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**Non-motorised school travel planning: Development,
demonstration and evaluation of a ‘walking bus’ initiative at
selected schools in Cape Town**

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ABSTRACT

This dissertation reports upon research conducted at selected primary schools in Cape Town between 2010 and 2011 aimed at developing, implementing and evaluating the impacts of a non-motorised school travel intervention in the local context. The literature review conducted situated the current interest in active travel modes in the context of concerns over declining child independent mobility. 'Walking buses' were identified as the most appropriate intervention to address the child mobility concerns identified in the city. A 'walking bus' is a group of children who walk to school along a set route, supervised by adult volunteers. As part of data collection for the research, three school travel surveys were conducted using self-completion questionnaires. The first two surveys (n=1,784) were conducted at selected schools in 2010 in two neighbourhoods (Rondebosch and Delft) and were aimed at gaining insights into current learner travel behaviour and collecting the data required to implement 'walking buses'. The third survey (n=984) was conducted in 2010 and 2011, amongst schoolchildren aged 7-15 years, and their parents, and was aimed at exploring child independent mobility in the context of Cape Town and its hinterland. Key findings from the three surveys are discussed in terms of how independently mobile children are, how this varies according to neighbourhood and parent's willingness to let children use 'walking buses'. It was found that independent mobility varied considerably between wealthy and poor households, and across age and gender. Children from poorer households were heavily reliant on walking (88% share of school trips) while children from wealthier households were heavily reliant on cars (87% share of school trips). Parental interest was found to be sufficiently high to make 'walking buses' a viable intervention in both lower- and higher-income neighbourhoods. 'Walking buses' were subsequently implemented, and in the case of Rondebosch, evaluated using qualitative interviews with some of the participating children (n=16) and their parents (n=14). Key findings from the qualitative interviews are discussed in terms of learner travel behaviour prior to, and after, the setting up of 'walking buses', and insights into the impacts of 'walking buses'. The evaluation findings suggest that while scheduled 'walking buses' may be established with considerable levels of support and enthusiasm from parents and schools, they are difficult to sustain over the longer term. The dissertation concludes with a discussion on the tension between child independent mobility and 'walking buses', and implications of the findings for municipalities and schools wishing to promote greater use of walking for school travel.

SUMMARY

The limited available data on scholar travel behaviour in Cape Town shows that scholars from middle-and high-income households are heavily dependent on motorised modes as their primary means of transport. Available road safety data also indicate that scholars, particularly those in lower-income neighbourhoods, for a variety of physiological reasons, are the most vulnerable road users to road crashes. Media reports in the city further indicate that child pedestrians from the lower-income neighbourhoods are vulnerable to crime and gang-related violence.

This project was motivated by the argument that school travel planning is an important, but almost entirely neglected, aspect of the local transport planning process in South Africa in general and in the city of Cape Town in particular. The potential benefits of adopting contextually appropriate school travel planning practices range from improving the safety and security of scholar travel, to reducing car dependence and easing congestion. One way of simultaneously addressing the child mobility concerns identified in Cape Town is the ‘walking bus’. Two demonstration projects were implemented in a lower-income and a higher-income neighbourhood of Cape Town (Delft and Rondebosch respectively). The Rondebosch project was the main focus of this dissertation.

The background provided in Chapter 1 indicates that child mobility concerns in Cape Town centre around rising car use among children (up to 87% of school trips) in middle-higher-income neighbourhoods, and safety and security concerns in the lower-income neighbourhoods. This provided a rationale for introducing a contextually appropriate intervention that could address such concerns. The overriding aim of the research and the specific questions through which this was achieved are outlined in Chapter 1.

The literature review provided in Chapter 2 situates the current interest in school travel planning within the context of concerns over declining child independent mobility (CIM). The review indicates that the decline in CIM has resulted mainly from parental concerns over the safety and security of their children. In the developed countries, parents’ response to such concerns has been to use the private car to take their children to different destinations, including schools. Available literature suggests that the same has occurred in the more-affluent neighbourhoods of Cape Town. The literature review also shows that school travel planning can be a way of reversing this decline in CIM. Interventions that have been implemented, particularly in the developed countries include among others the Safe Routes to School (SRTS) programme, School Travel Plans, ‘walking buses’

and ‘cycle trains’. These interventions were reviewed with a view towards identifying the most appropriate intervention in the local context.

The research method that was used in this research is presented in Chapter 3. Firstly, a literature review that was conducted in order to gain a better understanding of the current interest in school travel planning, and of ‘best practice’ in the implementation and evaluation of the different interventions is described in terms of the review method. The literature review involved an electronic search of the latest peer reviewed articles and research reports dealing with child mobility and active travel interventions. Another electronic search was for media reports in the local newspapers, particularly the Cape Times, Cape Argus and Weekend Argus, dealing with school travel, road safety and security concerns in Cape Town. In addition, the review also involved a content analysis of various policy and strategy documents to identify practices that promote active travel in the case city. Secondly, the rationale for choosing the ‘walking bus’ as the most appropriate intervention is presented in Chapter 3. In addition, three school travel surveys (designated as ACET, GRSP-ZA and CIM surveys) conducted as part of the research are described in terms of method and limitations. Lastly, the demonstration and evaluation method of the ‘walking buses’ in Rondebosch is also described in this chapter.

Findings relating to CIM and current school travel behaviour are presented in Chapter 4. It was found that independent mobility varied considerably between wealthy and poor neighbourhoods, and across age and gender. For instance, children from poorer neighbourhoods were heavily reliant on walking (88% share of school trips) while children from wealthier neighbourhoods were heavily reliant on cars (87% share of school trips). Given these very different mode use shares, a surprising finding was the similarity in travel time distributions with the majority of learners across all neighbourhood categories spending less than 30 minutes travelling to school. The findings suggest that while the majority of children in the lower-income neighbourhoods have more independence than their counterparts in the more-affluent neighbourhoods, they feel unsafe while walking. The results also suggest that children in the more-affluent neighbourhoods desire more independence as shown by their mode use preferences. This made a compelling case for the implementation of an intervention that simultaneously addresses children’s safety and security concerns in the lower-income neighbourhoods and children’s desire for more independence in the more-affluent neighbourhoods.

One of the aims of the ACET and GRSP-ZA surveys was to collect the data needed to develop, implement and evaluate ‘walking buses’. The key results in this regard are discussed in Chapter 5 in

terms of the insights they provide on the willingness of parents to either allow their children to participate in 'walking buses' or volunteer themselves to supervise learner 'walking bus' groups. It was found that 51% and 41% of parents were willing to permit their children to participate in a 'walking bus', while 16% and 17% of parents were willing to volunteer to supervise 'walking buses' in Delft and Rondebosch respectively. On the basis of these findings, it was concluded that 'walking buses' presented a viable intervention in the study neighbourhoods. 'Walking buses' were subsequently implemented at one school in Delft and two schools in Rondebosch. The Rondebosch 'buses' were started in April 2011. They were then evaluated eight-to nine months after the launch.

Chapter 6 presents findings from the evaluation of the 'walking buses' that were implemented in Rondebosch. Qualitative interviews were conducted with some of the participating children (n=16) and parents (n=14). Key findings from the interviews are discussed in terms of learner travel behaviour prior to, and after, the setting up of 'walking buses', and insights into the impacts of 'walking buses'. The findings suggest that while scheduled 'walking buses' may be established with considerable levels of support and enthusiasm from parents and schools, they are difficult to sustain over the longer term. The 'after' qualitative interviews indicated that both parents and learners found the 'walking bus' experience beneficial, but that the organisational burden of an inflexible, scheduled system was too great. Despite not enduring over the long term, the 'walking buses' did however result in some longer term behavioural changes. The majority of participants interviewed in the 'after' survey, continued to walk to school independently, whereas previously they were driven to school by car.

The dissertation concludes with a discussion in Chapter 7, firstly on the tension between CIM and 'walking buses', and secondly on the implications of the research findings for municipalities and schools wishing to promote greater use of walking for school travel, and with recommendations on how 'walking buses' might be made more sustainable. It is argued that within the context of South African cities, greater child supervision is desirable in the less-affluent communities in the light of children's vulnerability to road crashes and crime, while in the more-affluent communities greater independence is desirable but that this can only come after parents feel confident that their children can safely negotiate the journey to school alone. 'Walking buses' seem to offer a necessary first step in giving parents who may be overly risk averse, this type of confidence. With regard to policy implications, it is argued that institutional arrangements are just as important as route planning and optimisation for the success of 'walking buses'.

DECLARATION

I know the meaning of plagiarism and declare that all the work in the document, save for that which is properly acknowledged, is my own.

Research was conducted between March 2010 and November 2011, as part of a broader research programme conducted by the African Centre of Excellence for Studies in Public and Non-motorised Transport (ACET, www.acet.uct.ac.za) under the supervision of A/Prof Roger Behrens. The opinions expressed and conclusions presented are those of the author.

Signature

Date

University of Cape Town

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ACRONYMS AND ABBREVIATIONS

ACET	African Centre of Excellence for Studies in Public and Non-motorised Transport
BEN	Bicycling Empowerment Network
CAPS	Curriculum and Assessment Policy Statements
CIM	Child independent mobility
CMTS	Cape Metropolitan Transport Study
CoCT	City of Cape Town
DOT	Department of Transport
DOTPW	Department of Transport and Public Works
EPWP	Extended Public Work Programme
GRSP-ZA	Global Road Safety Partnership (South Africa)
GSK	GlaxoSmithKline
MEPLAN	Metropolitan Transport Area Land Use-Transport Study
NDOE	National Department of Education
NHTS	National Household Travel Survey
NLTSF	National Land Transport Strategic Framework
NLTTA	National Land Transport Transition Act
NMT	Non-Motorised Transport
PGWC	Provincial Government of Western Cape
PSI	Policy Studies Institute
SAPS	South African Police Service
SRTS	Safe routes to school
STS	Scholar transport survey
WCED	Western Cape Education Department
UNODC	United Nations Office on Drugs and Crime

