

**Walking, riding or driving to school: what influences
parents' decision making?**

Key findings and recommendations

Dr Jan Garrard

**Prepared for the South Australian Department of Planning,
Transport and Infrastructure**

May 2017

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ACKNOWLEDGEMENTS

The author would like to thank the many parents of primary school children in South Australia who took the time to provide valuable information about parental supports and constraints on active travel to school through their participation in focus group discussions and the online survey. Thank you, also, to the five schools and their teachers who facilitated the focus group discussions.

Many thanks also, to staff from the South Australian Government Department of Planning, Transport and Infrastructure (DPTI) who provided valuable support and assistance throughout all stages of the project.

PREFACE

This report has been prepared by Dr Jan Garrard, Research, Evaluation and Active Transport Consultant, for the South Australian Department of Planning, Transport and Infrastructure (DPTI), May 2017. The report presents key findings and recommendations from a three-phase project aimed at providing an evidence-based understanding of parental supports and barriers to primary school children's active travel choices for the school commute. The three phases are as follows.

Phase 1 comprised a review of research related to children's active school travel in Australia and comparable overseas locations, with a focus on the role of parents in determining the school travel mode of primary school children. The focus was on the personal, environmental, social/cultural, and policy/regulatory factors that facilitate and constrain parents/carers permitting their children to travel actively to school, either accompanied or independently.

Phase 2 used the literature review findings to develop and conduct an in-depth qualitative study which explored (i) parents' perspectives on factors that influence how their children travel to school with a focus on motivations for, and constraints on active travel to school; and (ii) parents' suggestions for increasing primary school students' active travel to school.

Phase 3 used the findings from Phases 1 and 2 to develop and conduct an online survey of parents of primary school aged children in South Australia aimed at quantifying the key factors identified in Phases 1 and 2.

Five reports have been prepared:

1. Literature Review.
2. Summary of key findings from the Literature Review.
3. Focus Group Discussion report.
4. Online Survey report.
5. Summary of key findings from the online survey, including overall study conclusions and recommendations (this report).

Funding for the project was provided by the South Australian Department of Planning, Transport and Infrastructure.

1 INTRODUCTION

This report presents key findings and recommendations from the final phase (an online survey of parents) of a three-phase study aimed at understanding and overcoming parental barriers to children's active travel to primary school. The questionnaire items were based on findings from the literature review (Phase 1) and focus group discussions with parents (Phase 2).

The study draws on the social-ecological model of influences on active/passive modes of travel to and from school, which describes four mutually interactive segments of influence: intra-individual factors (including demographic and psycho-social factors); the natural/built environment; the social/cultural environment; and the policy/regulatory environment (Figure 1).

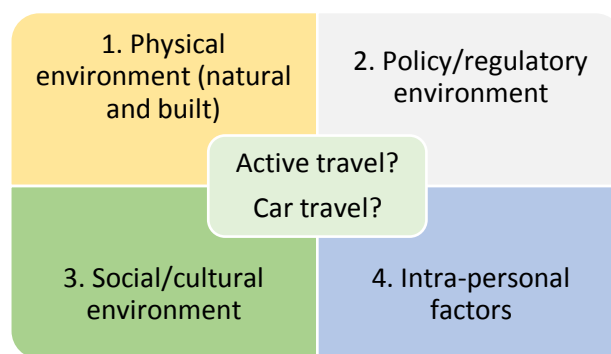


Figure 1: Social-ecological model of active/inactive travel behaviour

The focus of the study is on intra-personal factors; specifically, the role of parents in determining how their primary school age children travel to and from school. While the focus is on parental characteristics and on parents' perspectives, attitudes and circumstances, it is also important to recognise that many of these parental factors are shaped by factors within the built/natural, policy/regulatory, and social/cultural environments. In addition, there is increasing recognition that the influence of environmental factors on parental school travel behaviour is mediated by parents' perceptions of environmental factors (eg perceived personal safety and traffic safety), in addition to actual conditions (Mitra, 2013).

Policies and programs aimed at increasing active travel to school can therefore be directed at (a) changing parental behaviour by focussing directly on intra-personal factors such as parents' beliefs, attitudes and circumstances, and/or (b) changing the physical, policy/regulatory, and social/cultural environments that shape parents' and children's travel behaviour.

Primary school age children are transitioning from parent-supervised travel to school to independent travel to school. Based on previous qualitative research indicating that supports and constraints on active travel to school differ for parent-supervised and independent travel to school (Faulkner et al., 2010), the study explored both parent-accompanied and independent travel to/from school.

The following sections (Methods and Results) summarise key findings from the online survey of parents, with the final section (Conclusions and Recommendations) drawing on findings from the three phases of the study (ie Literature Review, Focus Group Discussions and Online Survey).

2 METHODS (ONLINE SURVEY)

An online survey was developed and administered using SurveyGizmo online survey development and administration software (<https://www.surveygizmo.com/>). The survey comprised 36 questions covering demographic questions (parents/carers and children); modes of travel to and from school; use of before and after school care programs; accompaniment while travelling to and from school; parental trip-chaining associated with school travel; parents' attitudes to active and inactive modes of school travel, and to parent-accompanied and independent active travel to/from school; parents' use of active and inactive travel modes for non-school trips; participation in school-based active travel to school initiatives; and suggestions for increasing rates of active travel to school.

An incentive for parents to complete the survey was provided in the form of the opportunity to win one of three \$300 gift vouchers (randomly selected) for sports or stationery equipment awarded to the child's school.

Invitations to participate in the survey were distributed by email by DPTI to the principals of 30 South Australian primary schools who were requested to invite school parents to participate in the survey; together with individual invitation emails to approximately 300 parents who had previously responded to other Way2Go surveys (138 completed responses). In addition, approximately 2000 DPTI staff were invited by email to complete the survey if they had children attending primary school in South Australia (678 completed responses). The final sample comprised 816 parents/carers from 291 primary schools and 70 South Australian postcode areas.

3 RESULTS (ONLINE SURVEY)

3.1 Parent/carer and child demographic characteristics

Survey respondents were mainly female (76%), aged 30-49 years (89%), and worked either full-time (48%) or part-time (45%). Few parent/carers were mainly engaged in home duties (5%). Eighty percent of respondents were born in Australia, and 20% were born overseas, and most households had another parent or guardian living in the household (88%).

The majority of households (57%) had two children in the household, and had two registered motor vehicles in the household (62%). Less than a quarter of households (22%) had one registered motor vehicle in the household, and only one percent had none. Most parents usually travel to work or place of study by car (63%) or public transport (25%).

Parents/carers were asked to respond to the survey for one child in the household (the child whose birthday was closest to the date of the survey). Most ages within the expected age range for primary school students were well-represented, particularly ages 6 to 12 years.

The mean age was 8.8 years, and the median age 9 years. The sample contained slightly more boys (52%) than girls (48%), but the difference was not statistically significant.

Nearly half of children (48%) lived less than 2km from their primary school, distances that are considered walkable/rideable for most primary school age children (<http://www.saferoutesinfo.org/program-tools/what-distances-are-reasonable-expect-elementary-school-students-bike-school>). However, one in five students lived more than 5km from school.

3.2 Modes of travel to/from school

The majority of children’s trips to and from school are by car (67%), followed by walking (18%) and cycling (7%). Methods of travel to and from school were very similar.

Nearly half of children live less than 2 km from school, with one in five living 5km or more (Figure 2).

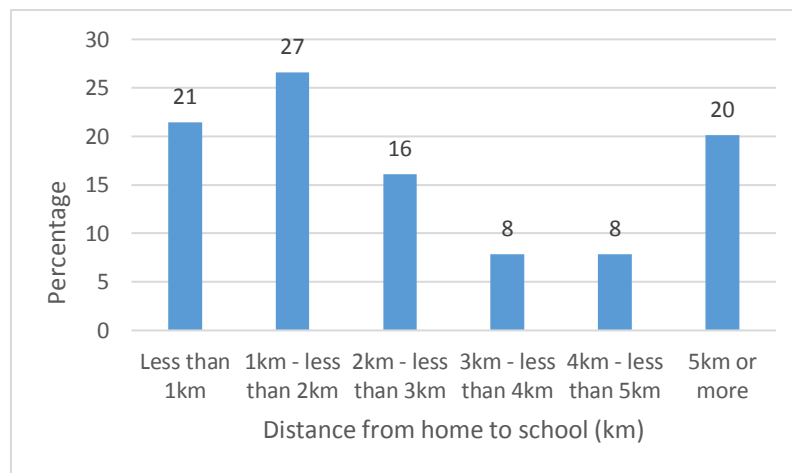


Figure 2: Distance from home to school (km)

While just over two-thirds of trips to and from school are by car, about a half of students travel to and from school by car every day, with the difference made up of similar numbers of children undertaking 4, 3, 2 and 1 car trips to school a week¹. Most of the occasional non-car trips are active trips, indicating that about half of parents/children use active travel to school at least occasionally.

Relatively few children attend before-school care programs (15%). Attendance at after-school programs is more frequent than before-school programs. Among the 40% of children who attend after-school programs, most attend between one and three days a week.

After parents have accompanied their child to school (by active travel or by car) they frequently go on to work or education (74%) or return home (32%). However, 44% of parents occasionally go straight home, and only 24% never go straight home.

After parents pick up their child from school (by active travel or by car) they frequently go straight home (76%), to after-school activities (33%) or to pick up another child (22%).

¹ Findings for trips from school were similar.

