader;

4. driving with parent or guardian; and

5. driving with neighborhood parent (ie. carpool).

The experiment was designed so that respondents selected from among these alternatives for relatively short trips where walking or biking were realistic options. Non-motorized modes were popular choices. Slightly more than half of the sample selected walking or biking with a parent as their first choice (Table 7.7). Of the respondents, 26% selected driving with parents and very few selected carpooling as a first or second choice. These results suggest a preference for taking children to school or, perhaps, a reluctance to let children walk or bike by themselves.

Table 7.7: Stated Preference Choices

Alternative	First Choice (n=594)	Second Choice (n=576)
Walking/Biking with Parent	56	20
Walking/Biking with Friend or Alone	9	15
Walking school Bus	8	31
Driving with Parent	26	22
Driving with Neighborhood Parent	1	12
Total	100%	100%

The resulting logit models utilized the ranked data. The second selection is simply a choice where the choice set is altered so that the first choice is not available. Table 7.8 presents two logit models for the ranked data. The first only includes attributes of the alternatives (e.g., travel times). The second adds information of the demographic characteristics of the respondent, such as their child's grade and vehicle availability. Including the demographic variables in the model led to a statistically significant improvement in model fit.

Table 7.8: Multinomial Logit Models for Stated Preference Data

Variable	Mode	Attributes Only	p-value	+ Demo.	p-value
Travel Time	Walk with Parents	-0.080	0	-0.089	0
	Walk Alone	-0.083	0	-0.089	0
	WSB	-0.064	0	-0.068	0
	Drive	-0.028	0.22	-0.037	0.13
	Carpool	-0.021	0.41	-0.023	0.38
	Park	-0.002	0.93	0.000	0.99
Crossing Guard	Walk with Parents	0.284	0.12	0.333	0.09
	Walk Alone	0.814	0	0.933	0
	WSB	0.359	0.06	0.408	0.04
	Carpool	-0.006	0.98	0.000	1
See other kids walking	Walk with Parents	0.120	0.51	0.140	0.47
	Walk Alone	0.462	0.03	0.600	0.01
	WSB	0.187	0.32	0.238	0.22
	Carpool	0.137	0.58	0.169	0.5
Parent leads WSB	WSB	0.151	0.31	0.138	0.37
4^{th} or 5^{th} Grade	Walk with Parents			-0.281	0.17
	Walk Alone			1.230	0
	WSB			-0.142	0.5
	Carpool			0.632	0.01

Female	Walk with Parents			0.747	0
	Walk Alone			0.580	0.01
	WSB			0.414	0.04
	Carpool			-0.214	0.43
White	Walk with Parents			1.580	0
	Walk Alone			0.350	0.44
	WSB			0.728	0.07
	Carpool			-0.407	0.35
Parent Available to Take Child to School	Walk with Parents			-0.480	0.04
	Walk Alone			-0.776	0
	WSB			-0.830	0
	Carpool			-0.148	0.61
College Graduate	Walk with Parents			0.740	0.01
	Walk Alone			1.530	0
	WSB			0.861	0
	Carpool			0.364	0.31
Single Parent	Walk with Parents			-0.970	0
	Walk Alone			-0.128	0.72
	WSB			-0.648	0.03
	Carpool			0.092	0.79
<1 Vehicle per Adult	Walk with Parents			0.286	0.21
	Walk Alone			0.032	0.91
	WSB			0.658	0
	Carpool			0.130	0.66
ASC	Walk with Parents	1.800	0	0.079	0.88
	Walk Alone	-0.329	0.35	-2.260	0
	WSB	0.705	0.06	-0.260	0.66
	Carpool	-1.450	0	-1.620	0.01
N		1170		1170	
LL		-1435.826		-1323.437	

Travel time variables had the expected negative signs, with the coefficients for modes involving active travel being statistically significant. Factors described in focus groups as important, such as the presence of adult crossing guards and seeing other kids walking to school, were statistically significant (and positive) for allowing children to walk to school alone or with friends or to participate in a walking school bus. In the revealed preference models, these variables were insignificant. However, the revealed preference data did not differentiate between walking with or without an adult (and nearly all of the walkers were accompanied by an adult). These environmental factors may make parents more comfortable with allowing their children to travel independently.