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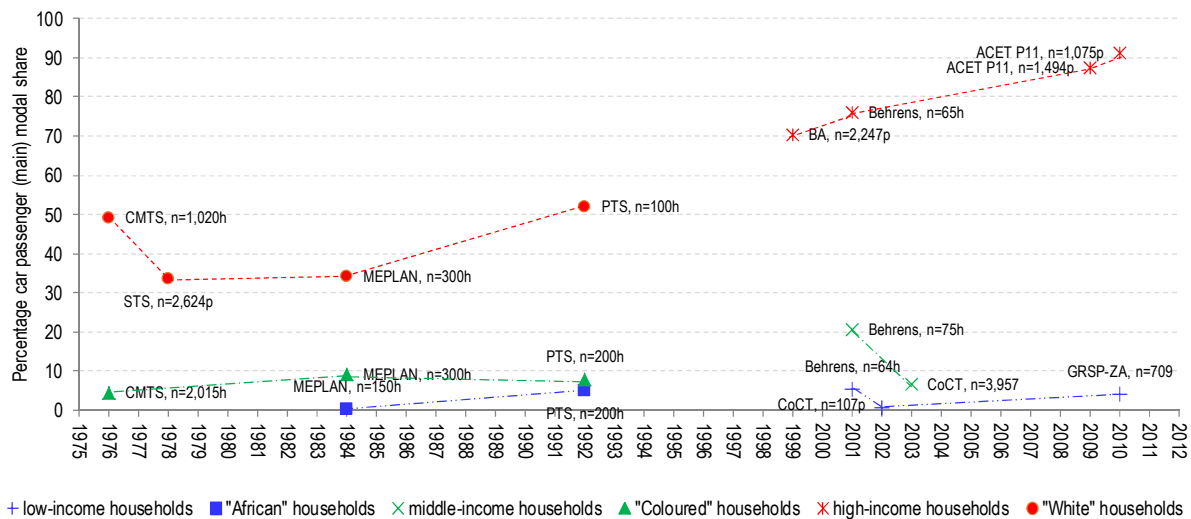
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CHAPTER ONE: INTRODUCTION

1.1 Background

Past framings of the transport problem in South Africa have resulted in travel by children being poorly understood. Behrens (2004) noted that apartheid policies dictated an analytical focus on the daily transportation of 'Coloured' and 'African' labour in and out of cities. This, combined with a focus on the problem of traffic congestion and highway construction in the travel survey and demand forecasting methods that have dominated transport planning practice in the country, led to a particular scope in travel behaviour analysis. According to Behrens (2004), with some exceptions, the travel surveys administered were limited to, and the travel demand models developed were calibrated for, motorised trips occurring within the weekday morning peak period when congestion was generally worst. In many instances, only trips to work were included. The implicit underlying assumption was that a transport system that satisfies the need for motorised travel during the commuter peak would be able to satisfy other travel needs as well (Behrens, 2004). Most analysis of travel need and behaviour was therefore restricted to either commuting or motorised travel, and travel by children was either omitted entirely or only partially considered. It is only relatively recently that school trips have been a focus in travel surveys – most notably in the inaugural National Household Travel Survey (NHTS) in 2003 (Department of Transport, 2005). At a local level, several school travel surveys have subsequently been conducted in Cape Town (e.g. Adam, 2003, Fredericks, 2003, Behrens and Phillips, 2004 and Behrens and Van Rensburg, 2009). Knowledge on how children travel to and from school is therefore growing. In Cape Town, this knowledge has given rise to concerns about school travel in two main areas namely: rising car use among school-going children and its associated negative impacts; and child pedestrian road safety.

With regard to longitudinal trends in mode use, available historical data in Cape Town suggest that there has been a significant shift in mode use for school trips in the middle-and higher-income neighbourhoods in the last three decades with fewer children using the active transport or non-motorised transport (NMT) modes of walking and cycling. This shift has been accompanied by a concomitant increase in car use. Longitudinal trends in car use in Cape Town are shown in Figure 1.



Note: The plots in the chart represent the percentage share of car passenger use found in different travel surveys that collected data on trips to education activity destinations. The different surveys are identified by an acronym and their sample size. Prior to 1994 travel survey samples were stratified by household race. After 1994 travel surveys were stratified by household income. (Source: various)

Figure 1 Trends in education trip car mode share in Cape Town (1975-2010)

This rise in car use is likely to have had negative impacts which include: traffic congestion around school precincts, reduced physical activity levels among children possibly contributing to rising childhood obesity, limiting child independent mobility, and limiting child spatial cognitive development. Supporting quantitative evidence of such impacts in South Africa is sparse. Recent studies, do however suggest that school travel is a significant vehicle trip generating land use in the middle- to higher-income neighbourhoods, where car use is much higher than comparative data from some developed countries. For instance, in a survey of 1,494 learners, Behrens and Van Rensburg (2009) found that, amongst nine participating schools in Rondebosch which serve predominantly middle- and higher-income communities, the private car accounted for 87% of school trips. Other studies confirm that childhood obesity is becoming a significant public health issue in South Africa. For instance, in a study of 10,195 primary school children, Armstrong et al (2006) found that 2% of boys and 5% of girls were obese and 11% of boys and 18% of girls were overweight. A more recent study by GlaxoSmithKline (GSK) found that 17% of South African children below nine years were obese (GSK, 2010). Research from the 2010 Health Active Kids report card for South Africa also shows an increase in the prevalence of overweight and obese teenagers between 2002 and 2008 (overweight from 17% to 20% and obese from 4% to 5%) (Health Active Kids-South Africa Report Card, 2011). The realisation that South African school children lack physical exercise is reflected in the Department of Education's amended Curriculum and Assessment Policy Statements (CAPS) that came into effect from January 2011. In the new curriculum, provision was made for two hours of weekly physical education in the Foundation

Phase and 1½ hours per week in the Intermediate Phase for primary school under Life Skills. For the Senior Phase (grades 4-9) and in grades 10-12, there will be a fixed period dedicated each week to physical education (Health Active Kids-South Africa Report Card, 2011).

Besides rising car use, another concern centres on the vulnerability of children to road crashes, particularly in the lower-income neighbourhoods where walking is the main mode of school travel. For instance, road crash data from 2003 indicate that child pedestrians between 6-12 years accounted for 17% of pedestrian road crash casualties in Cape Town (City of Cape Town, 2003). More recent data for the entire Western Cape Province indicate that in 2007, 31% of pedestrian road crash fatalities were children aged 17 years or less, and 16% children aged 10 years or less (Vanderschuren and Jobanputra, 2010).

In an attempt to address these concerns, some intervention measures have been introduced in South Africa. These include scholar patrols at road crossing points, bicycle infrastructure improvement and incorporating road safety education in the curriculum at primary school level. There is, however, no evidence of attempts to evaluate the impacts of these interventions.

1.2 Research motivation

This project was motivated by the argument that school travel planning is an important, but almost entirely neglected, aspect of the local transport planning process in South Africa. The potential benefits of adopting contextually appropriate school travel planning practices range from improving the safety and security of scholar travel, to reducing car dependence and easing congestion around school precincts. The research sought to identify a solution that can simultaneously reverse the rise in car use among children and address child pedestrian safety and security concerns. It attempts to fill the gaps alluded to in the previous section by reporting on the development and evaluation of the impacts of a non-motorised school travel initiative in the form of ‘walking buses’ demonstrated at selected schools in Cape Town between 2010 and 2011. A ‘walking bus’ is a group of children who walk to and from school under the supervision of adult volunteers, one of whom leads at the front (the ‘driver’) and another who supervises at the back (the ‘conductor’). Children are picked up either from their homes or from designated ‘bus stops’ along a set route and dropped off at school. The concept is attributed to David Engwicht (1993) with the first ‘walking bus’ trialled in the United Kingdom in 1998. Since then, ‘walking buses’ have been introduced in many other parts of the developed world (e.g. Australia, New Zealand and the United States).

The increasing popularity of ‘walking buses’ stems from their ability to incorporate physical activity into children’s lives, possibly addressing obesity problems, and reducing traffic congestion within school precincts, as every child on the ‘bus’ is potentially one less car on the road. Furthermore, adult supervision ensures a safer journey to and from school. In addition, ‘walking buses’ may help to develop appropriate road safety behaviour in children, thereby building essential skills that they can use later when walking independently. They can also provide children and parents with an opportunity to build friendships, and are likely to contribute to child development in the form of improved spatial cognition.

Although popular in developed countries, the ‘walking bus’ concept is still relatively new in developing countries. As a result, little is known as to how such an initiative can successfully be replicated in the local context and what the impacts of the initiative might be since almost all the available literature on ‘walking buses’ comes from developed countries.

1.3 Research aims

The overriding aim of the research was to evaluate the potential of school travel planning as a means of improving the safety of school travel and reducing car dependence among primary school children in Cape Town.

The research questions were:

1. How do scholars get to school, and how has this changed?
 - How would scholars like to travel to school?
 - What prevents scholars from cycling and walking to school?
 - What influences school travel mode choice?
 - How does the work or education status of the parent(s) affect school travel mode choice?
 - Who actually makes the school travel decision?
2. Which school travel intervention measures have potential for promoting the safety and security of routes to education places and alternatives to the car for education trips?
3. How can a selected school travel intervention measure be implemented and evaluated in the local context?

While knowledge on how children travel to and from school has been growing as stated in section 1.1, little is understood of child travel behaviour beyond the school trip, and of the degree to which children from different socio-economic backgrounds travel alone and have constraints imposed upon their independent mobility. A related study that sought to understand this aspect of child travel took place at the same time as the school travel project. This child independent mobility (CIM) study was conducted by the author under the African Centre of Excellence for Studies in Public and Non-motorised Transport (ACET) and coordinated by the Policy Studies Institute (PSI) of the University of Westminster. Child independent mobility refers to the degree to which children of different ages are allowed to make trips to school, friends, shops and other destinations unaccompanied by adults.¹ CIM studies were conducted in England in 1970 and England and Germany in 1990. An international collaborative study replicating the England and Germany studies was conducted in 2010-2011. The South African part of this collaborative study was conducted at schools in Cape Town and its hinterland. The findings from this study are also discussed in this dissertation and this study will henceforth be referred to as CIM survey.

1.4 Outline of chapters

The dissertation is divided into seven chapters including this introductory chapter. The next chapter reviews literature on child mobility and associated concerns; and the school travel initiatives that have been introduced to address these concerns, the benefits of such initiatives and how such benefits have been evaluated in other countries. It also describes the various interventions that have been introduced to address school travel related concerns in the Western Cape Province and in Cape Town in particular. Chapter 3 describes the methodology used in the research including a literature review, selection of non-motorised school travel intervention, school travel surveys, development, implementation and evaluation of 'walking buses'. Chapters 4 and 5 present the findings of the school travel and CIM surveys. While 'walking buses' were implemented in two neighbourhoods (Delft and Rondebosch), the emphasis in chapter 6 is on the findings of the evaluation of the Rondebosch 'buses' as these were the main focus of this dissertation. Chapter 7 concludes with a discussion on the tension between CIM and 'walking buses', and the implications of findings from the research for municipalities and schools wishing to promote greater walking for school travel.

¹ In the seminal study of declining child independent mobility, Hillman et al (1990) found that child independent mobility in England and Germany had declined and attributed this to parents withdrawing children from traffic and 'stranger danger' by limiting children's freedom to move unaccompanied.