The overall pattern of travel destinations after school drop-off and pick-up indicates relatively high levels of trip-chaining among parents for a variety of trip purposes, with few stand-out post-school destinations apart from travelling on to work or education after the morning school drop-off (74%). While more than three-quarters of parents go straight home after the afternoon school pick-up, many of these parents are likely to have come directly from work or education, in which case the mode of travel for the morning trip-chain (commonly home-school-work) is likely to influence the mode of travel for the afternoon pick-up.

Overall, parents have high levels of paid employment (and, to a lesser extent, other commitments) that require high levels of trip-chaining for parents who accompany their children to and from school. These findings indicate that parents' travel mode choices for the school commute will be influenced by their travel mode choices for other trips, especially the journey to and from work. This was found to be the case (see Sections 3.5 and 3.6.3).

3.3 Accompaniment on active trips to/from school

When primary school students travel actively to school they can be accompanied by a parent or carer, or travel independently (alone, or with friends or siblings); with different factors influencing adult-accompanied and independent travel. This distinction is highlighted by previous qualitative research suggesting that parents' decision-making about school travel is a two-step process involving: (i) an initial decision on whether or not to accompany the child to school, followed by (ii) mode choice for parent-accompanied travel to school (ie walking, riding or driving) (Faulkner et al., 2010).

As discussed in the Literature Review, key influences on independent active travel to school include child age, maturity and skills; together with traffic safety and social safety considerations. On the other hand, parent-accompanied active travel to school is influenced by factors including travel time and/or distance to school; parents' trip-chaining requirements; parents' own use of active transport to work and other destinations; and having a pleasant route to walk or ride to school.

In the present study, children who travel actively to or from school² mainly do so accompanied by a parent, carer or other adult (Figure 3). Sixteen percent of children travel to school unaccompanied by an adult, with 19% unaccompanied on the trip from school to home. Non-adult accompaniment is fairly evenly distributed across 'alone', 'with friends' and 'with siblings'.

² In this analysis, active/inactive travel to/from school was classified based on parents' responses to Question 10 (type of accompaniment on the trip to school) rather than school travel data from Questions 9. and 11.

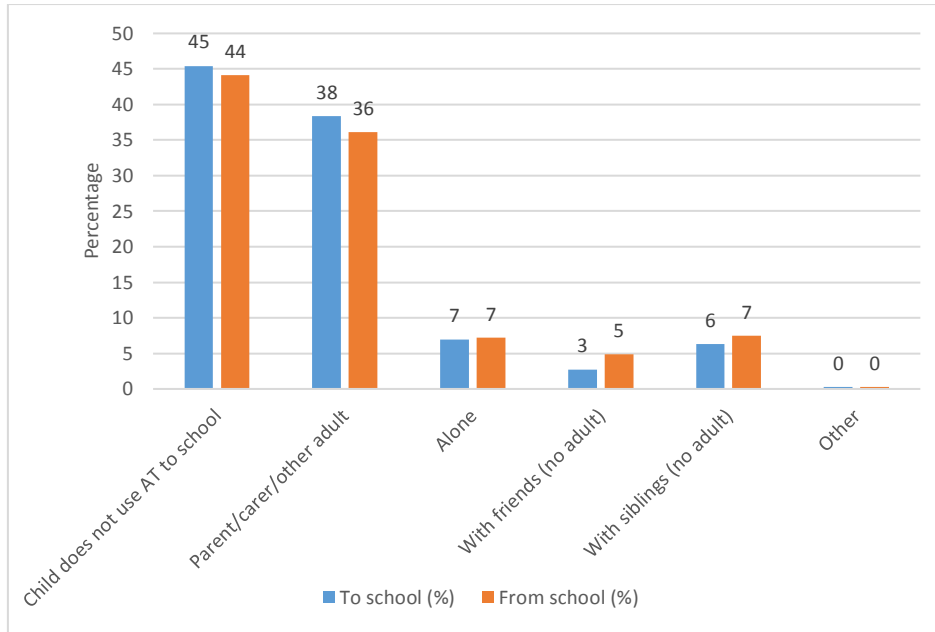


Figure 3: Accompaniment for children’s active trips to and from school (%³) (n = 733 [to school], n = 739 [from school])

The proportion of children using active travel to school at each age between 5 and 13 years showed a small increase with age that was not statistically significant. However, method of accompaniment varied markedly with age, as shown in Figure 4. These findings are consistent with the age at which most parents allow children independent mobility for short (up to 2km) neighbourhood trips (see Section 3.4).

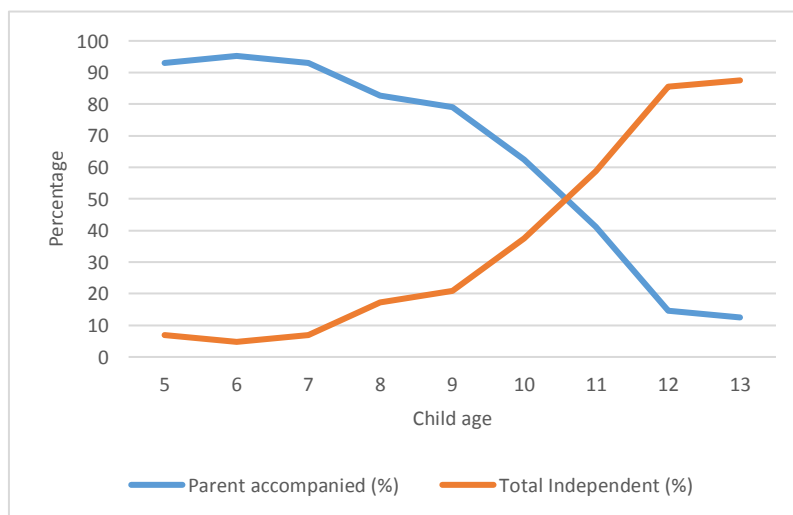


Figure 4: Parent accompanied and independent travel⁴, proportion of children who ever use active travel to school, by age (n = 411)

The majority of both girls and boys who travel to school actively are accompanied by a parent, carer or other adult, with more girls (68%) accompanied by an adult than boys

³ Percentages based on total responses, including “My child does not walk, cycle, scoot or skate to school”.

⁴ Alone, or with friends or siblings.

(63%). More boys (17%) than girls (8%) travel alone. The relationship between child gender and type of accompaniment (ie parent-accompanied or independent) is statistically significant ($\chi^2 = 5.42$, $p = 0.02$), consistent with previous studies (see Literature Review).

An investigation of the relationship between trip distance and type of accompaniment for active trips to school produced the somewhat unexpected finding that parent accompaniment decreased with trip distance, while independent travel (all forms combined in Figure 5) increased. This relationship appears not to have been investigated in other studies of active school travel, most of which do not include method of accompaniment for children travelling actively to school (see Literature Review).

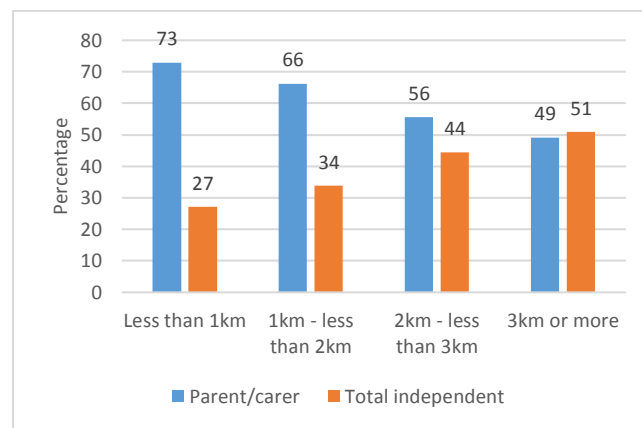


Figure 5: Accompanied and independent active travel to school, by distance (n = 411)

Breakdown by type of independent travel to school shows that the most consistent increases with distance are for children travelling alone and with friends (see Figure 6). The accompaniment-distance relationship for the data shown in Figure 6 is statistically significant ($\chi^2 = 36.18$, $p < 0.0001$).

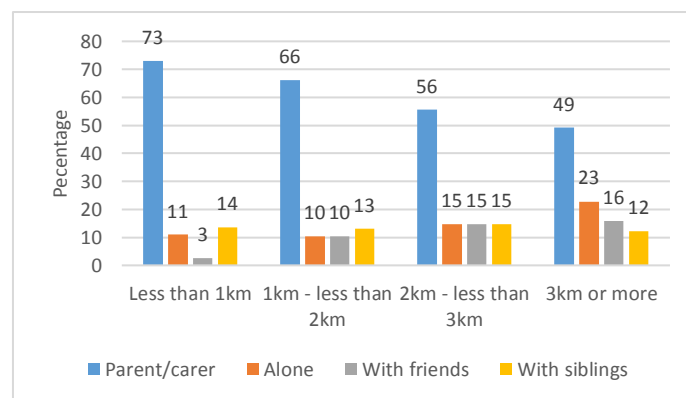


Figure 6: Type of accompaniment for active travel to school, by distance (n = 411)

These findings suggest that parents appear to be willing to accompany children actively to school for relatively short distances (up to about 2km), but for longer trips prefer to drive children to school or possibly allow them to travel independently. The number of children who travel actively and independently to school for distances greater than 3km is too small

to conduct a detailed quantitative analysis of their characteristics, but a data scan indicates that they are mainly older boys cycling to school alone.