The demographic characteristics of families and children added significant explanatory power to the models. The child's characteristics, such as age and sex, were associated with mode choice, particularly with the decision to let children travel independently. For example, the probability of walking to school alone or with friends was higher for 4th or 5th graders than for younger children. Parental factors such as availability to take children to school in the morning, educational attainment, single parent status and vehicle availability were associated with mode

choice – sometimes in surprising directions. For example, parents indicating someone was available every day of the week to take their child to school were less likely to choose active transport modes as compared to the reference mode of driving. Having a college degree was associated with higher rates of active alternatives, perhaps reflecting the "bikey" lifestyle that was cited in the focus groups. Single-parent status was associated with less walking with parents to school and less use of the walking school bus. This likely reflects parental time constraints. Have less than one vehicle per household adult was associated with more walking school bus use.

7.3 COMPARISON OF STATED PREFERENCE RESULTS WITH SCHOOL-LEVEL MODE SHIFT DATA

One of the original objectives of this study was to relate data from the stated preference survey to longitudinal trend data on school-level mode shift at Portland elementary schools. Unfortunately, there were too few survey respondents per school for this analysis to be meaningful.

8.0 WEB SURVEY RESEARCH CONCLUSIONS

This project was the first application (the authors know of) of stated preference methods in the area of SRTS programs. The results of this project have implications in two areas: methods and efficacy of stated preference surveys around children's school travel, and insights into demographic and environmental factors influencing school travel.

8.1 EFFICACY OF STATED PREFERENCE METHODS FOR SCHOOL TRAVEL

SRTS programs focus on increasing rates of walking and biking to school. In general, this limits the population of interest to one to two miles. However, only 20% of American students live within one mile of their school (McDonald, 2007). Many of the existing data collection methods (e.g., student travel tallies and parent surveys) are unable to disaggregate behavior by distance to school. The combination of stated and revealed preference data provides one solution to this issue when the goal is to understand how families make school travel decisions. Stated preference surveys can focus on relatively short distance trips to understand the key influences on mode choice for these policy-relevant trips.

The key challenge to the use of stated preference surveys (and surveys in general) is non-response bias. While our survey had mode shares similar to those recorded in larger parent and student surveys of Portland students, there is the potential for certain types of individuals to have a higher propensity to respond. For example, those that strongly support or strongly oppose governmental changes to encourage active transportation may be more likely to respond than those with neutral attitudes. If the explanatory variables in the model do not adequately control for these biases, coefficient estimates and, therefore, implications could be misleading. This current project was proposed as a pilot to establish the feasibility of the approach. The survey response rate was low; however respondents' current travel behavior matches data from larger surveys of school travel in Portland. Any future use of stated preference surveys related to SRTS programs should include procedures to ensure a representative sample. In this study, we provided an opportunity to be entered in a grocery-store gift-certificate lottery as an incentive. Other incentives should be tested to ascertain their effect on response rates. Another sampling method would be conducting the survey at a school event (PTA fundraiser) where a large proportion of the school attends. While there may be some systematic biases in who attends school events that would need to be accounted for, this approach could be useful if other methods yield very low response rates.

8.2 FACTORS INFLUENCING MODE CHOICE FOR SHORT-DISTANCE TRIPS TO SCHOOL

Studies of children's school travel have consistently identified travel time as a critical factor in mode choice. The stated and revealed preference data identified a similar pattern in this study. However, the study also provided a more nuanced understanding of factors not traditionally analyzed. Specifically, the focus groups identified seeing other children walking and biking to

school and the presence of adult crossing guards as important factors in mode choice. The revealed preference data did not show these to be significant. However, the stated preference survey, which differentiated between traveling with and without an adult, showed these two variables to be important for parents to allow their children to travel independently.

The stated preference survey also provided information on the demographic factors affecting whether children are allowed to walk or bike to school without an adult. Older children and girls were more likely to travel with parents. The web survey also reinforced the importance of parental availability to take children to school. Focus groups had identified this as an important issue.

The stated preference surveys also suggested the need to develop robust sets of attitudinal questions that could be used as latent variables to improve mode choice prediction and provide insights into how attitudes influence behavior.

8.3 IMPLICATIONS FOR SRTS PROGRAMS

One objective of this research was to look at how stated preference surveys could be used to assess SRTS interventions before they are implemented. For this project we selected walking school buses as the intervention to test. Our study found relatively modest preferences for the walking school bus among study respondents. In this study population, participants selected the walking school bus as their first choice in 8% of experiments and as their second choice in 31% of experiments. Respondents were more inclined to walk their own children to school.