CHAPTER TWO: LITERATURE REVIEW

This chapter reviews literature on trends in child mobility, parental concerns resulting in such trends, and possible impacts including rising car use and its associated negative impacts. It also reviews literature on school travel interventions that have been introduced to address those concerns; and methods of evaluating those interventions. The emphasis throughout the review is on one aspect of child mobility, namely school travel.² The method that was used in the literature review is discussed in the method section of this dissertation (Chapter 3). The literature review served to provide a theoretical background to the implementation of a selected non-motorised school travel intervention in Cape Town: The specific aims through which this was achieved were, to:

- gain insights into the context in which declining CIM has occurred and develop a rationale for supporting efforts to increase CIM through non-motorised transport (NMT) interventions
- identify school travel interventions, particularly those that promote NMT, that have been successfully implemented elsewhere and might be appropriate for implementation in Cape Town
- gain insights into how successful school travel interventions that promote NMT have been implemented and evaluated in order to identify current ‘best practice’ that could be used in demonstrating and evaluating one of these initiatives in Cape Town
- identify policies and programmes that promote child independent mobility in order to understand the opportunities and challenges that exist in the implementation of non-motorised school travel interventions.

One major limitation of the review was that most of the literature on school travel behaviour and school travel planning was from developed countries. As a result, it was difficult to gain insights into how the different school travel initiatives have been implemented, and with what results in a developing country context. Similarly, comparisons on findings on issues like obesity levels and mode use trends between South Africa and other developing countries were difficult to make.

This chapter is divided into four sections. It begins with a description in section 2.1 of the overarching proposition that helps to explain contemporary school travel patterns, trends in mode

² Unless specified, school travel in this dissertation is used as a generic term referring to both the morning home *to* school trip and the afternoon *from* school trips

use and the impacts of such trends. In section 2.2, the interventions that have been successfully implemented in addressing child mobility concerns are reviewed. This is followed by a review in section 2.3 of some of the legislative and policy frameworks that promote CIM. The chapter concludes with a summary in section 2.4 of key literature review findings and their implications for this research.

2.1 Child mobility trends and their impacts

The overarching research proposition guiding this literature review was that there has been a decline in CIM³, resulting mainly from parental concern over the safety and security of their children. This proposition was derived from background literature on factors influencing school travel mode choice. The decline in CIM has led to what is referred to by Whitzman and Pike (2007) as adult dependent mobility (ADM) manifested through chauffeuring and adult accompaniment to and from school and other destinations. The next three subsections discuss trends in CIM (focusing on mode use for school trips), reasons for such trends, and the impacts of those trends from an international as well as local perspective.

2.1.1 Mode use trends

With regard to mode use, the number of children using cars for travelling for all purposes particularly in the developed world has dramatically increased. This has been associated with a subsequent decline in the number of children using the active transportation modes of walking and cycling. While there has been an overall increase in car use and decline in the use of other modes by children for all trip purposes, this trend is distinctly noticeable when one looks at the school trip. In their seminal study on CIM, Hillman et al (1990) found that child independent mobility in England and Germany declined between 1971 and 1990. In England, Hillman et al. (1990) showed that English schoolchildren had less travel freedom in 1990 than in 1971. For example, 50% of schoolchildren aged 6 to 11 were allowed to ride buses alone in 1971; while only 14% were allowed to do so in 1990 (Hillman et al, 1990). Since that seminal study, declining CIM has been reported in various countries including the UK, the USA, and Australia. For instance, Cooper et al (2005) reported that the proportion of UK primary school children aged 5 to 10 years driven to school increased from 29% in 1993 to 41% in 2002. In the USA, survey data from the National Household Travel Survey, showed that less than 16% of students aged 5 to 15 years walked or biked to school

³The term CIM was popularised by Hillman et al (1990)

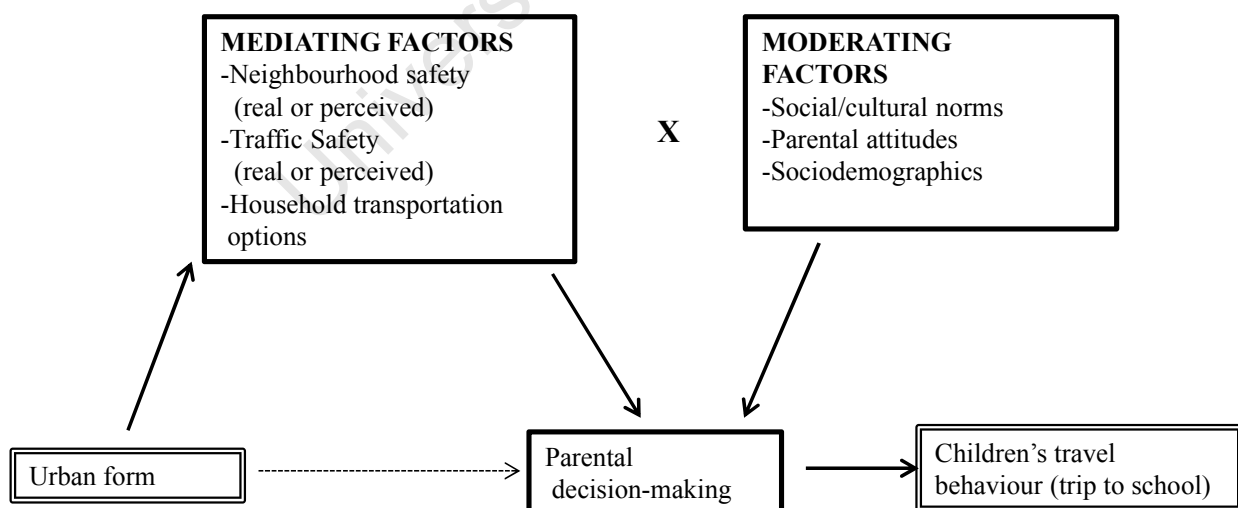
in 2001 compared to 48% of children in this age range who walked or biked to school in 1969 (McDonald, 2007; Davison et al, 2008). In Sydney (Australia), successive Household Travel Surveys conducted between 1971 and 2003 also showed a rise in car use and decline in active modes. The results from four surveys conducted during this period showed that the percentage of children aged 5–9 that walked to school fell from 58% in 1971 to 26% in 2003. (Van der Ploeg et al, 2008). The percentage of children aged 5–9 who were driven to school by car in the four surveys rose from 23% to 67%. The results for children aged 10–14 were similar, walking decreased from 44% to 21% and car use increased from 12% to 48% over the study period (Van der Ploeg et al, 2008). In Victoria State (Australia), walking to school fell from 35% to 16%, cycling from 20% to 8%, and car travel increased from 17% to 44% between 1970 and 1994 (Australian Bureau of Statistics (ABS) 1975; ABS 1995 cited in Garrard, 2009).

With regard to Cape Town, the literature suggest that, there has also been a rapid increase in private car use accompanied by a subsequent decline in other modes especially active transport modes of walking and cycling over the last three decades in the middle-higher-income neighbourhoods. For instance, a survey conducted in 1976 as part of the Cape Metropolitan Transportation Study found that amongst 1,020 middle- and higher-income households living in Cape Town, 49% of trips to school were on foot or by bicycle, 13% were by train or bus, and 38% were by car (Moolman, 1976 cited in Behrens, 2004). A later survey of 100 households by Market and Opinion Surveys in 1992 suggested that, amongst the same group, school trips by foot or bicycle had dropped to 38%, trips by public transport had dropped to 9%, and trips by car had risen to 52% (Behrens, 2004). A survey of 1,494 learners conducted by the African Centre of Excellence for Public and Non-Motorised Transport (ACET) at the University of Cape Town in 2009 found that, amongst nine participating schools in Rondebosch which serve predominantly middle- and higher-income communities, trips to school by foot or bicycle had declined to 8% (7% on foot and 1% by bicycle), trips by public transport had declined to 3%, and trips by car had increased to 87% (Behrens and van Rensburg, 2009). On the other hand, the literature suggests that lower-income communities have not experienced any significant mode shift for school travel (for mode use trends in Cape Town also see Figure 1). However, as will be discussed in the next section, media reports in Cape Town seem to suggest that other activities e.g. the freedom to play may have been curtailed in these lower-income neighbourhoods as a result of gang-related violence and crime.

2.1.2 Reasons for the decline in CIM

According to Thomson (2009), the decline in CIM is best understood within the context of *social capital*, which is defined as the connection between individuals, social networks and the norms of reciprocity and trustworthiness that arise from them (Putnam, 2000 cited in Thomson, 2009). A society characterised by reciprocity and trustworthiness has high social capital while one characterised by distrust has low social capital. For Thomson (2009) social capital in high-income countries has declined resulting in the child travel behaviour in evidence today.

Longitudinal changes in school travel mode use can be explained by a variety of factors. Firstly, the decrease in CIM that has occurred may be associated with parental concerns about traffic safety and security concerns (Hillman et al, 1990; Whitzman and Pike, 2007) resulting in parents opting to drive their children to different destinations. Other factors that help to explain mode use among children include household characteristics and characteristics of the built environment; distance from basic services e.g. schools (Whitzman and Pike, 2007, McDonald, 2008a) and social factors (Whitzman and Pike, 2007). These factors are summarized in the conceptual framework developed by McMillan (2005) shown in Figure 2. An alternative framework to the one below was developed by Gebel at 2005 (cited in Garrard, 2009). In addition to the factors in the framework given below, Gebel et al (2005 in Garrard, 2009) further identified the policy and regulatory framework as an important factor influencing mode choice.



Note: Solid arrows indicate hypothesized direct relationships, dotted arrows highlight hypothesized indirect relationships, and X indicates the interaction between mediating and moderating factors.

Figure 2 Conceptual framework of a primary school child's travel behaviour (source: McMillan, 2005)

With regard to traffic danger, a survey conducted by the University of Westminster reported in Woodside et al (2004) found that a large number of parents (66%) were concerned by traffic danger. With regard to real or perceived ‘stranger danger’, a survey conducted by the University of Westminster, also reported in Woodside et al (2004) found that 52% of parents were concerned by ‘stranger danger’ (Jones and Bradshaw, 2000 in Woodside et al, 2004). Another survey, conducted in England by Valentine (1997) cited in Thomson (2009), revealed that the majority of parents (45%) considered abduction to be the greatest danger faced by primary school aged children.

The literature review suggests that there are age and gender differences with regard to the traffic danger and ‘stranger danger’ concerns. According to McDonald (2008a), girls are less likely to walk than boys with the differences being most prominent at younger ages. Hillman et al (1990) found differences between girls and boys in relation to independent mobility patterns. In Australia, a study of parental perceptions about neighbourhood safety by Carver et al (2009) found that boys in each age-group of their study had higher levels of independent mobility than girls. With regard to age, a study by Dellinger (2002) cited in McDonald (2008b) showed that over 40% of the parents of primary school-aged children reported that their children faced traffic obstacles; closer to 30% of parents of older children listed this as a barrier. In Melbourne (Australia), a survey of 1,200 parents and children found that 80% of children aged 10-12 and 84% of children aged 5-6 years said they were concerned about road safety (Timperio et al, 2004). Similar age-related findings in Australia were reported in Carver et al (2009).