This finding is consistent with cycling being more suitable for longer active trips than walking; with boys having greater independent mobility than girls (see above); and with gender differences in cycling in Australia, which emerge in late childhood, increase markedly during adolescence, and remain substantial for adults (Garrard et al., 2012).

The gender difference in cycling might also help to explain the decline in parent-accompanied active travel to school with increasing distance, as accompanying parents are usually females who are much more likely to walk than cycle. As a walking trip takes about three times longer than riding a bicycle, and lack of time is a major constraint on active travel to school for parents, parent-accompanied active travel to school is likely to decline more rapidly with trip distance if cycling *with* children is not considered an option by the (usually female) accompanying parent. This interpretation is consistent with most countries with high rates of active travel to school having high rates of both walking and cycling to school, while for countries such as Australia, the UK and USA, most active travel to school is by walking (Garrard, 2011a).

In summary, independent active travellers are more likely than parent-accompanied active travellers to be older, male, travel longer distances to school, and possibly, travel to school by bicycle.

3.4 Age at which parents allow child independent mobility

Parents were asked “At what age would you (or did you) allow your child to walk or cycle alone for short distances (up to 2km)?” Parental approval for children to travel alone for short distances peaked at ages 10-12 years, an age which is broadly consistent with other Australian studies (Carver et al., 2013; Crawford, 2015).

As discussed in the Literature Review, environmental, social and cultural factors also influence age of independent mobility. For example, in 2010, 76% of German children aged 7-11 years travelled home from school alone, while only 25% of English students of the same age did so (Shaw et al., 2013). Further, a comparative study of Australian and English children found that Australian children were permitted lower levels of independent mobility than English children (Carver et al., 2013).

Findings from this study and related research indicate that several factors besides chronological age influence parents’ assessments of children’s readiness for independent mobility.

In this study, the initial question about age of independent mobility was followed by an open-ended question “*Would you like to add anything about this question, or your response?*” A detailed thematic analysis of responses was conducted, which is described in detail in Appendix C of the Parent Survey Report. In summary, the key influence on the age at which parents allow their children to walk or ride short distances independently was traffic safety. Traffic safety concerns (171 comments) comprised:

- Infrastructure/safety en route (79 comments)
- Traffic speed (25 comments)
- Unsafe driver behaviour (23 comments)
- General road safety concerns (18 comments)
- Infrastructure/safety at school (17 comments)
- Negative experiences (9 comments)

Less frequently mentioned factors related to age of independent mobility included child skills and abilities, travel distance and route, accompaniment by siblings/friends, and social safety ('stranger danger').

Traffic safety issues interact with children's capabilities and skills for dealing with them, with eleven percent of parents' comments referring to children's capabilities and five percent referring to the role of providing children with the skills required for independent mobility.

These findings, together with related data from the recent evaluation of the **Way2Go Bike Ed** program (Garrard, 2016), indicate that parents are concerned about their child "making one false move" and are looking for *consistency* of:

- (i) safe walking and cycling infrastructure and conditions: routes are only as good as their weakest [ie unsafe] link;
- (ii) driver behaviour: obeying road rules and generally driving safely; and
- (iii) child behaviour: knowing the road rules, obeying the road rules, being aware of the unwritten 'rules' and responding safely to instances of rule-breaking/unsafe driver behaviour.

3.5 Parental use of active transport to neighbourhood destinations (other than school)

This question about how frequently parents walk or cycle to neighbourhood destinations (other than school) with their children was included because results from the literature review, focus group discussions, and the **Way2Go Bike Ed** evaluation (Garrard, 2016) indicated that parents who walk or cycle with their children may be more likely to (a) walk or cycle with their children to school because they are familiar with these forms of mobility; (b) provide opportunities and experience for children to learn and practice how to walk and cycle safely (that complement the more formal instruction they may receive at school); and (c) be in a position to observe when children are capable of walking and cycling safely and independently.

Nearly half of parents (48%) walk or cycle with their child in the local neighbourhood at least once a week, while the remaining 52% do this infrequently (between about once a month and never).

Many of the factors described above impact on children's use of active or inactive modes of travel to school. The influence of these factors was explored further by examining associations between these factors and children's methods of travel to school categorised

into three groups: regular car travel, occasional active travel, and regular active travel. This analysis is described in the following section.

3.6 School travel mode groups

Based on the number of trips to school by different travel modes, children were classified into three travel mode groups: (i) regular car travel (5 trips to school per week); (ii) occasional active travel (1 – 2 active trips to school a week); and (iii) regular active travel (3 – 5 active trips to school a week). Note that (a) trips to school were used in this analysis, as the data were similar for trips to and from school; and (b) active travel included walking, cycling, scooting, skating, park and walk, and other. ‘Other’ trips were mainly a small number of public transport trips, which usually involve some walking.

About half of children are driven to school every day (51%), with about a third regularly travelling actively (33%), and a smaller number occasionally travelling actively (16%).

3.6.1 Travel mode group and child age and gender

Regular car travel tends to decline with child age, and regular active travel increases with age (Figure 7). Occasional active travel, which is less common than regular active travel at all ages, increases steadily to age nine, then steadily declines, as regular active travel increases. The increase in regular active travel between the ages of nine and twelve appears to come from decreasing rates of both regular car travel and occasional active travel.

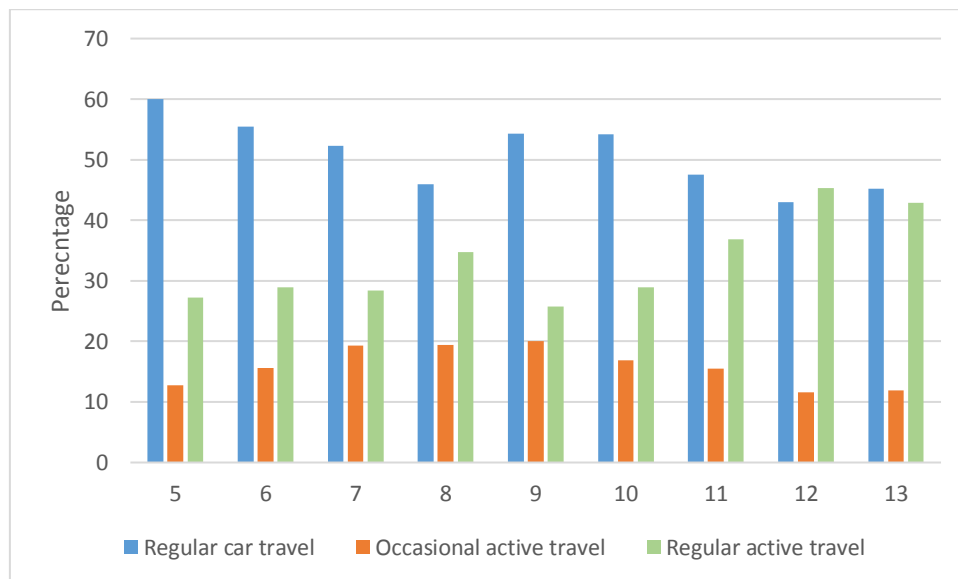


Figure 7: Active/inactive travel mode by age (years) (n = 812)

These data are consistent with increasing rates of ‘travelling’ active travel to school across the early to middle years of primary school, followed by more regular active travel in the more senior years of primary school. This transition is also consistent with the age at which parents are more likely to allow their children greater independent mobility (see Section 3.4).

There was no statistically significant gender difference in children’s use of active and inactive modes of travel to school.

3.6.2 Travel mode group and parent/carer socio-demographic factors

Children's travel mode group did not vary with the age of parents/carers, or with the number of children in the household.

Children whose parents/carers were born overseas were more likely to use regular active travel to school (44%) than children whose parents were born in Australia (30%) ($\chi^2 = 12.7$, $p = 0.002$). This association may be confounded by a range of factors that influence active travel to school; however, there were no significant differences based on place of birth for school trip distance, type of accompaniment for active travel to school (ie parent-accompanied or independent), or number of motor vehicles in the household.

This finding differs from a number of studies which have found that children in minority population groups are less likely to travel actively to school (see Literature Review) and requires further investigation.

For the sample as a whole, parental employment status appeared to have little impact on school travel mode, with about one third of children of parents who worked full-time (31%), worked part-time (32%) or were mainly engaged in home duties (34%) regularly travelling actively to school ($\chi^2 = 1.68$, $p = 0.79$).

However, this association is complicated by the gender of respondents and their differing employment status. Female respondents, who comprised 76% of the sample, were less likely to work full-time and more likely to work part-time than males. For this reason, the association between employment status and travel mode group was stratified for female and male survey respondents.

This analysis demonstrated a consistent trend of regular car use increasing and regular active travel decreasing for female parents across the three employment groups from mainly home duties to full-time employment ($\chi^2 = 13.2$, $p = 0.01$). These findings suggest that the time constraints and need for trip-chaining associated with paid employment are constraints on active travel to school for many of these parents. Higher rates of occasional active travel to school for females who are employed part-time relative to those who are employed full-time suggest that a number of these parents may be more likely to use active travel to school on the days they are not working.

The impact of parental trip-chaining on school travel mode was explored by asking parents who travel to school with their child how frequently they "go straight home". Parents who frequently go straight home ($n = 188$), were more likely to use regular and occasional active travel to school and less likely to use regular car travel than parents who never go straight home ($\chi^2 = 13.6$, $p = 0.009$).