These results suggest that stated preference surveys could become a useful tool for SRTS practitioners. However, the next research step involves validating the stated preference approach in areas implementing SRTS interventions. Predicted mode shares from combined stated and revealed preference data could be compared with actual shares. Beyond showing the validity of the method, this approach would likely identify the types of interventions that are amenable to stated preference surveys. For example, what types of interventions can parents realistically envision and make decisions about without having experienced previously?

Even without the validation of the stated preference, important information relevant for SRTS program design can be gleaned from the surveys. The first of these is the differentiation between traveling with and without an adult. Recognizing the hesitation of families to allow children to travel independently may influence the types of social marketing and education schools and communities conduct as part of the SRTS program.

The next is the influence of demographic factors on mode choice. Single parents were more likely to choose driving their children to school in the stated preference survey. This likely reflects their time constraints and need to trip chain. The composition of the school community will influence the appropriateness and success of SRTS interventions. Surveys could be used to prioritize investments in SRTS programs.

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10.0 APPENDIX A: FOCUS GROUP QUESTIONS

Focus Group Discussion Areas

Warm Up Questions

- age and number of children at the school
- how currently travel to school
- how currently travel home from school
- how many cars in the household
- how many parents work outside the home

Convenience/Time

- Do parents connect the trip to school to other household trips, especially the trip to work?
- How does traffic around the school impact their decision to drive in terms of time and convenience?
- How do the conditions at the school impact their decision to drive and perceptions of time, such as the inconvenience of wait time in the queue to pick up or drop off children

Children's Independence and Safety Concerns

- how do they evaluate their child's independence and readiness to travel alone, or with other children, versus the need to be accompanied by a parent/responsible adult?
- How does this change as the child ages?
- If they accompany their child, why do they chose to do so?
    - Fear of bullying, stranger danger
    - Fear of unsafe road conditions, crossings
    - Desire to spend time with child
    - Desire for child to meet up with other children along the way
    - Desire to set a good example

Social/Cultural Attitudes and Perceptions

- Is their decision influenced by the travel choice made by other parents/neighbors?
    - If so, how and why?
    - Does the presence or actions of a "champion" for active transportation affect their perceptions and decisions?
- What are their personal views on active transportation and how does it affect their decision to allow children to walk or bike to school, with or without adult accompaniment?
- Do they view driving children to school as being a "better parent"?
- Does opportunity to socialize and/or network with other parents or see teachers impact their decision to walk, bike or drive?

Children's Preferences

- how much, if at all, do their child's preferences affect their decision?

- Does their child prefer to walk, bike or be driven? Why?
- What to their children take to school on a regular basis (backpack, musical instrument, etc.) and does this affect their travel choice?

End:
Voluntarily provide email address to pilot web-based survey at a later date
Give out the incentive

11.0 APPENDIX B: WEB-BASED SURVEY SCRIPT

Elementary School Commute Survey

Intro.
Welcome to the Elementary School Commute Survey!

We'd like your help in learning more about choices families make about getting kids to school in the morning.
The City of Portland and your school want to ensure all students have safe options to travel to and from school. This survey will ask about:

- How your elementary school child currently gets to school
- How your child might get to school if a new program was started in your community, and
- Some general information about your household

This survey takes about 10 minutes, participation is voluntary, and your responses are confidential. After you complete the survey, you'll be taken to another site where you can enter to win a $50.00 Fred Meyer gift
certificate. If you're unable to finish the survey now, you can come back later and pick up where you left off.
Please complete just one survey for your household.

The Oregon Department of Transportation is funding this research being conducted by the Center for Transportation Studies at Portland State University. As a participant in this survey, you may contact the PSU
Human Subjects Research Review Committee if you have questions about your rights as a research participant. Their phone number is 503-725-4288.

Click "Next" to start!
[This survey is best displayed in Firefox or Internet Explorer version 7 or later]

ELIG.
First, we have some questions to make sure you're eligible to take the survey.