In terms of household factors, a study in the USA (McDonald, 2008b) found that young children aged 5–14 years with mothers who commuted to work in the morning were less likely to walk or bike to school. In households where parents use a car or a motorcycle as a commuting mode, the possibility of driving their children to school increases. This is especially true when children attend schools located along or near parental commuting routes, parents tend to drop their children off at or pick them up from school using the same transport modes (Lin and Chang, 2009). In such instances, convenience and time constraints become important considerations that may lead parents to chauffeur their children to school because of the perception that the car is quicker and easier to drop children at school (Whitzman, and Pike, 2007). In a USA study, McDonald and Aalborg (2009) found that 75% of parents driving their children less than 3 km⁴ to school said they did this for convenience and to save time in terms of coordinating school drop-off and work trips. A UK study reported in Barry and Knight (2005) also found convenience as the biggest reason for driving

⁴ In instances in the literature where distance was given in miles, this was converted and rounded off to the nearest km by the author.

children to school. However, as noted by Thomson (2009) the car may not be quicker due to the large amount of congestion around schools.

With regard to characteristics of the built environment, these appear to exert a small, but significant, effect on walking to school (McDonald, 2008a; McDonald, 2008b; McMillan, 2007). For instance, in a study of Oregon schools in the USA, Schlossberg et al (2005) found that urban form, as measured by higher intersection densities and lower proportions of dead-ends, was associated with walking to school. In a study of California elementary students, McMillan (2007) found a modest relationship between urban form and walking. In Taipei (Taiwan), Lin and Chang (2009) found that large block sizes, increased intersection numbers and wide roads discouraged children from walking to school independently.

The impact of distance on travel behaviour has been reported upon in several studies including Schlossberg et al (2005); DiGuseppi et al (1998); Ewing et al (2004); and Davison et al (2008) in the USA and Woodside et al (2004) in the United Kingdom. A USA study on why there were low rates of walking to and from school found that the most common barrier mentioned by parents was distance to the school, particularly amongst parents of high school students (61%), followed by traffic related danger (30%), weather (19%), crime (12%), and school policy (6%) (Whitzman and Pike, 2007). However, as noted by Garrard (2009), the influence of distance varies with perceptions of feasible walking and cycling distances. In countries with high rates of active travel to school, many students walk and cycle greater distances than considered feasible in other countries. For Garrard (2009), such differences indicate that feasible walking and cycling distances are shaped by cultural, environmental and policy factors. Parents' desire to have their children attend certain schools may also reduce the impact of distance. For instance in South African cities, some 'black' parents choose to send their children away from the traditionally under-resourced township schools to former 'Indian', 'Coloured' and 'White' schools (Sekete et al, 2001 cited in The Presidency, 2009).

A significant social factor discussed by Garrard (2009) is the relationship between societal equality and active travel. Garrard (2009) cites studies by Christie et al (2004) and Wilkinson and Pickett (2009) indicating that crime and traffic injuries are higher in less equal societies than more equal societies resulting in the latter having higher levels of trust, social cohesion and involvement in community life; and lower levels of violence. Children in the former type of society are therefore likely to be granted less independence. This arguably applies to South Africa where inequalities inherited from the apartheid era still persist. Available statistics indicate that South African cities

are violent by world standards and crimes against children are high. For instance, South Africa's homicide rate of 34 per 100,000 in 2009 (United Nations Office on Drugs and Crime (UNODC), 2011) placed the country among the most violent countries in the world. The situation is even worse in Cape Town which at 41 per 100,000 (in 2010) the homicide rate was higher than the national average (UNODC, 2011). The rates are even higher in the less-affluent neighbourhoods. For instance, Norman et al (2007) indicated that in Cape Town's poorer townships of Khayelitsha and Nyanga, homicide rates in 2000 were 451 and 485 per 100 000, respectively in the 15–24 age group. With regard to crimes against children, reports on missing children and sexual offences against children are common. For instance using figures released by the South African Police Service (SAPS) Missing Persons Bureau it has been estimated that a child goes missing every six hours in South Africa (Missing Children South Africa, 2012). With regard to sexual offences against children (defined as those below 18 years) a total of 20 141 cases of sexual offences were recorded during 2008/2009, and of these 61% were committed against children below the age of 15 years while 29% of these sexual offences involved children aged 0-10 years (SAPS, 2011). By the period 2010/2011, the total number of sexual offenses had risen to 28,128 (SAPS, 2011). While these figures do not specify the perpetrators (i.e. whether strangers or people known to the child victims), such reports are likely to add to parents' unease about letting children move around independently.

While the literature suggest children in the lower income communities of Cape Town have not experienced a decline in independent mobility for school trips, parents fear for their children. It also seems that there is a move towards reducing children's freedom. There is little available literature to support this claim. However, media reports of gang-related violence in the lower-income areas (e.g. Benjamin, 2011; Hartley and Dolley, 2011; Kaplan, 2011; Maregele, 2012; Hartley and Dolley, 2012; Dolley, 2012; Solomons, 2012) suggest that parents in Cape Town fear for children's safety. The influence of gang violence in instilling fear in parents and in Cape Town's less-affluent neighbourhoods is encapsulated in the following quotes from parents in local newspapers:

"I do not allow my children to play there anymore [Park opposite a tavern in the neighbourhood] because the shootings start anytime". [37 year old mother of three children aged 15, 9 and 2 years residing in Uitsig, (Elsies River) Cape Town cited in Maregele, 2012: 3].

“When are we going to have a time in our lives when children can be children and play outside without the fear that they are going to be shot” [Kevin Southgate, Chairman of the Steenberg Community Police Forum (CPF) cited in Dolley, 2012: 3].

“Shootings have taken place outside school when pupils are either on their way to school or back home. This danger has instilled a sense of fear in them and forced us to look at extra-curricular activities and classes. We can’t risk the pupils staying too late in the afternoon when most shootings happen” [Faseeg Manie Principal of Lavender Hill High School cited in Solomons, 2012: 7].

Having looked at the hypothesized scenario of declining CIM manifested in rising car use among children and increased adult accompaniment and some of the reasons for this, attention now turns to the possible impacts of rising car use among children.

2.1.3 Impacts of declining CIM

This section looks at the impacts of declining CIM, particularly as manifested by rising car use for school trips. According to McMillan (2007), the changes in travel mode to school may appear insignificant to the larger transportation system but in reality they represent growing transportation and health problems. Increased car use is likely to have negative impacts which include traffic congestion in school precincts (Collins and Kearns, 2005; Whitzman and Pike, 2007), reduced physical activity levels among children (Whitzman and Pike, Mitchell et al, 2007); and reduced personal, social and spatial cognitive development (Hillman, 2006; Mitchell et al, 2007). Supporting evidence for some of these negative impacts is available from different countries. For instance, in the United Kingdom, school travel is believed to result in peak period traffic congestion and it has been estimated that in urban areas in that country, during term time nearly one in five cars at 8:50am is on the school run (Department for Transport, 2003). In Victoria (Australia), Thomson (2009) reported that 17% of early morning traffic on the roads is made up of cars doing the school run. In the USA, as much as 21% of morning traffic is attributed to parents driving their children to school (National Safe Routes to School Task Force (NSRTSTF), 2008).

The link between car use and reduced physical activity levels is supported by data from various countries. For instance, the UK National Obesity Task Force (2004) cited in Osborne (2008) indicated that rates of child obesity in the UK are among the highest in the world and linked this to the fact that there has been a doubling in the proportion of children travelling to school by car

between 1985 and 2002. Still in the UK, a health survey reported in Department for Transport (2003) found that childhood obesity affected 9% of 6 year olds and 15 % of 15 year olds. In Australia, the 2007-08 National Health Survey reported high and increasing levels of overweight and obesity among Australian children aged 5-17 years with 17% of children found to be overweight, and 8% found to be obese (ABS, 2009 cited in Garrard, 2009). In addition, the Australian data shows that there has been a significant increase in the proportion of children who are obese; from 5% in 1995 to 8% in 2007/8 (ABS, 2009 cited in Garrard, 2009).

As noted by McMillan (2007), while the trip to and from school would not fulfil all the physical activity needs of a child for a given day, these trips can be an important contribution to a child's overall activity for the day. This is supported by studies that have shown that active transportation to school provides a substantial portion of children's physical activity and is associated with higher levels of energy expenditure. For instance, in a study of 114 pupils in Bristol, Cooper et al (2003) found that male pupils who walked to school were significantly more physically active during the entire day and during after-school hours than were boys who did not walk to school. The same findings were obtained by Cooper et al (2005) in a study of the relationship between levels of physical activity and travel mode in Odense, Denmark. In Cebu, Philippines, Tudor-Locke et al (2003) also found that active commuting to school was associated with increased physical activity in a cross-section of adolescents. In the USA, Davison et al (2008) found that children who walk or bicycle to school have higher daily levels of physical activity and better cardiovascular fitness than do children who do not actively commute to school.

Some studies have focused on the impacts of car use on the personal and social development of children and on spatial cognitive awareness. For instance, Hillman (2006) argued that limiting children's independent mobility affects the development of their social and emotional skills and takes some of the excitement out of their lives. Furthermore, it has been argued that chauffeuring children actually makes them more vulnerable to risk and injury because it deprives them of the opportunity to develop first-hand the safety skills and mechanisms to cope with risk (Collins and Kearns, 2005; Hillman, 2006).

The growth in vehicular traffic which partly results from the decision to use the car to transport children increases the danger for non-car users (Hillman et al, 1990; Hillman, 2006), particularly child pedestrians. This leads to a cycle where other parents are forced to use the supposedly safer car and increased traffic danger for those who for various reasons do not have access to the private car (Collins and Kearns, 2005). It is no surprise therefore that statistics indicate that road crashes

involving children are a serious problem worldwide. For instance, in 2000, globally road crashes were the second leading cause of injury among children in the 5-14 age group (WHO, 2000). In 2002, 85 children died and 2,834 were seriously injured while walking and cycling in England (Department for Transport, 2003). In Australia, available data for 2006 shows that children below 16 years made up 13% and 21% of the 227 pedestrian road crash fatalities and 2,500 seriously injured pedestrians respectively in that year (Thomson, 2009). In the USA, motor vehicle crashes are also the leading cause of death among children aged 3 to 14 years (NSRSTF, 2008)

Dellinger and Beck (2005) noted that across the world, the commute to school is an important source of children's exposure to traffic crashes since in most countries, almost all children and youths aged 5-18 are enrolled in schools. In the UK, for instance, one fifth of the child pedestrian casualties happen on the school journey (Department for the Environment, Transport and the Regions, 2000). The group that has been identified as being most at risk is young adolescents (Department for the Environment, Transport and the Regions, 2000; Jensen, 2008). For instance, in the UK the peak age of child pedestrian casualties is given as 12 years (Department for the Environment, Transport and the Regions, 2000). A possible reason for this is that, at this age, children begin high school and start to travel to school independently, without having had a chance to practise pedestrian skills. This is consistent with findings from Denmark, where CIM is reported to become fully fledged between 10 and 12 years and child pedestrian crashes peak in this age group (Jensen, 2008).