The most frequent destinations after school drop-off were work or education (frequently), shops and services (occasionally), and somewhere else (occasionally). These findings are consistent with parents' (particularly mothers') employment and the associated trip-chaining being associated with lower rates of active travel to school. This association is also influenced by most active travel to school being parent-accompanied (see Section 3.3).

The usual inverse relationship between number of motor vehicles in the household and active travel to school was found in this study, with households with one motor vehicle having similar proportions of children travelling to school regularly by car (44%) and regularly using active travel (42%), while households with three or more motor vehicles were twice as likely to regularly drive their child to school (59%) than to regularly travel actively to school (29%). Households with two motor vehicles had similar rates of regular active travel to school as households with three motor vehicle households, but were more likely to use occasional active travel to school ($\chi^2 = 13.5$, $p = 0.009$).

3.6.3 Travel mode group and parental use of active travel

Many parental attitudes, behaviours and circumstances influence children's use of active methods of travelling to school, and findings from this study indicate that parents walking or cycling to places in the neighbourhood (other than school) with their child is an important influence on whether or not children travel to school actively.

Sixty-two percent of children who regularly travel actively to school have parents who regularly⁵ walk or cycle with their child to places in the neighbourhood (other than school). This reduces to 53% for children who occasionally travel actively to school, and to 39% for children who regularly travel to school by car ($\chi^2 = 35.6$, $p < 0.0001$).

A similar pattern emerged for the relationship between parent/carer mode of travel to work or study, and mode of travel to school. Five percent of children who regularly travel to school by car have parents who walk or cycle to work, while for children who occasionally or regularly travel actively to school the proportions are 10% and 22% respectively ($\chi^2 = 44.8$, $p < 0.001$).

These findings present a consistent picture of parents' travel modes strongly influencing children's school travel modes. The relationship between parents' travel modes and children's school travel modes is likely to reflect both individual factors (ie parents' beliefs, attitudes, behaviours and circumstances related to active travel and car travel), and the neighbourhood environments in which families live.

These findings indicate that measures (both individual-focused and environment-focused) that support active travel to work and other neighbourhood destinations are likely to contribute to increased active travel to school.

3.6.4 Travel mode group and distance from home to school

The inverse relationship between active travel to school and trip distance found in most studies in English-speaking, car-oriented countries such as Australia was evident in this study. Sixty-three percent of children living up to 1km from school regularly used active travel to school, declining to about one in ten children for distances greater than 3km, as regular car use replaces active travel ($\chi^2 = 177$, $p < 0.0001$).

⁵ Regularly was defined as once or twice a week or more; occasionally or never was defined as between never and about once a month (see Question 25, Appendix A, Parent Survey Report).

In contrast to regular active travel, occasional active travel does not decline across the three distances up to 3km, suggesting that when circumstances allow, active travel is used by some children and parents for trips up to about 3km. As most active travel to school is parent-accompanied (see Section 3.3), this suggests that the large decline in regular active travel with distance is influenced by parents' time and commitments as well as actual trip distance. That is, active travel (including parent-accompanied active travel) is not necessarily ruled out for trip distances greater than 2km, but is more contingent on other circumstances than shorter school trips.

The finding (see Section 3.3) that the proportion of children who travel to school independently increases relative to parent-accompanied active travel as distance increases indicates that trip distance (and consequently travel time) to school appears to be more of a constraint on active travel to school for parents than for children, although parent-accompanied children tend to be younger (and perhaps more easily tired).

The sections above have explored a number of relationships between socio-demographic and other factors, and active travel to/from school. The following sections focus on parents' beliefs and attitudes related to:

- Driving children to/from school
- Walking or riding⁶ to/from school (in general)
- Children's independent active travel to/from school
- Parent-accompanied active travel to/from school
- Parents' responses to factors that might increase the likelihood of their child walking or riding to/from school.

3.7 Parents' beliefs and attitudes about active and inactive methods of travel to/from school

3.7.1 Parents' attitudes to driving children to or from school

Understanding why parents drive children to and from school is an important component of understanding parental barriers to active travel to school, as car travel effectively competes with active travel in parents' decision-making about school travel mode.

Survey responses indicated that:

- Parents consider driving children to/from school to be convenient, quick and safe.
- Parent-perceived constraints on driving include parents' lack of enjoyment of driving to school, and congestion and parking at school.
- Interestingly, parents consider that their children enjoy being driven to/from school (51%) more than parents themselves enjoy driving to/from school (25%), though this is substantially lower than the 78% of parents who report that their child "would like to (or already does) walk or ride to/from school" (see Section 3.7.2).

⁶ 'Riding' includes cycling, scooting and skating.

- Sixty-one percent of parents reject the notion that driving to/from school is a habit, indicating that many parents view the decision to drive their children to/from school as a considered and logical travel mode choice.

Key findings from an analysis of the relationship between parents' beliefs and attitudes associated with driving children to/from school and school travel mode group (ie regular car travel, occasional active travel or regular active travel to/from school) include:

- Parents who regularly drive to school are more likely than occasional or regular active travellers to agree that driving to school is convenient, fast and safe.
- Regular drivers are also less concerned about traffic congestion and parking difficulties at school than occasional or regular active travellers.
- Most parents (including regular drivers) do not enjoy driving to/from school, though the majority of regular drivers agreed that their children did.
- Regular drivers largely reject the notion that driving to/from school has become a habit.
- Occasional active travellers are most likely to agree that driving to school is a habit, possibly reflecting that occasional active travellers make more deliberative choices about school travel mode on a daily basis, depending on circumstances (eg driving to school on the days that the parent works, and using active transport on non-work days).

These associations, while strong and statistically significant, are not necessarily causal, and, in particular, there is a strong likelihood that school travel behaviours influence attitudes to driving as much as the reverse process of attitudes influencing behaviour.

The following section relates to parents' general attitudes and beliefs about active travel to/from school.

3.7.2 Parents' attitudes to active travel to/from school

Survey responses indicated high levels of agreement that active travel to/from school is a good form of physical activity (97%), and that active travel to school is good for the environment (91%) and helps make the neighbourhood a pleasant place (73%).

However, 50% of parents also agree that their child gets enough physical activity from sport and other activities, suggesting that about half of parents perceive that their child may not require additional physical activity in the form of active travel to school.

There were lower levels of agreement that "children learn better at school when they walk or ride to school" (38%), with 55% of parents neither agreeing nor disagreeing, suggesting that parents may be unsure about this benefit, which is well-established in the research literature (Egelund, 2013; Sibley and Etnier, 2003).

Parents also largely agree (78%) that their child "would like to (or already does) walk or ride to/from school".

Somewhat surprisingly, 69% of parents agreed that “walking or riding is a convenient way to travel to/from school”, not markedly lower than the 80% of parents who agreed that “driving is a convenient way to travel to/from school”. However, there were much lower levels of agreement that “walking or riding is quicker than driving to/from school” (22%). It therefore appears that travel *time* is a key influence on school travel mode rather than travel distance *per se*.

The finding that travel speed is more important for parents than travel distance (although the two are clearly related) is supported by the finding that 58% of parents disagreed that “we live too far away to walk or ride to/from school”, indicating that travel distance is not a barrier for many parents, including a substantial number of parents who drive to/from school. Consequently, although travel distance is identified as a major barrier to active travel to school in the research literature, a sizeable number of parents in this study drive to school for reasons other than because it is “too far to walk/ride”. Based on findings reported above, travel time (both actual and perceived) is likely to be a key factor.

A quarter of parents agreed that “walking or riding to/from school would be too tiring for my child”, with 58% disagreeing and 17% neutral. Once again, as for distance, this appears not to be a major barrier for many parents and children, though it is likely to be more so for younger children.

The parental attitudes described in this section were those associated with active travel to school in general. The following section describes parents’ attitudes to children’s *independent* active travel to school.

3.7.3 Parents’ attitudes to children walking or riding to/from school independently

Parents’ responses to the 12 items in Question 17 that assessed attitudes to children walking or riding to/from school independently revealed a mix of both supports for, and constraints on children’s independent active travel to school.

Supportive factors included high levels of agreement that independent walking or riding to or from school helps children develop useful life skills (88%), saves time for parents (77%), and is convenient for parents (77%).

However, safety concerns (particularly traffic safety) comprised a major constraint on parents actually realising these benefits of independent active travel to school. There were lower levels of agreement that the neighbourhood feels safe from crime (61%), though the majority of parents agreed with this item. Parents expressed higher levels of concern about traffic safety *en route* to school (58% agreeing that it was unsafe); with less concern about traffic safety *at school* (40% agreeing that it is unsafe).

Child readiness was also an issue for parents, with more than half of parents (58%) considering their child too young for independent active travel to school, a level that is not inconsistent with the median age of children in the sample (9 years).

About half of parents (51%) agreed that their child lacked the skills and experience to walk or ride to school independently, a level that is also likely to be influenced by the child's age. About half of parents (54%) have taught their child how to walk or ride to school safely; however, fewer parents (36%) agreed that they can depend on their child to walk or ride to school safely.

The discrepancy between teaching children to walk and ride safely to school, and being able to depend on them to travel safely is likely to be due in part to parents' concerns about "one false move" by their child, together with very low levels of parents agreeing that they can depend on drivers to drive safely near schools (14%). These findings also indicate that parents have more confidence in their child's ability to walk or ride safely (36%) than in drivers' ability to drive safely around children (14%).