ELIG1. Are you the parent or guardian of an elementary school student?
- ○ Yes
- ○ No

ELIG2. Is your child home-schooled?
- ○ Yes
- ○ No

ELIG3. Does your child travel from your home to their elementary school at least one day a week?
- ○ Yes
- ○ No

[IF ELIG1=No or ELIG2=Yes or ELIG3=No → INELIGIBLE]

INELIGIBLE. Thanks for taking the time to respond to our survey. Those are all the questions we have for you today, but you can still enter to win a $50.00 Fred Meyer gift certificate!

Just click "Finish" and you'll be taken to another page where you can enter your contact information for the drawing.

SECT1.
Great, you're eligible to continue the survey!

The next questions are about how your child currently gets to school. Please answer these questions about your elementary school student and their commute from your home to school.

If you have more than one elementary school student, answer for your oldest elementary school student only. For example, if you have children in 1st and 3rd grade, you would answer about the 3rd grader's situation.

Q1. How many miles is it from your house to your child's school?

- o Less than 1/2 mile
- o 1 1/2 miles to less than 2 miles
- o 1/2 mile to less than 1 mile
- o 2 miles or more
- o 1 mile to less than 1 1/2 miles
- o Don't Know

Q2. What school does your child attend?

- o Abernethy
- o Atkinson Elementary
- o Beach Elementary
- o Boise-Eliot
- o Bridger
- o Buckman Elementary
- o Capitol Hill Elementary
- o Chapman Elementary
- o Chief Joseph Elementary
- o Clarendon at Portsmouth
- o Creston
- o Earl Boyles Elementary
- o Faubion
- o Forest Park Elementary
- o Gilbert Heights Elementary
- o Gilbert Park Elementary
- o Glencoe Elementary
- o Harrison Park Elementary
- o Harvey Scott
- o Humboldt
- o James John Elementary
- o Kelly Elementary
- o Laurelhurst
- o Lent
- o Lewis Elementary
- o Llewellyn Elementary
- o Maplewood Elementary
- o Mill Park Elementary
- o Prescott Elementary
- o Rieke Elementary
- o Rigler
- o Rosa Parks Elementary
- o Roseway Heights
- o Russell Academy
- o Sacramento Elementary
- o Shaver Elementary
- o Sunnyside Environmental
- o Ventura Park Elementary
- o Vestal
- o Woodmere Elementary
- o Other

Q2_O. If "Other", please specify:

Q266. Is that your neighborhood school?

- o Yes
- o No
- o Don't Know

Q3. What grade is your oldest elementary school child in?

- o Pre-Kindergarten
- o Kindergarten
- o 1st Grade
- o 2nd Grade
- o 3rd Grade
- o 4th Grade

- ○ 5th Grade
- ○ 6th Grade
- ○ Don't Know

Q4. How does your child usually get to school from your home? Please select the one method used **most frequently**, or the method that covers the **most distance** in your commute.

- ○ Walking
- ○ Bicycle
- ○ Scooter or skating
- ○ TriMet
- ○ School Bus
- ○ Driving with a parent or caregiver
- ○ Riding in a carpool
- ○ Other: _____

Q5. About how many **minutes** does it take your child to get from home to school by {Q4Response}?

[Minutes to School] _____

[IF Q4 ≠ School Bus]

Q6. Who usually accompanies your child to school? Select all that apply.

- ☐ Myself
- ☐ Other parent or guardian
- ☐ Other adult relative
- ☐ Other adult, not a relative
- ☐ Older sibling
- ☐ Younger sibling
- ☐ Child's Friend(s)
- ☐ No one, my child travels alone
- ☐ Other: _____

[IF Q6 = Myself **or** Other parent **or** guardian or other adult relative **or** Other: grandparent **or** Other: grandma **or** Other: grandpa**]**

Q61. What are the **main reasons** your child is taken to school by you or another adult? Select all that apply.

- ☐ Opportunity to spend time with my child
- ☐ Opportunity for exercise or to get out of the house
- ☐ Concern about traffic danger
- ☐ Child unreliable or too young
- ☐ Danger from adults
- ☐ Fear of bullying by other children
- ☐ Opportunity to meet people (teachers, other parents, etc.)
- ☐ On the way to an activity for myself or my child (e.g. shopping, visiting a friend, after school club, etc.)
- ☐ School too far away
- ☐ Other: _____

[IF Q4 = Driving with a parent or caregiver **or** Riding in a carpool **or** Other: drive → **DRIVERS]**
[IF Q4 = Walking **or** Bicycle **or** Scooter or skating **or** TriMet **or** Other: **does not contain** drive → **NONDRIVERS]**
[IF Q4 = School bus → **Q12]**

DRIVERS

Q8. When your child is driven to school, are they usually...