Road crashes involving children are also a severe problem in Cape Town. According to Behrens (2004), data from 1997 and 1999 indicate that around 19-33 % of pedestrian fatalities were children aged 12 years or less, and 24-43 % were children aged 17 years or less. More recent data for the entire Western Cape Province indicate that in 2007, 31% of pedestrian road crash fatalities were children aged 17 years or less, and 16% children aged 10 years or less (Vanderschuren and Jobanputra, 2010). This is broadly consistent with national figures which show that in the 5-14 age group one of the most common causes of death are road crashes (The Presidency, 2009). In terms of age and gender, it seems boys are more vulnerable to road crashes than girls in Cape Town while child pedestrians in the 6-12 age group are more vulnerable than other age groups (City of Cape Town, 2003). Available data in Cape Town suggest that children in the lower-income communities are more vulnerable to road crashes. This is not unique to Cape Town. Collins and Kearns (2005) reported a similar picture in Auckland (New Zealand) where data showed that road crashes involving children were higher in the less-affluent neighbourhoods.

The evidence presented in this section shows that CIM in developed countries and in the middle-higher-income neighbourhoods of Cape Town has decreased with more children now using the private car for school trips. The road crash statistics also show that children, particularly those in the less-affluent neighbourhoods of Cape Town are very vulnerable to road crashes. Fears over road safety are compounded by concerns over gang-related violence and crimes against children.

The discussion up to now has focused on the child mobility related concerns. While parents have curtailed children's autonomy, some studies suggest that a high number of both parents and children would prefer that children walk or cycle to school. For instance, a survey of 184 families by O'Fallon (2007) in North Shore (New Zealand) indicated that 87 parents (47%) were willing to allow their children to cycle to school under adult supervision and one-third of these families were willing to supervise the children on a rostered basis. In another study of mode preference among children at three Auckland primary schools in New Zealand, Mitchell et al (2007) found that half of the 53% who responded that they walked to school preferred to continue walking while 45% of those who were currently driven preferred to use an active mode (including walking, cycling and roller skating). In Canada, a survey of 6,369 elementary school children in Ontario indicated that 72% preferred to travel to school by walking and cycling (O'Brien 2001 cited in Victoria Transport Institute (VTPI), 2011). With regard to Cape Town, a study by Behrens and Van Rensburg (2009) showed that while car use for school trips was high (87%), 53% of parents were willing to let their children join a proposed 'walking bus' scheme. Furthermore, while cycling rates in the same study were very low (2%), 42% of parents were willing to let their children cycle to school if certain improvements were made. Such figures suggest a high, but latent demand for active travel (O'Fallon, 2007) that can be harnessed by non-motorised school travel interventions.

Attention in the next section shifts to the interventions that offer potential to address the decline in CIM and NMT use for school travel by addressing parent concerns over the safety and security of their children.

2.2 Intervention measures that address child mobility concerns

According to Thomson (2009), interventions to promote active transport and CIM that have been implemented can be grouped into three categories, namely:

- community level interventions (e.g. traffic calming and investment in walking and cycling infrastructure),
- individual level interventions (e.g. road safety education) and
- specific programmes targeted at groups of primary school age children (e.g. TravelSmart, Streets Ahead and ‘walking buses’).

An alternative classification was found in Weigand (2008) who mentioned the following:

- on-going comprehensive programmes e.g. Safe Routes to school (SRTS),
- single programme activities e.g. ‘walking buses’ and
- one-time events e.g. walk and cycle to school days.

The latter classification was used by the author to group the interventions that were identified in the literature. However, it should be noted that this classification is arbitrary at best as there are overlaps. For instance, some SRTS projects have a ‘walking bus’ component while in other cases the ‘walking bus is a stand-alone programme. This overlap was noted by Weigand (2008) who reported that with regard to SRTS; the term has become a catch-all phrase used by some to describe any effort to promote safe walking and cycling to school.

2.2.1 On-going comprehensive programmes

For Peddie and Somerville (2006) comprehensive programmes are much more effective than single programmes. They argued that because a complex system of factors adds to the spiral towards car use, it is unlikely that a simple single pronged approach (e.g. ‘walking buses’) could act as a circuit breaker of that cycle. They therefore argued that comprehensive programmes offer a structure that can incorporate a range of actions aimed at tackling a range of issues and concerns (Peddie and Somerville, 2006). This section looks at the various on-going comprehensive measures that have been implemented in some developed countries.

2.2.1.1 Traffic calming

Traffic calming involves measures to reduce speed and/or volume of traffic where appropriate (Carver et al, 2008). According to Carver et al (2008), this idea evolved from the design of the Dutch ‘Woonerf’ or ‘street for living’ which promoted the co-existence of pedestrians, cyclists and

vehicles. An example of traffic calming is the adoption of a two-tiered approach in residential streets to manage the flow of traffic by authorities in some European countries like the Netherlands, Germany and Denmark (Thomson, 2009). The first tier consists of 30 km/h residential zones and the second consists of streets with speed limits of 15 kms/hr. or even lower. Streets in the second tier zones are designated and clearly marked as areas where children play (Tranter and Doyle, 1996 cited in Thomson, 2009). A comparative study of German and English school children's travel patterns (Tranter and Doyle, 1996 cited in Thomson, 2009) found that nearly a third of English children in the survey were collected from school by car – almost four times the proportion of the same age group of German children.

2.2.1.2 Investing in walking and cycling infrastructure

In Denmark, high child mortality rates from traffic crashes in the 1970s resulted in legislation being passed to protect children from traffic on school journeys (Weigand, 2008). This saw Denmark investing heavily in traffic calming and safe walking and cycling routes with an early demonstration project in the town of Odense in the 1980s succeeding in reducing school journey crashes by 82% (Osborne, 2008). The success of the initiative in Odense is also reflected in the fact that over half of all school journeys are now made by bike while levels of cycling to school range from 24% to 73% of all journeys in the city's schools (Andersen 2003 cited in Osborne, 2008). This has been achieved through the *Cycle City* project in Odense which was partly funded by the national government. The project includes promotional work in schools, including an award for the class that collectively cycles the furthest distance in one week. Trailer bikes are loaned for no charge to parents in kindergartens and there has been a strong emphasis on road safety training across all school year groups (Osborne, 2008). The levels of success of cycling promotion in Denmark is reflected in the fact that cycling is the main mode for school travel in almost all grades. This is helped by the fact that half of the schoolchildren in Denmark live within 1.5 km of their school (Jensen, 2008).

Following on these early successes, the improvements have evolved into the SRTS programme which has been introduced in several countries besides Denmark, including other European countries, and elsewhere e.g. Australia, Canada the USA (McDonald and Alborg, 2009, National Centre for Safe Routes to School (NCSRTS), 2008). SRTS projects aim to create safer and more vibrant connections between schools and communities through a combination of engineering treatments, traffic enforcement, safety education and encouragement programs (NSRTSTF, 2008). The engineering measures specifically focus on physical improvements to school surroundings. The aim is to identify and fix street conditions dangerous to children walking and

cycling to school. The physical improvement measures may include, among others, installing speed humps, elevated crosswalks and sidewalk extensions. In the USA, the federal SRTS programmes came into being through a Congressional Act in 2005 after being successfully piloted in Marin County and Arlington (NSRTSTF, 2008). It targets pupils living within 3 km of their school as these are likely to use NMT modes (McDonald and Alborg, 2009).

The effectiveness of the SRTS programmes has been evaluated in different countries. Examples of evaluation studies from the USA include Staunton et al (2003); Boarnet et al, (2005); McDonald and Alborg (2009). These seem to suggest that the programmes do increase the number of pupils walking and cycling to school. For example, a cross sectional evaluation examining the relationship between urban form changes and active transport to school at 10 schools by Boarnet et al (2005) in California suggested that children who passed through SRTS projects were more likely to show increases in walking and cycling than those who did not. In classroom surveys of Marin County students to evaluate the effectiveness of SRTS projects, Staunton et al (2003) found a 64% increase in the number of children walking to school, and a 114% increase in the number of children bicycling to school in the schools under study. In Odense (Denmark) Jensen (2008) reported that the number of crashes involving schoolchildren was significantly reduced by 18% due to the SRTS projects.

However, for McDonald (2008a), policies like the SRTS are not enough to change travel behaviour in the long run. McDonald (2008a) argued that walk travel time is the most important policy-relevant factor affecting the decision to walk to school and the SRTS does not affect the spatial distribution of schools and residences. Instead, McDonald (2008a) advocated for community schools. This is a concept that applies to new schools whereby attempts are made to shorten travel distances between schools and homes through improved urban planning and design strategies modelled on the transit-oriented development (McDonald 2008a). McDonald (2008a) defined community schools as schools that are located within a neighbourhood and are easily accessible to most students and argued that this type of design makes it possible for most children to live within walking distance of schools.

2.2.1.3 School travel plans

Another comprehensive programme is a School Travel Plan. Examples of specific School Travel Plan programmes that have been implemented include Travelwise for schools in New Zealand (Hinckson and Badland, 2006; Collins and Kearns, 2010), TravelSmart and Streets Ahead in

Australia (Whitzman and Pike, 2007; Thomson, 2009). According to Peddie and Somerville (2006), School Travel Plans have also been implemented in the United Kingdom. The Travelwise, TravelSmart and Streets Ahead programmes are discussed in greater detail in sections 2.2.1.3.1-2.2.1.3.3 below.

2.2.1.3.1 Travelwise for schools

According to Hinckson and Badland (2006), Travelwise for schools is an initiative aimed at reducing traffic congestion, improving road safety and providing alternative transport to and from school and was first piloted at schools in North Shore City (New Zealand) in 2002. The development of the plan was a collaborative effort between schools, parents, communities, local councils and the Auckland Regional Transport Authority (ARTA) (Hinckson and Badland, 2006). Components of the programme included educational and promotional activities encouraging carpooling, walking or cycling, 'walking bus' implementation, introduction of traffic calming measures, improvement of roads and footpaths, cycle training and parking restrictions (Hinckson and Badland, 2006).

An evaluation of success of the programme was conducted by Hinckson and Badland (2006) using five participating schools as case studies. Their evaluation focused on: mode use changes resulting from the programme, identifying specific interventions within the programme that were most successful in altering mode use, informing policy and strategy planning and identifying challenges and successes. Data was collected on children's and staff travel modes, and parental perceptions of children's travel behaviour and environmental safety using quantitative (surveys, environmental audit) and qualitative (interviews, focus groups) methods. Post School Travel Plan survey data was then compared to baseline measures (Hinckson and Badland, 2006). According to Hinckson and Badland, (2006), the data showed that the programme was successful in reducing school-related car travel by 3.8%, and increased rates of walking and car sharing.

2.2.1.3.2 TravelSmart

This is an example of a school travel plan in Australia and is a joint state and federal government initiative delivered locally through the Walking and Cycling Branch of the Victorian Department of Transport (Peddie and Somerville, 2006; Thomson, 2009). It is a programme designed to encourage more members of a school community to decrease their dependency on cars (in order to reduce greenhouse gas emissions) by the adoption of more sustainable transport options like walking, cycling or use of public transport for the school journey (Whitzman and Pike, 2007; Thomson, 2009).