These findings reflect parents' concerns that the current road system is not 'forgiving' of the occasional errors that children might make while walking or cycling without adult supervision. Establishing a road system that *is* forgiving of road users' occasional mistakes is a key principle of the Safe System road safety approach that underpins the Australian Road Safety Strategy. However, in Australia this principle has been applied more to motor vehicle occupants than to vulnerable road users such as child pedestrians and cyclists. Placing greater emphasis on the safety of vulnerable road users was a key recommendation of the 2015 review of the Australian National Road Safety Strategy, which stated that "*The Safe System philosophy for vulnerable road users is not as well developed as for vehicle occupants*" (Lydon et al., 2015).

Social judgements about being an irresponsible parent for allowing their child independent mobility were less of a barrier for independent active travel to school than environmental barriers in the form of traffic safety concerns, as indicated by the minority of parents (44%) who agreed that "I might be considered an irresponsible parent if I let my child walk or ride to school independently". Nevertheless, this represents a sizeable number of parents for whom 'social judgement' might be a barrier to children's independent mobility.

The 44% of parents who agreed that "I might be considered an irresponsible parent if I let my child walk or ride to school independently" may be influenced in part by the social norm in Australia that it is primarily the responsibility of parents and children to keep themselves safe from motor vehicle traffic, rather than the other way around. Many European countries that have relatively high rates of safe active travel to school adopt a more balanced approach, with a range of measures including 'strict liability' and strict licence-testing procedures placing a high duty of care on drivers to avoid collisions with cyclists and pedestrians, especially child pedestrians and cyclists due to their greater vulnerability (Pucher and Buehler, 2008; Vincent, 2015). This is another element of the road system being more or less 'forgiving' of occasional child mistakes, and therefore more or less supportive of children's independent mobility.

Under current circumstances, many parents' reluctance to expose their children (including those who are well-trained and generally capable) to an unforgiving road system within a social environment that 'blames' them for any error of judgement is understandable.

Previous research, together with findings from the Focus Group Discussions phase of the study, suggest that parent gender might influence decisions about children's independent mobility. This was found to be the case in this study, but only for safety items. For the 12 items in the question about independent mobility, only three items showed statistically significant differences for male and female parents/carers; namely the three 'external' safety items (crime, traffic safety *en route* to school, and traffic safety at school), with females expressing significantly higher levels of concerns than males.

Interestingly, the items related to *children's* own safety behaviour ("My child is too young to walk or ride to school independently"; "My child doesn't have the skills and experience to walk or ride to school independently"; "I have taught my child how to walk or ride to school safely"; and "I can depend on my child to walk or ride to school safely") had no statistically significant gender differences. It therefore appears that men and women tend to hold similar views about their children's capabilities to walk or ride to school independently, but differ about the safety of the external environment in relation to both personal safety and traffic safety.

Differences in attitudes to independent travel to school based on the travel modes used by parents and children were also explored. When responses to the 12 items were analysed by travel mode group (regular car travel, occasional active travel, and regular active travel), the benefits of independent active travel to school were widely recognised by all three travel groups, with few significant differences.

However, safety concerns were significantly greater for regular car travellers, who were also more likely to agree that their child was too young, and that they cannot depend on their child to walk or ride safely to school. Regular active travellers were more likely to agree that they have taught their child how to walk or ride safely to school. Being able to depend on drivers to drive safely near the school was low for all groups, but was higher for occasional and regular active travellers.

Only about a half of parents who regularly drive to school considered that they live in a neighbourhood that was safe from crime. This increased to nearly three-quarters of parents who used active transport. While it is possible that parents who use active travel to school live in neighbourhoods with lower crime rates, the extent of the difference in safety concerns between car travellers and active travellers suggests that there might be an element of some parents adopting an oft-cited and socially acceptable reason for driving their children to school (ie protection from 'strangers'). As was the case for gender differences in safety concerns, differences across travel mode groups also point to perceptual components of parents' concerns about the personal safety of their children walking or riding to school independently.

Similar patterns emerged for traffic safety, both en route to school and at school; that is, higher proportions of parents who drive their children to school expressed concerns about traffic safety than did parents who use active transport to school. As was the case for safety from crime, these differences are likely to reflect a combination of environmental conditions, parents' perceptions of these conditions and how their children interact with them, differing parenting styles, and also parents' school travel behaviour shaping their attitudes to traffic safety.

Regular car travellers were more concerned about being considered an irresponsible parent if they allowed their child to walk or ride to school independently, but social judgement appeared to be less of a barrier to independent active travel to school than environmental factors and child characteristics.

While parents who use occasional and regular active travel to school are substantially more likely than regular car travellers to agree that they can depend on their child to walk or ride to school safely, much lower proportions of parents in all three travel mode groups agree that they can depend on drivers to drive safely near the school. These findings indicate that, while teaching children how to walk and ride safely, and being confident that children have the necessary skills and experience are important enablers of children's independent mobility, not being able to depend on motorists to drive safely around children is an important external environmental constraint on independent active travel to school.

In summary, the key constraints on children's independent active travel to school are traffic safety and, to a lesser extent, personal safety, both of which have perceptual and actual elements. Consequently, measures that improve both actual and perceived neighbourhood safety will assist in increasing children's independent active travel to school. Substantially higher rates of both active travel to school, and children's independent mobility in several other OECD countries (see Literature Review) point to the possibility of increasing children's rates of active travel to school in Australia by increasing children's independent mobility.

As discussed in the Literature Review, there is some overlap, but also some differences between the supports and constraints on children's independent mobility and those that influence parent-accompanied active travel to school. The following section explores parent-accompanied active travel to school.

3.7.4 Parents' attitudes to parent-accompanied walking or riding to/from school

Most parents expressed positive attitudes to walking or riding to school with their child, with most parents agreeing that "Walking or riding to/from school is a good opportunity to spend time with my child" (90%); "Walking or riding to/from school is a good form of physical activity for me" (93%); "Walking or riding to/from school is something I'd like to do (or already do)" (85%); and "Walking or riding to/from school with my child is a good way to start the day" (84%).

Nearly half of parents (47%) disagreed that "I get enough physical activity from other things I do", suggesting that many parents view active travel to school as a good form of physical

activity whilst also acknowledging that active travel to school could (or does) fill a personal physical activity 'gap'.

Overall, the health (through physical activity) benefits of active travel to school are widely recognised by parents regardless of the actual school travel mode they use.

Key constraints on parent-accompanied active travel to school were travel time and walking/cycling environments. Relatively fewer parents agreed that "The route to school is pleasant for walking or riding" (63%), and about a third of parents agreed that "The traffic at school is unpleasant for parents and children walking or riding" (33%), slightly less than those who disagreed (36%).

There were substantial differences in levels of agreement that "The route to school is pleasant for walking or riding" for regular car travellers (49%), occasional active travellers (77%) and regular active travellers (76%). These differences are likely to reflect a combination of actual differences in the pleasantness of the route to school; parents' enjoyment of walking or cycling to school; and parents' actual experiences of walking or cycling to school (eg possibly parents who do walk or cycle to school come to enjoy it more than parents who haven't tried it).

Forty-four percent of parents agreed that "Walking or riding to/from school with my child would take too long", with substantial differences between regular car travellers (65%), occasional active travellers (24%) and regular active travellers (20%). While there may be a substantial difference in actual walking/cycling travel time for parents who are regular drivers and parents who use active travel to school, there is also likely to be a sizeable perceptual component to these differences.

Overall, these findings indicate that while parent-accompanied active travel to school addresses key constraints on children's independent active travel to school in the form of concerns about children's personal safety and traffic safety, and parents have high levels of agreement about the benefits of parent-accompanied active travel to school, new barriers arise for parent-accompanied active travel to school. A key barrier is that accompanying children walking or riding to school takes too long.

Because most active travel to school is by walking (see Section 3.2), travel time as a barrier could be addressed by encouraging and supporting cycling to school, as cycling is about three times faster than walking.

A current constraint on parent-accompanied cycling to school is that most accompanying parents are women, who, in contrast to the high-cycling countries in Europe and Asia, have much lower rates of cycling than men (Garrard et al., 2012). Encouraging and supporting more women to use a bicycle for getting around the local neighbourhood (as opposed to the more vigorous style of road cycling preferred by many men) would be likely to increase parent-accompanied cycling to school.

The time competitiveness of driving can also be reduced by reducing traffic speed in the vicinity of schools and limiting car parking at schools.

Another potential constraint to emerge for parent-accompanied active travel to school is a greater focus on the pleasantness of the route to school (in contrast to the focus on route safety for children's independent travel, though the two may be related).

When parent-accompanied walking (or, less commonly in Australia, cycling) is considered as a mode of travel to school, influences on *adult* walking (and cycling) become relevant. Pleasant and interesting places to walk are a key determinant of adult walking (Sugiyama et al., 2014), and the findings reported here for parent-accompanied walking to school are consistent with this research literature, though it is rarely applied in the context of parents walking to school with their children.

Measures that make neighbourhoods more pleasant and interesting places to walk and ride for adults as well as children are likely to contribute to more parent-accompanied walking and riding to school; possibly also leading to more independent mobility for children as parent-accompanied walking and riding appears to facilitate children's transition to independent walking and riding (see Section 3.6.3).

Finally it is important to note that underlying positive attitudes among parents to both parent-accompanied and independent active travel to school indicate that parental support for measures taken to address constraints (eg traffic safety improvements) is likely to be good, if framed as measures to improve the safety, convenience and pleasantness of walking and cycling to school for children and parents.

3.7.5 Parents' attitudes to measures that support walking or riding to/from school

A final attitudinal question sought parents' views about factors that might help to increase walking or riding to/from school.