- ○ Dropped off at the school
- ○ Dropped off to walk without an adult after parking a short distance from school
- ○ Walked to the school entrance or school grounds after parking
- ○ Walked to their classroom after parking
- ○ An even mix of dropping off outside the school and walking to the classroom
- ○ Other: _____
- ○ Don't Know

[IF Q8 = Walked to the school entrance or school grounds or Walked to their classroom after parking or An even mix of dropping off outside the school and walking to the classroom or Other: park or Dropped off to walk without an adult after parking a short distance from school]

Q9. How long does it usually take to find parking?

- Less than 5 minutes
- 5 - 9 minutes
- 10 -15 minutes
- More than 15 minutes
- Don't Know

NONDRIVERS

Q7. When your child is taken to school, are they usually...

- Accompanied to the school entrance or school grounds
- Walked to their classroom
- An even mix of dropping off outside the school and walking to the classroom
- Other: _____
- Don't Know

[IF Q6 = Myself]

Q10. Where do you usually go right after taking your child to school?

- Continue to work or school
- Drop off other children at different locations
- Return home
- Run errands without returning home
- Other: _____

[IF Q6 = Other parent or guardian**]**

Q11. Where does your child's other parent or guardian usually go right after taking them to school?

- Continue to work or school
- Drop off other children at different locations
- Return home
- Run errands without returning home
- Other: _____
- Don't Know

Q12. About how many **days per week** does your child usually get to school by {Q4Response}?

[Enter days per week, from 0 to 5] _____

[IF Q12 = Less Than 5 or is **Empty]**

Q13. Besides {Q4Response}, how else does your child get to school? Select all that apply.

- ☐ Walking
- ☐ Bicycle
- ☐ Scooter or skating
- ☐ TriMet
- ☐ School bus
- ☐ Driving with a parent or caregiver
- ☐ Riding in a carpool
- ☐ Other: _____

SECT2.

Coordinating parents' and children's schedules can be difficult. We'd like to know more about how you and your family do this.

Q14. With your current schedule, how often do you have the **option** of taking your child to school in the morning? Please count times you are <u>available</u> to take your child to school, even if you <u>do not actually go</u>

with them.

- Never
- A couple days a month or less
- 1 - 2 days per week
- 3 - 4 days per week
- 5 days per week
- It varies from week to week
- Don't Know

Q15. On a scale of 1 to 5, how difficult or easy would it be for you to **adjust your schedule** to take your child to school on a day you **don't normally** take them?

- 1: Very Difficult
- 2
- 3
- 4
- 5: Very Easy
- Not applicable, I take my child to school every day
- Don't Know

Q16. If you have a partner or other guardian living in your home, how often do they have the **option** of taking your child to school in the morning? Please count times they are available to take your child to school, even if they do not actually go with them.

- Never
- A couple days a month or less
- 1 - 2 days per week
- 3 – 4 days per week
- 5 days per week
- It varies from week to week
- Not applicable, no other guardian of my child in my home
- Don't Know

[IF Q16 ≠ Don't Know **and** Not applicable, no other guardian of my child in my home**]**

Q17. On a scale of 1 to 5, how difficult or easy would it be for your partner or child's guardian to **adjust their schedule** to take your child to school on a day they **don't normally** take them?

- 1: Very Difficult
- 2
- 3
- 4
- 5: Very Easy
- Not applicable, they take my child to school every day
- Don't Know

STATED PREFERENCES

SPINTRO.

The following questions will ask you to choose the best way for your child to get to school among 5 options:

1. Walking or biking with you or another guardian
2. Walking or biking alone or with friends
3. Using a walking school bus
4. Driving with you or another guardian

5. Riding in a carpool or with a neighbor

A **walking school bus** is a group of children who walk to school together led by adult volunteers. The leaders are either neighborhood parents or other community members and are screened the same way other school volunteers are screened.