While Whitzman and Pike (2007) argued that TravelSmart engages schools, parents and children in analysing their current travel behaviour, Thomson (2009) pointed out that current evidence suggests that TravelSmart may not produce any long term changes in children getting to and from school. For evidence Thomson (2009) pointed to an evaluation study of the TravelSmart programme by DiPeitro and Hughes (2003). In order to bring about sustained change, the authors found that the whole school community needed to be involved, including school councils, administrators, teachers, students, parent/carers and other family members. While not explicitly stated, it seems not all of these stakeholders were involved.

2.2.1.3.3 Streets Ahead

This is a relatively recent initiative being implemented by Victoria Health (VicHealth) in Victoria, Australia (Thomson, 2009). According to Thomson (2009) the programmes' aims include the following:

- to build on the successes of the 'walking bus' (discussed below)
- to increase physical activity among children aged 4 to 12 years through active transport.
- to encourage local communities to work together.
- to increase children's active transport to and from school and within their local community and promote independent mobility among older primary school aged children.

The program is being implemented by local governments and conducted jointly with a cluster of three or more primary schools with a critical mass of children aged 4 to 12 years living within a 2 to 3 kilometre radius of the school (Thomson, 2009). As a result of it being a recent initiative no studies were found that evaluated the Streets Ahead programme.

2.2.2 Single programme activities

The two most important s programmes that were identified by the author under this category of interventions were 'walking school buses' or simply 'walking buses' and 'cycle trains'. These programmes are discussed in sections 2.2.2.1 and 2.2.2.2 respectively.

2.2.2.1 The 'walking bus'

A 'walking bus' refers to a group of children who walk to school along a set route, collecting other children along the way at 'bus stops', escorted by at least two adult volunteers, one of whom is at

the front ('the driver') and one is at the back ('the conductor') (Mackett et al, 2003; Collins and Kearns, 2005; Kingham and Ussher, 2007). The 'walking bus' concept was proposed by David Engwicht (1993). According to Kingham and Ussher (2007), the first 'walking bus' was established in Canada in 1996. In England, it was first trialed in 1998 at Wheatfields Junior School in St. Alban's (Collins and Kearns, 2005). The concept has spread rapidly in the United Kingdom (Mackett et al, 2005), Australasia (Ross and Butera, 2004; Kingham and Ussher, 2007; Collins and Kearns, 2010) and North America (Mendoza et al, 2009; Sirard et al, 2008).

A 'walking bus' can either be an informal arrangement where parents simply make a deal to take turns to supervise walking children (McDonald and Alborg, 2009). Alternatively, it can be a more formal arrangement. Some 'walking buses' have been established by parents as in England (Mackett et al, 2003) or other interested groups associated with schools. These interested groups include local authorities as in New Zealand e.g. in Auckland (Collins and Kearns, 2010) and Christchurch (Kearns and Collins, 2003; Kingham and Ussher, 2007) and Australia in Victoria (Whitzman and Pike, 2007; Garrard 2009). Others have been established by voluntary groups. For instance, in Seattle in the USA, Feet First, a pedestrian advocacy organisation is at the forefront of setting up 'walking buses' (Mendoza et al, 2009). In the Australian Capital Territory (ACT) Australia, the 'walking bus' programme is coordinated by the Young Women's Christian Association (Rooney, 2008). The formal 'walking bus', with a recommended adult to child ratio of 1:8 as in Auckland, New Zealand (Kearns and Collins, 2003) travels along a set route to or from school, picking up or dropping off children along the way at designated 'bus stops' (Collins and Kearns, 2005). Bus stops can be meeting points along the route or each child's front gate. 'Walking bus' routes vary in length but are usually 1-1.5 km. For instance, research on 'walking buses' in Auckland by Collins and Kearns (2005) indicated that the average route length (from 22 routes) was 1.2 km. An example of a 'walking bus' route is shown in Figure 3.

According to Kearns and Collins (2003), in travelling between home and school, young people undergo a social transition from 'child' to 'pupil' that entails a transfer of wardship and supervision (i.e. between parents and teachers). For Kearns and Collins (2003), it is unclear which adult authorities are responsible for them during the journey to school. In the United Kingdom, this seems to lie with the local authorities who provide insurance for the 'buses', as scrutiny of some of the websites of local authorities that promote 'walking buses' show that they provide public liability insurance cover (e.g. Hertfordshire County Council, 2008). In Victoria (Australia), local authorities also provide liability insurance for volunteers (Ross and Butera, 2004). However, the fact that in most of the available 'walking bus' guidelines (see for instance Aberdeenshire Council, 2008;

Bracknell Borough Council, 2005, Hertfordshire County Council, 2008) parents are required to sign consent forms before a child can join a ‘walking bus’ would suggest that ultimate responsibility lies with parents.



Figure 3 Example ‘walking bus’ route (Source: Google images)

The review of literature showed that ‘walking buses’ are common in developed countries. As a result, evaluations of ‘walking buses’ that are available predominantly come from these countries. These include United Kingdom (e.g. Centre for Alternative and Sustainable Transport (CAST), 2000; Mackett et al, 2003; Mackett et al, 2004; Mackett et al, 2005), the USA (e.g. Staunton et al, 2003, Sirard et al, 2008; Mendoza et al, 2009); New Zealand (e.g. Kearns and Collins, 2003, Kearns et al, 2003; Collins and Kearns, 2005; Kingham and Ussher, 2007; Collins and Kearns, 2010) and Australia (e.g. Rooney, 2008; Selman, 2008; Moodie et al, 2009).

The increasing international popularity of ‘walking buses’ stems from their ability to incorporate greater physical activity into children’s lives (Collins and Kearns, 2005; Kingham and Ussher, 2007; Collins and Kearns, 2010), and to reduce traffic congestion within school precincts (Collins and Kearns, 2005; Collins and Kearns, 2010). Furthermore, adult supervision can ensure a safer

journey to and from school (Collins and Kearns, 2005), and child participation can facilitate the development of safe road use behaviours and build essential skills that can be used later when walking independently (Ross and Butera, 2004; Thomson, 2009). Finally, 'walking buses' can provide children and parents with opportunities to build friendships thereby generating stronger and more liveable local communities (Collins and Kearns, 2005). While offering these benefits, 'walking buses' have been criticised as simply replacing one form of adult accompaniment with another i.e. from chauffeuring to adult supervision of 'walking bus' (Kearns et al, 2003; Kearns and Collins, 2003; Hillman, 2006). For Collins and Kearns (2003) 'walking buses' provide a highly ambivalent form of empowerment and spatial freedom for children that is contingent upon adult surveillance and disciplinary power and can be interpreted as an acceptance of the dominance of the private car. In that regard, Kearns and Collins (2003) argued that 'walking buses':

“.....do not represent a fundamental challenge to either the hegemony of the motor vehicle or the emphasis on road construction, and nor do they signal a return to the relatively unstructured and unsupervised (if possibly idealised) walking that many contemporary adults recall from their own school days” (Kearns and Collins, 2003: 199).

Several evaluations of 'walking buses' have been conducted focusing on the various claimed benefits of the initiative. For instance Kingham and Ussher (2007) focused on the social, health and time benefits as well as long-term behavioural impacts and impacts on CIM as perceived by people involved in the 'walking bus' programme in Christchurch, New Zealand. Others focused on the impacts of 'walking buses' on children's levels of physical activity (e.g. Sirard et al, 2009) in the USA, and Mackett et al (2005) in the United Kingdom. Collins and Kearns (2005) and Collins and Kearns (2010) looked at the durability of 'walking buses' focusing on the factors that contributed to the longevity of 'walking buses' in Auckland, New Zealand and found that the number of participants and routes have steadily increased since the inception of the programme. However, rates of uptake and longevity were higher in the higher-income neighbourhoods (Collins and Kearns, 2005; 2010). A study by Mendoza et al (2009) in Seattle (USA) focused on the impacts of 'walking buses' on mode use and found that 12 months after the introduction of 'walking buses' more children at the intervention school (with 'walking bus') walked compared to the control schools (without 'walking buses').

These benefits of 'walking buses' have been evaluated using a variety of qualitative and quantitative methods that include qualitative interviews, telephone surveys, questionnaires, activity diaries and motion sensors. For instance, Sirard et al (2008) conducted a quantitative study with a

control and intervention group ('walking bus' participants) to evaluate the impacts of walking on children's physical activity levels at one school in California (USA). Participants in both the control and intervention group wore motion sensors (accelerometers) that measured their physical activity over a 14 day period. Mackett et al (2004) used accelerometers supplemented by travel and activity diaries to evaluate the impact of walking on children's activity levels in Hertfordshire (UK). These studies found that children who walked spent more energy than those who did not. To assess the changes in mode use resulting from the use of 'walking buses' in Seattle (USA), Mendoza et al (2009) conducted consecutive cross-sectional assessments (one at baseline and another after 12 months) at one intervention school (where 'walking buses' were introduced) and two control schools (without 'walking buses'). Other evaluations conducted have combined both quantitative and qualitative elements. For instance, Mackett et al (2003) developed a framework that covered both objective (e.g. number of car trips saved) and subjective elements (e.g. adult and child participants' perceptions about the benefits of 'walking buses'). Collins and Kearns (2005) evaluated 'walking buses' using interviews, telephone surveys and questionnaire surveys that covered both subjective and objective elements in their evaluation of the benefits, challenges and long-term viability of 'walking buses' in Auckland (New Zealand).

2.2.2.2 'Cycle trains'

The basic concept of the 'cycle trains', also known as *bicycle pools* in some countries (O'Fallon, 2007) or *pedal pods* in Victoria, Australia (Carver et al 2008) is similar to that of 'walking buses' because like the 'walking bus', children are supervised by adult volunteers and are collected from designated 'stops' (O'Fallon (2007)). However, as noted by O'Fallon (2007), the process of establishing 'cycle trains' is somewhat more complex than that used for 'walking buses' given the greater safety issues around having groups of children cycling on the road. As a result, more detailed safety guidelines are necessary, as is a bike and helmet check, and a skills training workshop for the children (O'Fallon, 2007). Age restrictions may also be necessary for safety purposes. For instance 'cycle train' guidelines (in draft form at the time of publication) in New Zealand recommended an age restriction of 10 years or older for participating children (O'Fallon, 2007). One major difference between 'walking buses' and 'cycle trains' is the route lengths. While maximum route length for 'walking buses' is around 1.5 km, 'cycle train' routes can be much longer. For instance, O'Fallon (2007) reported of a maximum length of 4.8 km in Oxfordshire, in the United Kingdom. In terms of 'train' size, O'Fallon (2007) reported that in Belgium the maximum number of children in a single 'cycle train' is seven.

According to O’Fallon (2007), ‘cycle trains’ have been implemented in Flanders (Belgium) and Oxfordshire and Hertfordshire in the United Kingdom. They have also been trialled at seven schools in Nelson (New Zealand) starting in September 2006 with six ‘trains’ at the onset and a seventh one in November 2006 (O’Fallon, 2007). O’Fallon (2007) reported that the Nelson ‘cycle trains’ were self-sustaining and that the programme expanded to an additional school that was not part of the trial schools.