There were few standout supports for walking or riding to school that attracted high levels of agreement from parents.

Among the listed supports for children walking or riding to/from school, the highest level of support was for a school policy of notifying parents if their child has not arrived at school (72%). Children carrying a mobile phone when travelling unaccompanied by an adult has a similar purpose (ie parents being reassured that their child has safely arrived at school, or can contact them quickly if necessary), though this had a lower level of agreement (46%).

Whole community support for active travel to school was the second most frequently agreed item (65%). This item taps into social norms, attitudes and behaviours, as does "more children/families using active travel to school" (51% agreement). These parents are acknowledging the important role of social influences on active travel to school, in the form of other parents effectively modelling that active travel to school is normal, acceptable, and supported by the school community. Parents might also be responding to a sense of 'safety in numbers', in that increased numbers of children walking and riding to school contribute to their safety by increasing awareness of their presence among drivers, and increasing personal safety through 'passive surveillance' by passers-by.

As discussed in the Literature Review, these social influences on school travel behaviour are important, though relatively neglected factors in active school travel research and promotion. Increased social support for active travel to school would also help to address the concern among a number of parents that they might be considered irresponsible parents for allowing their child to walk or ride to school independently (see Section 3.7.3).

The findings for these items related to social and community support for active travel to school are consistent with higher levels of active travel to school among parents who agreed that their school encourages children to walk and ride to school (see Section 3.8).

Interestingly, in this question, social factors tended to be more frequently agreed upon than environmental factors, with secure bicycle storage at school (54% agreement) followed by a number of traffic safety factors including fewer cars around schools (53%); school crossing supervisors (48%); lower speed limits around schools (43%); and lower speed limits in residential areas (35%). Relatively low levels of agreement that lowering speed limits would contribute to more children walking or cycling to school might reflect car travellers not wishing to be 'slowed down' by lower residential and school speed limits. Findings from the focus group discussions and the open-ended survey question described below in Section 3.9, also indicate that parents' concerns about vehicle speed include lack of compliance with existing speed limits, and failing to drive at an appropriate speed for the circumstances/conditions; behaviours that may not necessarily be curtailed by reducing speed limits (see Focus Group Discussions Report).

"Being more organised in the morning" emerged in the focus group discussions as a requirement for walking or riding to school rather than driving for some parents. Occasional active travellers had the highest level of agreement with this item (55%), possibly because active or inactive travel to school is more discretionary for this group of parents, and "being organised" favours the choice of active travel over car travel on the day of travel. This interpretation is consistent with occasional active travellers being significantly more likely than either regular car travellers or regular active travellers to agree that "Driving has become a habit" (see Section 3.7.1).

3.8 School support for active travel to school

Forty-three percent of parents agreed that their child's school encourages children to walk and ride to school. A further 41% neither agreed nor disagreed, possibly reflecting that many parents may not know whether or not the school supports active travel to school. Children are more likely to travel to school actively (both occasionally and regularly) if parents/carers agree that the school encourages children to walk and ride to school ($\chi^2 = 22$, $p = 0.0002$).

Thirty-seven percent of parents agreed that initiatives such as Walk2School Day, Ride2School Day, Wheels Day, Road Safety Day or Park and Walk led to their child walking or riding to/from school more frequently, though more often on the special days (24%) than on a more regular basis (13%). Parents who responded that the school doesn't conduct any of

these activities had the highest proportion of regular car travel to school (57%), and the lowest proportion of regular active travel to school (28%) ($\chi^2 = 27.0, p = 0.0001$).

Nineteen percent of parents (n = 153) stated that their child had participated in the **Way2Go Bike Ed** program⁷, with 38% of these parents reporting that the program had assisted their child to ride a bicycle more often.

These findings present a consistent pattern of school policies, programs and activities that encourage and support active travel to school appearing to contribute to higher rates of active travel to school, consistent with several other research study findings (see Literature Review).

3.9 Parents’ suggestions for interventions aimed at increasing active travel to school

The final content-related survey question was the open-ended question *“Do you have any suggestions for things that could be done (eg by the school, local government or state government) to encourage more walking and cycling to school?”*

A thematic analysis of responses was conducted, which is described in detail in Appendix D of the Parent Survey Report. A total of 389 parents/carers provided open-ended comments in response to this question. All comments were read to identify the eleven emergent themes summarised below. All 389 comments were then analysed by coding the content of the comments into these eleven themes. A number of parents’ comments covered more than one theme, giving a total of 487 coded responses.

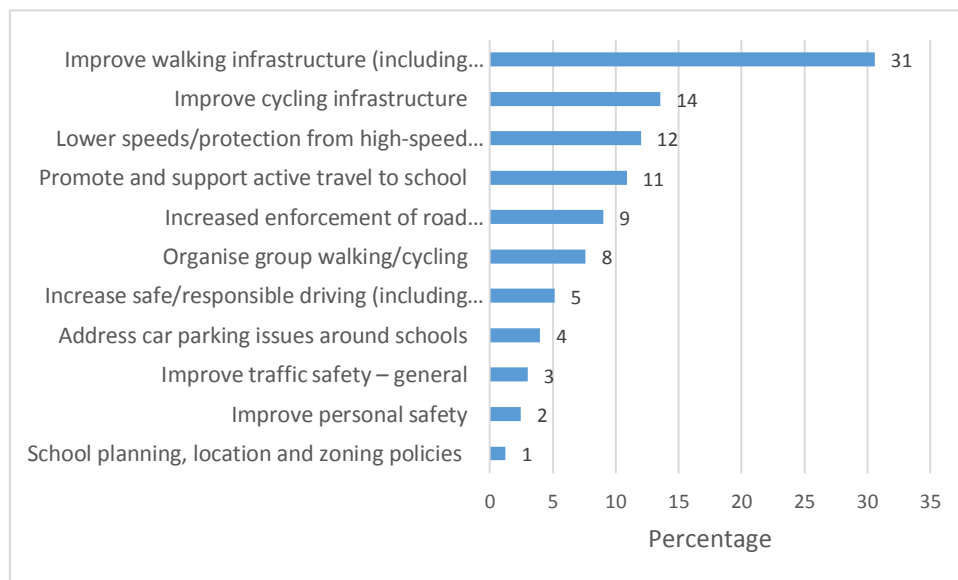


Figure 8: Parents’ suggestions for actions to increase active travel to school (percentage of coded responses [487])

As shown in Figure 8, the vast majority of suggestions were for improved traffic safety (78% in total), followed by school encouragement of active travel to school (school programs and organisation of walking/cycling groups) (19% in total), improved personal safety (2%) and

⁷ This program is generally offered to children in year levels 4-7.

school planning, location and zoning policies (1%). A summary of these eleven themes is as follows.

1. Improve walking infrastructure (footpaths, road crossings, intersections)

Suggestions for improving walking infrastructure included the construction of footpaths on streets and roads around schools and in residential areas that currently have no footpaths; providing safe street and road crossings (pedestrian crossings, school crossings, intersections and roundabouts); and footpath maintenance (clear of vegetation, obstructions, potholes, etc).

2. Improve cycling infrastructure (bike paths/lanes, bike storage at schools)

Suggestions for improving cycling infrastructure included the construction of bicycle paths and trails to create a more extended network of safe (usually separated) cycling infrastructure; and secure, weather-protected, readily accessible bicycle storage at schools.

3. Lower speeds/protection from high-speed traffic

A number of parents recommended lower speeds, including around schools, in residential areas and on busy roads that lacked footpaths and/or bicycle paths/lanes. There were suggestions for 25km/hr school zones to be extended (ie in more locations around the school and covering a greater area), and more clearly signed/marked as a low-speed school zone. Suggestions also included traffic-calming measures such as speed humps, and greater enforcement of current speed limits to increase compliance with current speed limits (including the installation of speed cameras around schools) (also see Theme 4. below).

4. Increased enforcement of road rules/monitoring/supervision of driver behaviour around schools

Many parents suggested greater enforcement of driver behaviour through increased penalties for road rule violations, particularly those that occur around children/schools; supervision of school crossings; a greater police presence; and installation of safety cameras. These recommendations mainly related to speed control; failing to stop for pedestrians at intersections, pedestrian crossings and school crossings; illegal/unsafe parking and opening of car doors; and cars failing to give way to pedestrians and cyclists when reversing (too rapidly) out of driveways and when entering and exiting off-road car parking areas, including at schools.

5. Increase safe/responsible driving (including attitude/cultural change)

This theme is linked to 3. and 4. above, but comments included in this theme were more about increasing safe/responsible driving through measures aimed at improving driver education and raising awareness of the importance of driving safely around children. There were also suggestions for changing driving attitudes and culture to place more importance on active travel modes in terms of both infrastructure provision and improved safety.

6. Address car parking issues around schools

A number of parents recommended parking restrictions around schools, including establishing no-parking zones in the immediate vicinity of the school and using park and walk from nearby locations. There were also suggestions for improved “drop and go” facilities, and for “no parking” days when walking and cycling access to school is prioritised. One parent recommended increased parking at school to prevent illegal actions such as double parking.

7. Traffic safety – general

This theme refers to general comments about the need to improve traffic safety.

8. Personal safety

This theme refers to suggestions for improving personal safety such as teaching children how to deal with incidents with strangers, and programs such as Safety Houses.