A walking school bus will only be an option for families who live close enough to school to walk. **For the sake of answering these questions, please assume that you live close enough to school to walk or bike, even if this is not currently true.**

Please continue to respond for your **oldest elementary school child.**

[Photo Example of a Walking School Bus]

STATED PREFERENCE BLOCK TEMPLATE

SP#Intro.
The next 4 questions each give a different scenario with 5 options for getting your child to school.
The **time it takes to travel to school** with each option will **change** in each of the 4 scenarios. Please consider these travel times, rather than your child's actual commute time. Each scenario will also include information about whether there are **crossing guards**, and whether there are **other children walking or biking to school.**

Please choose which two options would work best for your family in each scenario.

When answering, please assume that:

- You and others in your household have their usual morning schedules
- Your child would be traveling to their current elementary school
- You live close enough to walk or bike to the school, even if this is not currently true
- The travel times given for each option are correct, even if they are not the same as your child's current commute time.

SP#.1.

Which of the following would be the **first** and **second best options** for getting your child to school?

In this situation, there [**is an adult crossing guard**/**no** adult crossing guard] at major intersections on your child's route to school. You [see **other children**/**do not see** other children] in the neighborhood **walking or biking** to school every morning.

Option 1	Option 2	Option 3	Option 4	Option 5

Walk or Bike with a **parent or guardian**	**Walk or Bike alone** or **with a friend**	**Walking School Bus** with a **neighborhood parent**	**Drive** with a **parent or guardian**	**Drive** with a **neighborhood parent**
Travel Time: <walktime> **minutes** from home to school	Travel Time: <walktime> **minutes** from home to school	Travel Time: <wsbtime> **minutes** from home to school	Travel Time: <drivetime> **minutes driving** and <parktime> **minutes** to find **parking**	Travel Time: <nbr_drive> **minutes** from home to school
First Choice				
O	O	O	O	O
Second Choice				
O	O	O	O	O

SP1.1a. Optional comments

_____

BACKGROUND INFO

SECT3.
Next, we'd like to know a little bit more about your household so that we can better understand who might be interested in and able to use a walking school bus.

Q18. How many **adults**, aged 19 and over, currently live in your household? _____

Q19. How many **children**, aged 18 and under, currently live in your household? _____

[IF Q19 = Empty or Q19 ≤ 1 → Q22]

Q20. What is the age of the **youngest child** living in your household?

- ○ Less than one year old
- ○ 1 - 4 years old
- ○ 5 - 8 years old
- ○ 9 -12 years old
- ○ 13 - 15 years old
- ○ 16 - 18 years old
- ○ Don't Know
- ○ Decline

Q21. What is the age of the **oldest child**, 18 or under, in your household?
Less than one year old

- ○ Less than one year old
- ○ 1 - 4 years old
- ○ 5 - 8 years old
- ○ 9 -12 years old
- ○ 13 - 15 years old
- ○ 16 - 18 years old
- ○ Don't Know
- ○ Decline

Q22. How many working automobiles are owned by your household? _____

Q23. What is the **closest intersection** to your home?

For example, if you live on SE Main St. and the closest street that intersects it is SE 10th Ave, the closest intersection to you is SE Main St. and SE 10th Ave. You'd enter SE Main for Street One and SE 10th for Street Two. We'll only use this information to calculate the exact distance from your area to the school.

Street One: _____
Street Two: _____

Q24. What is your gender?

- ○ Male
- ○ Female
- ○ Other

Q25. Which of the following races or ethnicities best describe you? Select all that apply.

- ☐ White or Caucasian
- ☐ Black or African-American
- ☐ Hispanic or Latino/Latina
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ American Indian or Alaskan Native
- ☐ Other: _____

Q26. What is the highest level of education you have completed?

- o Grade school or some high school
- o High school diploma or GED
- o Some college
- o 2-year college degree (Associate's or technical degree)
- o 4-year college degree (B.A. or B.S.)
- o Some graduate school
- o Graduate or professional degree
- o Other: _____

Q27. Do you have a personal bicycle that is in working condition?

o Yes o No o Don't Know

Q28. Which of the following best describes your current employment status? Select all that apply.

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Student
- ☐ Unemployed
- ☐ Stay-at-home parent
- ☐ Retired
- ☐ Other: _____
- ☐ Decline

[IF Q28 = Employed full-time **or** Employed part-time **or** Student**]**

Q29. How do you usually get to work or school?