A qualitative evaluation of the trial ‘cycle trains’ in Nelson was conducted by O’Fallon (2007). According to O’Fallon (2007), the evaluation ideally should have also have included quantitative aspects (e.g. quantitative assessment of the impacts of the initiative on mode use and traffic congestion). However, the number of ‘cycle trains’ and participants was too small to allow this. As a result, qualitative interviews were conducted with the ‘cycle train’ coordinator, ‘cycle train’ trainer, parent conductor s and participating children. According to O’Fallon (2007), parents and children alike were enthusiastic about the ‘cycle trains’, saying they enjoyed the friendships, sense of community, and exercise. In addition, knowing that the children were getting safely to and from school, and learning good cycling habits and road safety rules in a safe context (under adult supervision), were further benefits identified by parents (O’Fallon, 2007).

2.2.3 One-time events

The two most important one-time events that were identified by the author in the literature were walk to school and cycle to school days. A notable example is the International Walk to School day (iWalk) which is an annual event commemorated in October (NCFSRTS, n.d). According to Behrens (2004), the origins of the ‘iwalk’ date back to 1994 when the Hertfordshire County Council (United Kingdom) piloted a ‘walk to school week’ with a few of its schools. In the USA, the Walk to School Day began in 1997 as a one-day event aimed at building awareness for the need for walkable communities. The initiative gradually grew to an international event in 2000. A national cycle to school day was also introduced in the USA starting in 2012 and will be commemorated annually in May (NCFSRTS, n.d).

In New Zealand, the ‘Walk a Child to School Day’ is regarded as a success because as reported in one year (2000), the numbers of children walking to school increased from 35% beforehand to 73% on the day while the numbers of children coming to school by motor vehicle decreased from 55% before to 22% (VTPI, 2011).

The literature that was reviewed in this section indicates that interventions to increase the use of active modes for school travel are varied. Furthermore, the evaluations that have been conducted indicate that such interventions do help in reversing the decline in CIM and NMT use. Attention in the next section shifts to the policies and programmes that encourage the implementation of such interventions.

2.3 Legislation, policies and programmes encouraging CIM and active travel in Cape Town

Garrard (2009) identified policies regarding compulsory road safety education for children, national road safety campaigns, speed reduction measures and legislation that assumes driver responsibility in a crash involving a child pedestrian as supportive of independent mobility and active travel behaviour. For instance, according to Whitzman and Pike (2007), in Belgium the legal onus is on motorists to be responsible for any injuries or deaths of a cyclist or pedestrian. This section looks at the policy framework in Cape Town to determine how the policy framework supports NMT use for school travel among children. It also reviews past and existing programmes that promote CIM in general and active travel in particular.

2.3.1 Legislative and policy framework

At the national level, South African transport policy has undergone a shift from an initial emphasis on promoting public transport after 1994 towards complementing public transport with other strategies including the use of NMT modes. Such a shift is also reflected in the other two tiers of government i.e. at the provincial and local levels of government.

2.3.1.1 Public transport promotion

A review of legislation, policies and strategies after 1994 shows that there has been concern for improving child and learner travel in South Africa using public transport. At the national level, The White Paper (1996) called for needs of special categories of passengers (e.g. children) to be considered in planning and providing public transport infrastructure, facilities and services, and that their needs should be met as far as may be possible by the system provided for mainstream public transport (Department of Transport (DOT), 1996). Moving South Africa: The Action Agenda (1999) identified a need for a shift in the provision of public transport services for ‘commuters’, to the provision of services for ‘customers’ more generally, of which learners are an important

segment and identifies learners as a group with particular needs for safety and security, protection from motorised traffic, and pedestrian/bicycle infrastructure (DOT, 1999). The initial focus after 1994 was therefore been on public transport.

The promotion of public transport is also reflected in the direct funding of public transport by Provincial Governments through learner travel subsidies paid to service providers by individual Provincial Education Departments. Each Provincial education department has a learner travel subsidy policy which provides assistance at a fixed rate to learners who live a certain distance from school (Mngaza et al, 2001). The Western Cape Education Department's (WCED) Learner Transport Policy which came into effect from January 2011 (WCED, n.d.) is virtually silent on NMT.⁵

In recent years there has been an attempt to complement public transport or school bus provision with NMT modes. The gradual acceptance of NMT is reflected in legislation and strategies at all three levels of government. The relatively recent prominence of NMT issues in legislation and policy frameworks and the fact that this research aims to promote non-motorised school travel make it imperative to look at the topic in some greater detail.

2.3.1.2 NMT legislative framework

NMT is implicitly promoted in national policy documents e.g. Moving South Africa (1999) or explicitly promoted e.g. the National Land Transport Transition Act (NLTTA) (2000). The NLTTA (No 22 of 2000) explicitly calls for the inclusion of NMT as a mode in integrated transport planning (NLTTA, 2000). The National Department of Transport has also produced a Draft National Non-Motorised Transport Policy establishing a national context for improving access and mobility (DOT, 2008; Department of Transport and Public Works (DOTPW), 2009). The Policy addresses three types of NMT, two of which (cycling and walking) are relevant to active travel to with regard to Cape Town. The Draft NMT Transport Policy recognises that NMT planning must be integral to transport planning and requires that that NMT plans must be developed and integrated into the Provincial Land Transport Framework (PLTF), as well as in the Integrated Transport Plans (ITP) of Local Government (DOT, 2008). In terms of implementation of NMT, the Policy states that:

⁵ The WCED Learner Transport Policy for Ordinary Public schools defines Learner transport as “the transportation of learners to and from school, usually by bus, arranged and paid for by the WCED”. No mention is made of NMT modes in the policy.

“The Provincial Departments of Transport (PDOT) and municipalities must develop implementation strategies and plans respectively, in consultation with key NMT stakeholders” (DOT, 2008: 19).

At the provincial level, the Provincial Government of the Western Cape (PGWC) through its Transport and Public Works Department (DOTPW) produced a Draft NMT Strategy which is meant to provide guidelines to local authorities in the province (DOTPW, 2009). According to DOTPW (2009), the inclusion of an NMT strategy for District Municipalities and Local Municipalities in the Western Cape is a requirement for preparing their Master Plans.

At the local level, the City of Cape Town has addressed NMT issues in its Integrated Transport Plan, Metropolitan Cycle Master Plan and Pedestrian Safety Plan (City of Cape Town, 2005). The city has also produced an NMT Policy and Strategy document which is meant to be a comprehensive plan guiding the planning and implementation of programmes and facilities to respond to the multiple needs of NMT users (City of Cape Town, 2005). The importance attached to NMT by the City is reflected in the City of Cape Town’s NMT vision statement:

“Cape Town will be a city where all people feel safe and secure to walk and cycle, NMT is part of the transport system, public space is shared between all users (NMT, special needs people and motorised users) and everyone has access to urban opportunities and mobility.”
(City of Cape Town, 2005: ii).

According to City of Cape Town (2005) one of the goals set to realise the above stated vision is to:

“Increase cycling and encourage walking by creating a safe and pleasant bicycle and pedestrian network of paths to serve all the citizens in the Cape Town Area.”(City of Cape Town, 2005: ii)

The legislative and policy framework that currently exists in Cape Town therefore encourages NMT for school travel. However, a weakness identified by the Department of Transport is that pedestrian safety has been overshadowed by policies that over-emphasised the need to adhere to safe driving, to the extent that the issue of pedestrians is not addressed as a priority (DOT, 2008). Thus while NMT is being promoted, there is no legislation that assumes driver responsibility in a crash involving a child pedestrian for example.

2.3.2 Programmes promoting CIM and active travel in Cape Town

A limited number of programmes that directly or indirectly promote NMT for school travel and have been implemented in Cape Town were identified during the literature review. These are discussed below.

2.3.2.1 Infrastructure e.g. cycle lanes

Learner routes have been implemented, for example the Cape Town Rondebosch / Newlands Bicycle Demonstration Project initiated in 1981 and aimed at facilitating cycling for learners (DOTPW, 2009). Approximately 22 km of bicycle paths were constructed (DOTPW, 2009). According to DOTPW (2009), initially there was a 30% increase in cycling to school as a result of the introduction of this project, but this declined after 1996, mainly due to increased crime levels and lack of security along the cycle routes.

2.3.2.2 Cycling initiatives

Two distinct initiatives can be identified namely government driven and non-governmental organisation initiatives. An example of the former is the Shova Kalula (Pedal Easy) project promoted by national and provincial governments (DOT, 2007a; DOTPW, 2009). The initiative was launched as a national DOT project in 2001 and seeks to strengthen the role of cyclists (DOT, 2007a; DOTPW, 2009). The project focuses mainly on bicycle provision not on cycle infrastructure provision or improvement. The programme initially aimed to target the estimated 350,000 secondary school students and 445,000 primary school students who at that time walked more than 3 km to school and who did not have access to subsidised buses and trains (in addition to providing bicycles to urban and rural workers). This project is ongoing. Another government cycling project cited in Behrens and Phillips (2004) was a demonstration project in 2003 in Table View which was funded by the National Department of Transport's Arrive Alive Campaign.

An example of a NGO driven cycling initiative is that of the Bicycling Empowerment Network (BEN) in Cape Town. BEN encourages learners to use bicycles as an alternative to motorised transport. The organisation states in its mission statement that it aims to address poverty and mobility through the promotion of the bicycle in all its forms (Benbikes, n.d). The organisation imports used bicycles from overseas and distributes them to low income areas, trains recipients of the bikes in safety and maintenance, establishes Bicycle Empowerment Centre's (BEC's) and encourages cities to implement bicycle planning and infrastructure (Benbikes, n.d).

2.3.2.3 Scholar Patrols

There is also a Scholar Patrol Programme run by Arrive Alive near schools. Scholar Patrols make use of trained pupils who control traffic and guides fellow pupils and prevent them from entering traffic when it is not safe to do so (Arrive Alive, 2012). Scholar Patrols were set up under the National Road Traffic Act, Act 93 of 1996 (Section 57.5) and are aimed at addressing learner pedestrian safety concerns at road crossing points (Arrive Alive, 2012). Arrive Alive (2012) noted that it is a function of provinces to support the establishment of Scholar Patrols where there is a need and providing insurance cover against collisions and claims resulting from events occurring during the legal functioning of Scholar Patrols. Furthermore, they provide the necessary equipment and guidelines (Arrive Alive, 2012).

2.3.2.4 Education and road safety campaigns

According to Arrive Alive (2012), the Departments of Transport and Education have emphasized the need for a long term road safety strategy that will include road safety education. Towards this goal, road safety has been integrated into the South African curriculum especially in primary school. Arrive Alive posters and teaching material are distributed to schools.