9. Promote and support active travel to school

Parents made a wide range of recommendations for promoting and supporting active travel to school, most of which were school-based measures. These included incorporating road safety (with a focus on safe walking and cycling) within the school curriculum; participation in programs such as Bike Ed (more frequently, and including younger children); providing incentives for walking and cycling to school; removing school policies prohibiting children under the age of 10 from walking or cycling to school independently; establishing park and walk venues and routes; early release from class for children who walk or cycle home so they can avoid school traffic; school uniforms (especially for girls) more suited to walking and cycling; and reducing the need for children to transport books and equipment in large, heavy backpacks.

10. Organise group walking and cycling

There was strong support for schools to facilitate the formation of walking and cycling to school groups for parents and children. This was frequently seen as having the added benefit of increasing social contact between school families.

11. School planning, location and zoning policies

These suggestions referred to reducing school travel trip distances through school planning, location and zoning policies.

In summary, parents made many and varied suggestions for increasing active travel to school. As was the case for responses to the open-ended question about age of children’s independent mobility (see Section 3.4), improving traffic safety (78% of coded comments) was the standout issue that parents addressed, followed by school encouragement of active travel to school (school programs and organisation of walking/cycling groups) (19%).

Suggestions for improving traffic safety covered three key principles of the Safe System approach to road safety, namely, safe roads (with a focus on safe walking and cycling

infrastructure); safe road users (with a focus on drivers); and safe speeds, including suggestions for both lowering speed limits (especially near schools), and greater compliance with and enforcement of existing speed limits.

Suggestions for improving driver behaviour also included education and awareness of the importance of safe driving around children, and adherence to several road rules that are less frequently publicised and policed than violations such as speeding, drink/drug driving, and distracted driving. These include yielding to pedestrians at pedestrian and school crossings and at intersections, reversing out of driveways, and yielding to pedestrians and cyclists on footpaths when entering and exiting off-street car parking areas, including at schools. Parents would also like to see safer car parking behaviour around schools, with some suggesting increased parking restrictions around schools.

Individually, these traffic code violations may not be considered by road safety authorities to be as important as those associated with speeding, drink/drug driving, distracted driving, etc; however, both individually and in combination, they make a large contribution to parents' assessment and perceptions of an environment in which it is safe (or unsafe) for their children to walk or cycle to school by increasing parents' 'fear of walking and cycling' (Garrard, 2011b).

There was also considerable support from parents for a range of school-based measures for encouraging and supporting active travel to school. These included school policies, programs and activities. There was particularly strong support for schools to facilitate the formation of walking and cycling to school groups for parents and children.

4 CONCLUSIONS AND RECOMMENDATIONS

The case for investing in measures designed to increase currently low levels of active travel to school is strong and multi-sectoral; with well-established benefits for health, education, traffic management, the environment and community liveability (Rojas Lopez & Wong, 2017). However, transitioning from a transport system that has traditionally prioritised travel by motor vehicle to one that also supports alternative mobility choices such as walking and cycling will be a gradual process that will take time. Such a change is not only desirable, but also achievable, as demonstrated by high levels of safe walking and cycling to school and other neighbourhood destinations in many developed countries in Europe and Asia (see Literature Review).

This study has demonstrated that many parents' and children's underlying preferences are for walking or riding to school rather than driving; however, their behaviour does not necessarily reflect these preferences, as children are mainly driven to/from school. This mismatch is indicative of a number of factors intervening between positive attitudes to active travel to school and actual behaviour. These factors are many, varied and interactive; with some operating at the population level, and others specific to individual families (Mitra, 2013). As a consequence of this complexity, there is no 'magic bullet' for increasing active travel to school. Rather, there are a range of measures that can be adopted, with each contributing to a greater or lesser extent to the overall process of change.

In the interests of efficient investment in increasing active travel to school it is appealing to address a small number of factors that appear to have the greatest influence; however, these are also among the most difficult to change, particularly in the short term. These factors include travel distance, travel time, personal safety, traffic safety, and family circumstances and commitments. Nevertheless, as demonstrated by countries that have achieved high levels of active travel to school, these factors are amenable to change over time.

In the shorter term, action can also be taken on the perceptual element of a number of these key factors. An important finding from this study (consistent with the wider body of research) is that a number of these factors act as barriers to active travel to school due to both perceptual and actual components. Increases in active travel to school require establishing safe, pleasant, walkable/bikeable environments whilst also addressing *perceptions* about “too far”, “too unsafe from crime”, “too unsafe from traffic”, and too “young, inexperienced, unskilled and/or vulnerable” to walk or ride to school.

As noted above, there are also a number of factors that are individually less influential, but are more numerous, and often more amenable to change in the short-to-intermediate term. The cumulative impact of numerous small changes can add up to a substantial overall impact, and these should be considered for inclusion in a multi-faceted strategy for increasing active travel to school.

Key findings from this study that provide a basis for recommendations for increasing active travel to school include:

- High levels of child and parent support for active travel to school, including among parents who regularly drive to and from school. This provides a supportive base within school settings and the wider community for measures to increase active travel to school, particularly traffic safety measures.
- Home-school trip distance (especially greater than about 2km) is a barrier to active travel to school, but travel *time* (and parents’ perceptions of the relative travel times for active travel and travel by car) appears to be the key consideration for parents, especially for parent-accompanied active travel to school.
- The supports and barriers to active travel to school differ for parent-accompanied and children’s independent active travel to school.
- For parent-accompanied active travel to school, important considerations include travel time; parental commitments and associated trip-chaining; parents’ use of active travel for other (non-school) purposes; enjoyment of the walking or cycling trip to school, and having a pleasant route to school.
- For children’s independent travel to school, child readiness, traffic safety and personal safety are key considerations, with traffic safety the main factor.
- Parents’ assessments of traffic safety and personal safety have both actual and perceptual components, and both need to be addressed.
- Parents’ own use of active transport to work and other neighbourhood destinations supports both parent-accompanied and independent active travel to school.

- School support for active travel, and participation in active travel programs and activities, together with wider community support for active travel assists in increasing active travel to school.
- Consistent messages from school principals, teachers, local government, police, community leaders, and the media that active travel to school is safe, normal, and widely supported will assist in increasing active travel to school.

The following recommendations are based on these, and additional study findings.

4.1 Address travel distance/time as a barrier to active travel to school

As noted above, travel distance/time is a key constraint on active travel to school, particularly for parent-accompanied active travel to school.

Travel distance/time can be reduced by:

- The development of compact, mixed use neighbourhoods with good street connectivity. These neighbourhood design features help to reduce trip distance/time to schools and other local destinations.
- Avoiding the establishment of fewer and larger primary schools; avoiding locating schools on the outskirts of residential areas; discouraging competition between schools for pupils; and promoting the benefits of children attending the nearest local school. The benefits of these measures include, but are not restricted to reduced school travel distance/time.
- Establishing school enrolment zones, which have contributed to reduced school-related traffic and increased active travel to school in a number of OECD countries (see Literature Review).

Travel *time*, which is a greater constraint for parents than children, can be reduced by:

- Encouraging, supporting and enabling children's independent active travel to school (see below).
- For parent-accompanied active travel to school, encourage and support cycling to school, which is quicker than walking. This will be facilitated by encouraging more women to cycle *as a means of everyday transport* (to address the perception that cycling is a vigorous form of physical activity mainly undertaken by men in lycra travelling at speed on road bikes).
- Promoting more cycling to school for longer distances will require a more extensive network of safe routes to school. This is supported by low-speed traffic-calmed residential areas, the establishment of which will also support more active travel within communities to multiple local destinations, which in turn supports more active travel to school.
- Increase the number of schools conducting the **Way2Go Bike Ed** program as a means of increasing both parent-accompanied and independent cycling to school.
- Challenge perceptions that the door-to-door travel time for walking or cycling to school is substantially greater than door-to-door driving time. This could be

addressed through information and activities exploring actual travel times as a component of schools' overall active school travel policies (see below).

- Measures that make walking and cycling more time-competitive with driving will make driving to school less appealing as a time-saving measure. These include car-exclusion zones around schools, shared pedestrian zones around schools [with low speed limits where drivers must give way to pedestrians], reduced parking around schools, and lower speeds en route to (ie in residential areas) and around schools. These measures serve a dual role, as they also make walking and cycling to school safer for children.
- Flexible work hours and working from home can assist in addressing constraints on active travel to school associated with paid employment and the need for work-related trip-chaining.

4.2 Encourage and support parent-accompanied active travel to school

Parent-accompanied active travel to school can be supported by reducing trip distance and perceived and actual travel time as described above. Additional recommendations include the following.

Promote parent-accompanied active travel to school as an opportunity for parents to:

- Build physical activity into the activities of daily life for busy parents who “don't have time for physical activity” (a key constraint on physical activity for mothers of school age children).
- Spend time interacting with their children in a pleasant and interesting outdoor environment.
- Teach children important life skills, including those needed to transition to safe, independent mobility.
- Provide children with the experience (in addition to knowledge and skills) required for independent mobility, and observe/assess when children are ready for safe independent mobility.

In addition, factors that support *adult* walking and cycling in general will support parents (usually women) walking or cycling to school with their children.

Accordingly, encourage schools, parents and local councils to identify and promote pleasant, interesting routes to school, and assist in identifying what makes some routes unpleasant, and how they can be improved to make them more appealing.

Opportunities for social interactions are also an important motivation for walking. Facilitating the establishment of informal 'walk to school groups' for parents and children could be a component of schools' overall active school travel policies (see below).