- o Drive myself
- o Driven by someone else
- o Walk Bicycle
- o TriMet
- o None, I work or study from home
- o Other: _____

Q30. Is there **another primary adult caregiver** or guardian of your oldest elementary school child living **in your home**?

o Yes o No o Decline

[IF Q30 = Yes → **Q31]**
[IF Q30 = No **or** Decline →**SECT4.]**

Q31. What is the other caregiver's gender?

o Male o Female o Other

Q32. Which of the following races or ethnicities best describe them? Select all that apply.

- ☐ White or Caucasian
- ☐ Black or African-American American
- ☐ Hispanic or Latino/Latina Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ Indian or Alaskan Native
- ☐ Other: _____

Q33. What is the highest level of education the other caregiver has completed?

- o Grade school or some high school
- o High school diploma or GED
- o Some college
- o 2-year college degree (Associate's or technical degree)
- o 4-year college degree (B.A. or B.S.)
- o Some graduate school
- o Graduate or professional degree
- o Other: _____

- ○ Don’t Know

Q34. Does the other caregiver have a personal bicycle that is in working condition?

- ○ Yes
- ○ No
- ○ Don't Know

Q35. Which of the following best describes their current employment status? Select all that apply.

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Student
- ☐ Unemployed
- ☐ Stay-at-home parent
- ☐ Retired
- ☐ Other: _____
- ☐ Don’t Know
- ☐ Decline

[IF Q35 = Employed full-time **or** Employed part-time **or** Student]

Q36. How do they usually get to work or school?

- ○ Drive themselves
- ○ Driven by someone else
- ○ Walk
- ○ Bicycle
- ○ TriMet
- ○ None, they work or study from home
- ○ Other: _____
- ○ Don't Know

SECT4.

We have some questions about your oldest elementary school child and their school. This information will help us better understand the choices you made earlier in the survey.

Q37. What is the gender of your oldest elementary school child?

- ○ Male
- ○ Female
- ○ Other

Q38. Does your child have a personal bicycle that is in working condition at your home?

- ○ Yes
- ○ No
- ○ Don't Know

Q39. On a scale of 1 to 5, how would you rate your child's cycling ability?

- ○ 1 Can not ride a bicycle
- ○ 2
- ○ 3
- ○ 4
- ○ 5 Excellent ability to ride a bicycle
- ○ Don’t Know

Q40. Are there adult crossing guards to help students cross the street near your child's school?

- ○ Yes, every day
- ○ Sometimes
- ○ No
- ○ Don't Know

Q41. What type of parking is available if you drive your child to school? Select all that apply.

- ☐ Parking lot at the school
- ☐ Free on-street parking near the school
- ☐ Metered parking near the school
- ☐ Pay parking lots near the school
- ☐ Other: _____
- ☐ Don't Know

Q42. Does your school have a designated area where you can drop your child off without getting out of your car?

- ○ Yes
- ○ No
- ○ Don't Know

Q43. How often do you see or hear kids from your own neighborhood or street walking or biking to school in the morning?

○ Never ○ Sometimes ○ Frequently ○ Always ○ Don't Know

SECT5.

These final questions ask about how much your child is allowed to travel <u>without</u> an adult. We're trying to better understand when parents let children travel on their own so we can provide walking and biking safety education programs for the right age groups.

Q44. Is your child allowed to **cross main roads** alone?

○ Yes ○ No ○ It Depends ○ Don't Know

Q45. Is your child allowed to **walk to a friend's house** in your neighborhood alone?

○ Yes ○ No ○ It Depends ○ Don't Know

[IF Q44 = Yes **or** It Depends**]**
Q47. At what age was your child **first allowed** to **cross main roads** alone? _____

[IF Q44 = No **or** Don't Know**]**
Q48. At what age do you **think you will allow** your child to **cross main roads** alone? _____

[IF Q45 = Yes **or** It Depends**]**
Q49. At what age was your child **first allowed** to **walk to a friend's house** in your neighborhood alone? _____

[IF Q45 = No **or** Don't Know]
Q50. At what age do you **think you will allow** your child to **walk to a friend's house** in your neighborhood alone? _____

Q53. How worried are you about the risk of your child being injured in a traffic accident when crossing a road without an adult?

○ Very ○ Quite ○ Not Very ○ Not at all ○ Don't Know/ Not Sure

Q268. How worried are you about the risk of a stranger bothering your child if they walked without an adult?

○ Very ○ Quite ○ Not Very ○ Not at all ○ Don't Know/ Not Sure

Q54. Is your child usually allowed to **travel on local buses** alone (other than a school bus)?

- ○ Yes
- ○ No
- ○ It Depends
- ○ Don't Know

[IF Q54 = Yes or It Depends]
Q56. At what age was your child **first allowed** to **travel on buses** alone? _____

[If Q54 = No **or** Don't Know**]**
Q57. At what age do you **think you will allow** your child to **travel on buses** alone?

END.
Thank you for taking the time to complete the survey! If you have any additional comments you'd like to leave, please enter them in the box below.

Click on "Submit" to submit your completed survey. You will then be taken to a separate page where you can
enter a drawing to win a $50.00 Fred Meyer gift card.

FINAL_O. Optional Comments:
_____
_____
_____

If you have any questions about this survey or the drawing, you may contact:

Tara Horn
Research Assistant
Portland State University Survey Research Lab
[Phone]
[email]

12.0 APPENDIX C: STATED PREFERENCE OPTIONS

Block	Scenario	wsbwho	walktime	wsbtime	drivetime	parktime	nbr_ drivetime	xingguard	otherkids
1	1	neighborhood parent	12	19	7	10	17	Yes	Yes
1	2	neighborhood retiree	15	28	15	5	20	No	No
1	3	neighborhood parent	25	30	10	3	13	Yes	Yes
1	4	neighborhood retiree	15	25	5	1	6	No	No
2	1	neighborhood retiree	20	27	5	1	6	Yes	No
2	2	neighborhood parent	7	17	7	10	17	No	Yes
2	3	neighborhood retiree	20	25	15	5	20	Yes	No
2	4	neighborhood parent	20	33	10	3	13	No	Yes
3	1	neighborhood parent	22	35	7	1	8	Yes	No
3	2	neighborhood retiree	17	24	7	5	12	Yes	Yes
3	3	neighborhood retiree	5	10	5	10	15	No	Yes
3	4	neighborhood parent	10	20	5	3	8	No	No
4	1	neighborhood retiree	10	23	5	10	15	Yes	Yes
4	2	neighborhood retiree	30	40	15	3	18	Yes	Yes
4	3	neighborhood parent	10	17	10	5	15	No	No
4	4	neighborhood parent	17	22	7	1	8	No	No
5	1	neighborhood retiree	25	32	10	10	20	No	No
5	2	neighborhood retiree	12	17	7	3	10	No	No
5	3	neighborhood parent	15	25	15	1	16	Yes	Yes

5	4	neighborhood parent	15	28	5	5	10	Yes	Yes
6	1	neighborhood retiree	25	32	15	3	18	No	Yes
6	2	neighborhood parent	30	43	15	10	25	No	No
6	3	neighborhood parent	15	25	10	5	15	Yes	No
6	4	neighborhood retiree	10	15	10	1	11	Yes	Yes
7	1	neighborhood parent	20	25	5	5	10	No	Yes
7	2	neighborhood retiree	20	30	10	10	20	Yes	No
7	3	neighborhood parent	20	27	15	1	16	No	Yes
7	4	neighborhood retiree	7	20	7	3	10	Yes	No
8	1	neighborhood retiree	22	32	7	5	12	No	Yes
8	2	neighborhood parent	5	12	5	3	8	Yes	No
8	3	neighborhood parent	25	30	15	10	25	Yes	No
8	4	neighborhood retiree	15	28	10	1	11	No	Yes

13.0 APPENDIX D: RECRUITMENT FLYER

Help us improve children's school commutes by sharing your experiences as a parent!

The Center for Transportation Studies at Portland State University is doing research on how parents get their children to and from school and how they feel about transportation options.

You can help by completing a 10-minute survey online at the following web address:

www.SchoolCommute.Org

Your opinions are important and will help improve the Safe Routes to School program, transportation options and safety for children and parents traveling to and from school.

At the end of the survey, you can enter to win a $50.00 Fred Meyer gift card.
One gift card will be awarded for each school.

This survey is voluntary and confidential. If you have questions please contact:
Tara Horn, Research Assistant, PSU Survey Research Lab
503-725-XXXX, xxxxxx@pdx.edu

Portland State
UNIVERSITY

P.O. Box 751
Portland, OR 97207

OTREC is dedicated to stimulating and conducting collaborative multi-disciplinary research on multi-modal surface transportation issues, educating a diverse array of current practitioners and future leaders in the transportation field, and encouraging implementation of relevant research results.