4.3 Encourage, enable and support children's independent active travel to school

As described above, the key constraints on children's independent active travel to school are parents' assessments of child readiness, traffic safety and personal safety.

4.3.1 Child readiness

Chronological age is associated with children's ability to interact safely with the road environment; however, children's safe walking and cycling knowledge, skills and experience are also important.

Recommendations for providing children with the knowledge, skills and experience required for safe walking and riding to school are as follows.

- Recognise that there is a role for both formal safety education (provided by schools and parents) and gaining experience (mainly provided by parents).
- Develop resources to assist schools and parents to provide these learning experiences.
- Resources and guidelines should address both traffic safety and personal safety, and include guidance for parents to (a) assist their children to transition from parent-accompanied walking and cycling to independent walking and cycling, and (b) assess when their children are ready for independent mobility.
- Draw on existing guidelines for enabling and supporting children's independent mobility such as those produced by the VicHealth/La Trobe University project "Parental fear as a barrier to children's independent mobility and resultant physical activity"; including "*How to help your kids get around safely on their own*" (<https://www.vichealth.vic.gov.au/media-and-resources/publications/parental-fear>).

4.3.2 Traffic safety

In addition to children having the skills and experience required for independent mobility, the travel environment must also be safe, be perceived to be safe and *feel* safe for child pedestrians and cyclists. National and state road safety strategies in Australia are broad-based strategies that potentially impact on all road users, but have traditionally focussed on the safety of motor vehicle occupants rather than more vulnerable/unprotected road users such as pedestrians and cyclists (Garrard et al., 2010; Lydon et al., 2015).

The following recommendations are aimed at addressing this current imbalance through additional road safety measures that focus more specifically on vulnerable/unprotected road users, young road users, and those who are more likely to be moving around in local neighbourhoods and school settings rather than on freeways, highways and arterial roads.

- Assist schools, in partnership with local government and state government departments, to develop a 'Safe System' strategy (ie safe roads, safe speeds, safe vehicles and safe road users) specifically targeting the safety of children walking and riding to school.
- School road safety strategies should be a key component of schools' active school travel policies (see below), to demonstrate to parents that a key barrier to active travel to school is being addressed as an integral part of strategies to encourage and support active travel to school.
- Safe Roads should include consistently good walking and cycling infrastructure in local neighbourhoods.

- Consistent with the Safe System approach, the traffic environment around schools should be one that is ‘forgiving’ of occasional child pedestrian/cyclist mistakes.
- ‘Safe neighbourhood and school spaces’ should prioritise the safety of children walking and riding to school over motor vehicle flow.
- Safe Speeds should include reduced speed limits in residential areas (ideally 30km/h or below, based on world’s best practice), and reduced speed zones around schools (once, again, 30km/h or below is the recommended speed). Other options include shared zones around schools (low speed, with drivers required to give way to pedestrians and cyclists).
- Safe Road Users include safe child pedestrians and cyclists, and safe drivers. Driving safely where child pedestrians and cyclists are moving around requires a greater duty of care being placed on drivers, as currently the main emphasis is on parental and child responsibility for the safety of child pedestrians and cyclists.
- Countries with high rates of safe, independent active travel to school (eg the Netherlands, Germany, Denmark, Japan) can provide guidance on road safety strategies that include measures specifically aimed at the safety of vulnerable road users.

4.3.3 Personal safety

As with traffic safety concerns, both perceptual and actual risks need to be addressed. Actual risks can be reduced through improved neighbourhood crime prevention, and conducting protective behaviours type programs that empower children to deal with any incidents that might occur, and reassure parents that their children can deal with these incidents.

It is important that these programs (and all safety communications within the school community) strike the right balance between alerting parents and children to potential risks so that action can be taken to avoid the risks, and the ‘alerting’ possibly leading to increased and unwarranted fear of ‘stranger danger’ (see Appendix C, Parent Survey Report).

Adopting a school policy of notifying parents if children have not arrived at school, and children carrying basic mobile phones serve to reassure parents that their children have arrived at school safely.

Perceptions that neighbourhoods are unsafe can be the result of neighbourhoods looking unkempt and neglected. The ‘broken windows’ approach to preventing civil disorder and crime can assist in establishing neighbourhoods that are both safe and *feel* safe (Hinkle and Weisburd, 2008).

Perceptions that neighbourhoods are safe for children walking and cycling to school are also strongly influenced by parents observing that other children *are* walking and cycling to school, and that parents, schools and the wider community support and encourage children travelling actively to school. Parents are unlikely to know the actual risk of child assault by ‘strangers’ in their neighbourhood, so their risk assessments are frequently based on what other parents and children are saying and doing. Hence, parents’ assessments of ‘safe for

children to walk or cycle to school' are supported by providing parental, school and wider community support for active travel to school, as described in the following section.

4.4 Parental, school and wider community support for active travel to school

Consistent support for active school travel from schools, parents and the wider community provides practical support as well as social approval for parents to allow their children to walk or cycle to school independently, and removes the fear of being blamed for being a neglectful parent. However, this consistent support is dependent on making independent active school travel both safe and perceived to be safe. School policies that promote active school travel and discourage driving to school, and include a safe system strategy for children walking and cycling to school (see Section 4.3.2) facilitate these interconnected processes by establishing an environment that is safe, perceived to be safe, and therefore socially safe for the school community to promote to the parent community.

Recommendations outlined above include several targeting parents in their role of assisting children to acquire the knowledge, skills and experience required for walking and cycling safely to school (see Section 4.3.1). Other forms of parental support include parents themselves using active travel to work and for local neighbourhood trips.

Consequently, all initiatives that encourage a general mode shift from driving to active transport within local communities will help to foster active travel to school. Interventions that focus on females, everyday cycling within local neighbourhoods, and safe cycling infrastructure will be particularly relevant (Garrard et al., 2008).

There is also a role for parents whose children currently travel actively to school to act as role models and advocates for active travel to school within school communities. This addresses social influences on other parents' school travel mode choices by communicating that active travel to school is feasible, safe and 'normal'. Parental involvement in this and other ways, could be included in schools' overall "Active Travel to School" policies (see below).

Wider community support has a similar role. Parents who perceive support for active travel to school from community leaders, local government, SAPOL and road safety authorities are more likely to use active travel to school. Mechanisms to communicate this support to parents and schools should be developed and included in schools' "Active Travel to School" policies (see below).

Finally, schools have an important role in encouraging, enabling and supporting active travel to school. It is recommended that schools be encouraged and supported to become "Active Travel to School" schools, along the lines of "SunSmart" schools and similar programs, whereby an active travel to school policy acts as an umbrella for the implementation of a range of promotional, educational and safety components.

Examples of promotional/educational measures include:

- The development and communication of resources and guidelines such as active transport 'Fact Sheets' (including one targeting the transition from kindergarten to

primary school that includes the advantages of being able to travel actively to school).

- Fact sheets should include the educational/learning benefits of children travelling actively to school, and the advantages of regular, daily physical activity associated with active travel to school, including for children transitioning into adolescence when other forms of physical activity such as sport and play decline (Australian Bureau of Statistics, 2013).
- Fact sheets should also include the environmental and community benefits of reduced traffic volumes within neighbourhoods, and the advantages (eg cost savings, environmental benefits) of single vehicle ownership within households.
- Disseminate the guidelines for parents that were recently developed as part of the VicHealth/La Trobe University study of parental fear as a barrier to children's independent mobility. The guidelines: "*How to help your kids get around safely on their own*" (<https://www.vichealth.vic.gov.au/media-and-resources/publications/parental-fear>) provide summary information on:
 - Why allowing children to get places on their own is so important
 - What you can do to make it easier for your child (and you!)
 - How will you know when the time's right?

The guide also lists stage-specific suggestions to assist parents to guide their children through a three-step process of increasing independence covering dependent, pre-independent and independent mobility.

- Participation in programs and activities that support active travel to school such as **Way2Go Bike Ed**, Walk2School Day, Ride2School Day, Wheels Day, Road Safety Day, and Park and Walk. Note that while these programs and events are useful for promoting active travel to school, more frequent activities appear to be more effective for achieving sustained changes in travel behaviour. An example is 'Walking, Wheeling Wednesdays' (Brisbane City Council, 2010).
- Safety improvements include those that address personal safety and road safety. These involve education of children and parents, and establishing safe walking and cycling environments for children, as described above (see Sections 4.3.2 and 4.3.3).

In summary, supports and constraints on active travel to school are numerous and multi-faceted, and vary across communities, schools and individuals. A degree of market segmentation and working with individual school communities will be required to optimise strategies for these varying environments and the parents and children who move about within them.

Planning for active travel to school can also benefit from a consideration of frameworks such as the social-ecological model of active/inactive travel behaviour, which emphasises that supports and constraints on active travel to school arise from interactions between individual factors and numerous influences within the built/natural, policy/regulatory, and social/cultural environments.

The community-based social marketing model also includes valuable guidance for promoting sustainable behaviours such as active travel to school. This model emphasises

addressing supports and constraints on both the desired (active travel to school) and the competing (car travel to school) behaviours; the importance of addressing perceived and actual constraints; using market segmentation to address differing needs and circumstances (for individuals, schools and communities); and using social influence and communication as part of the behaviour change process (McKenzie-Mohr, 2011).

Finally, findings from this study of high levels of positive attitudes to active travel to school (including among regular car drivers) indicate that measures aimed at increasing the safety, convenience and enjoyment of active travel to school are likely to be supported by school communities.

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