2.3.2.5 Safe journey to school strategies and 'walking bus' establishment

According to DOTPW (2009) the Cape Winelands, in the Western Cape, have developed a Safer Journeys to Schools strategy and commenced with the implementation of infrastructure projects at various rural schools i.e. upgraded surfaced accesses, sidewalks, embayments and shelters as well as the development and distribution of educational material. 'Walking buses' have been identified as one option of improving the safety of walking learners and reducing peak travel congestion. The Provincial Government of the Western Cape has also identified 'walking buses' as one option available for school travel (DOTPW, 2009). However, the literature review search done by the author did not show any examples of 'walking buses' that have been implemented in the province after the publication of the document.

2.4 Summary

The literature review presented indicates that there has been a decline CIM in developed countries and in the middle-higher income neighbourhoods of Cape Town. While rates of walking remain high among children in the lower-income neighbourhoods of Cape Town, the children in these neighbourhoods are faced with safety and security concerns as evidenced by crime statistics and local media reports. Rising car use and its associated negative impacts, as well as safety and security concerns are important motivating factors for developing safe alternatives for school travel. This is strengthened by previous studies that suggest that there is a high, but latent demand for NMT use among both parents and children across the world, including in Cape Town.

The literature review points to a need for in-depth research into CIM in developing countries and in contextually appropriate measures to address concerns that result in the curtailment of children's autonomy. All the examples of school travel interventions that have been successfully implemented come from the developed countries. The review also points to the need to conduct research to evaluate the impacts of any such initiatives that may be implemented in a developing country context. The next chapter looks at the methodology used in Cape Town to implement and evaluate one such initiative in the form of 'walking buses'.

CHAPTER THREE: RESEARCH METHOD

This chapter describes the methodology that was used to answer the following research questions presented in Chapter 1:

1. How do scholars get to school, and how has this changed?
 - How would scholars like to travel to school?
 - What prevents scholars from cycling and walking to school?
 - What influences school travel mode choice?
2. Which school travel intervention measures have potential for promoting the safety and security of routes to education places and alternatives to the car for education trips?
3. How can a selected school travel intervention measure be implemented and evaluated in the local context?

The methods used to address these questions are discussed in terms of literature review method, selection of non-motorised school travel intervention, school travel surveys, ‘walking bus’ demonstration and ‘walking bus’ evaluation. The literature sought to gain insights into current school travel patterns and initiatives that have been implemented to address concerns relating to current travel patterns. It also sought to gain insights into how such initiatives have been implemented and evaluated elsewhere.

Three school travel surveys were conducted, two by the author and one by collaborating partners at the Global Road Safety Partnership-South Africa (GRSP-ZA). The first survey (n=1,075) was conducted in Rondebosch by the author under the auspices of the African Centre of Excellence for Studies in Public and Non-motorised Transport (ACET). The second survey (n=709) was closely related to the first survey and was conducted by the GRSP-ZA in Delft. These two surveys, henceforth referred to as ACET and GRSP-ZA surveys respectively had the dual goals of understanding current learner travel patterns in Cape Town, and collecting the data needed to set up ‘walking buses’ by gauging parental interest in the initiative and creating a database of potential ‘walking bus’ participants. The third survey (n=984) was a child independent mobility survey and was conducted in Cape Town and its hinterland by the author under ACET, and was coordinated by the PSI and will henceforth be referred to as CIM survey. The CIM survey was conducted amongst schoolchildren aged 7-15 years, and their parents and aimed at exploring child independent mobility in the context of Cape Town and selected towns and rural settlements within its hinterland.

In addition to a literature review, selection of most appropriate intervention and the school travel surveys, the other methods used included the development of a walking bus' planning tool, demonstration of 'walking buses' and evaluation of the 'buses' using open-ended qualitative interviews (n=16) children and (n=14) parents.

The chapter is divided into five sections. Section 3.1 describes the method followed in the literature review. Section 3.2 describes the process behind the selection of 'walking buses' as the most appropriate intervention for the purposes of this research. The next section describes the school surveys conducted as part of the research. Section 3.4 describes the process of implementing 'walking buses' in Rondebosch. This is followed by a description of the method used to evaluate the 'buses' that were demonstrated in Rondebosch. A summary in section 3.5 concludes the chapter.

3.1 Literature review method

This section outlines the methodology that was followed in executing the literature review. The review was primarily conducted as a desk-top research during the course of identifying relevant documents. Various types of documents were consulted as part of the literature review. These included journal articles, books, legislative and policy documents, newspaper articles and unpublished and published reports. Keywords based on the objectives of the dissertation research proposal were used to search for the relevant literature using library databases and internet browsers. Examples of key search words included child mobility, active travel, school travel, school travel planning, cycling and 'walking buses'. Google was used as the main search engine to obtain electronic documents on the internet. The libraries at the University of Cape Town were used to obtain books and journals used in this literature review. From reviewing the references lists in most of the documents on school travel and 'walking buses' key scholars were identified. The names of such scholars were then used to further search for relevant sources.

In addition, a content analysis of relevant legislative and policy documents was conducted to identify sections dealing with child and learner travel, NMT and sections promoting CIM. The legislative and policy documents analysed ranged from national policy documents (e.g. White Paper 1996, NLTTA and Draft Policy on Non-Motorised Transport); Western Cape Provincial Government policy documents (e.g. Draft Strategic Policy on Non-Motorised Transport and the WCED Scholar Transport Policy) to local government policy documents (e.g. City of Cape Town's Non-Motorised Transport Policy).

3.2 School travel intervention selection

The choice of walking was a continuation from an earlier feasibility study in the neighborhood of Rondebosch. The high percentage of car use in the study by Behrens and Van Rensburg (2009) was remarkable considering the fact that 33% of children who took part in the survey resided within a 1 km radius of their school. This meant that there was a large pool of children who resided within walking and cycling distance of schools but were being driven to school. The 'walking bus' could also cater for children residing outside feasible walking distance as 'bus' stops could act as collection points where parents could drop off their children. As will be discussed in section 3.4.1, the intention was to have a parent stationed at each collection point five minutes before the scheduled departure time to allow other parents to leave their children under the supervision of an adult volunteer.

'Cycle trains' were considered but ultimately were not implemented. As already discussed in section 2.2.2.2, the process of establishing 'cycle trains' is somewhat more complex than that of 'walking buses'; given the greater safety issues around having groups of children cycling on the road. The age restriction of 10 years and older recommended in the literature review would have also meant that children below 10 years would have been left out when in some instances some households have younger and older siblings at the same school. To a lesser degree the decision not to implement 'cycle trains' was based on the need to avoid duplication with a cycling programme that was being planned for Rondebosch schools by the local councillor.

3.3 School travel surveys

The three surveys that were conducted are described in terms of their instruments, survey areas, survey method and limitations of survey method.

3.3.1 ACET/GRSP (ZA) surveys

The first two surveys had the same objectives and used the same survey instrument and as a result are discussed together as the ACET/GRSP-ZA surveys. The ACET survey (n=1,075) was conducted in Rondebosch while the GRSP-ZA survey (n=709) was conducted in Delft.

3.3.1.1 Survey instrument

The ACET/GRSP-ZA surveys were conducted using a pen-and-paper self-completion questionnaire (see Appendix 1E). A pilot survey (n=20) was conducted at three of the participating schools in Rondebosch in order to test the questionnaire and the data coding system. For the GRSP-ZA survey, the questionnaire was translated into Afrikaans in order to cater for the large number of children who use Afrikaans as their home language in Delft. The questionnaire was divided into two sections. The first section was for completion by learners with a parent or guardian's help. It covered the following aspects: learner demographics, travel time to school, mode used to and from school, reasons for not walking among learners who use modes other than walking, and problems faced by learners who currently walk to school. The second section was for completion by a parent or guardian and was meant to elicit parent or guardian attitudes towards 'walking buses' and collect the contact details of those parents who were willing to either let their children join a 'walking bus' or supervise such 'buses', in order to create a database of 'walking bus' participants.

3.3.1.2 Sample design

Figure 4 shows the schools that participated in the ACET and GRSP-ZA surveys. The ACET survey was conducted in the form of a census of learners from Reception grade (grade R) to grade 7 at six primary schools that had shown the greatest interest in 'walking buses' in an earlier feasibility survey carried out in 2009 amongst nine schools in the same neighbourhood (see Behrens and Van Rensburg, 2009).⁶ The focus of the surveys was on primary schools due to the fact that compared to secondary schools; a greater proportion of the primary school children is likely to reside within walking and cycling distances of school, and because 'walking buses' are only suitable for children at primary school level where parents or guardians are likely to play a more prominent role in child travel decisions. The interest in promoting NMT modes for school travel in Rondebosch emanated from a shared concern among parents, City of Cape Town officials and residents associations in the Rondebosch area for peak period traffic congestion and child pedestrian and cyclist safety.

⁶ All school principals who were invited to participate in the feasibility survey were supportive of the 'walking bus' concept.



Figure 4 Locality map of participating schools (and sample sizes) in the ACET and GRSP-ZA surveys

With regard to the GRSP-ZA survey, the process began with a preliminary set of interviews conducted with 16 of the 32 schools located in and around Delft. From these interviews, it emerged that the majority of learners between the ages of 5-12 years walk to school, often unaccompanied. This was a cause for concern as children aged 5-12 years are widely considered to be vulnerable road users, given their physical and cognitive limitations. Furthermore, the neighbourhood of Delft is located in close proximity to a freeway (R300) that has experienced a high number of pedestrian road crash fatalities. Following preliminary interviews, five schools were selected for the more detailed survey reported upon in this dissertation, based on their proximity to the R300 highway and the associated pedestrian safety risk. The GRSP-ZA survey was also a census of learners. However, unlike the ACET survey, the GRSP-ZA survey was conducted only amongst learners from grades 1 to 3.

3.3.1.3 Data collection, capture and analysis

The ACET survey (n=1,075) was conducted by the author between 19 and 21 July 2010. The GRSP-ZA survey (n=709) was conducted in May 2010. The gender of learner respondents in Rondebosch schools (ACET survey) was 80% male and 20% female,⁷ and in Delft schools (GRSP-ZA), 43% male and 55% female (with 2% item non-response). Respondents' ages ranged between 4 and 14 years. The schools that took part in the surveys in the two neighbourhoods, and their respective sample sizes and response rates, are shown in Table 1.

Table 1 Sample size and response rate, by neighbourhood and school (ACET and GRSP-ZA surveys)

School	Total number of learners in school	Number of questionnaires distributed in school		Number of questionnaires returned		
			% of school		% returned	
Delft ¹ (GRSP-ZA)	Delft Primary School	1,214	499	41.1	179	35.9
	Delft South Primary School	1,012	437	43.2	69	15.8
	Rainbow Primary School	1,151	430	37.4	45	10.5
	Sunray Primary School	1,222	587	48.0	213	36.3
	Wesbank Primary School	1,317	319	24.2	203	63.6
	Sub-total	5,914	2,272	38.4	709	31.2
Rondebosch (ACET)	Diocesan College Preparatory School	373	373	100.0	186	49.9
	Diocesan College Pre-Prep. School	212	212	100.0	92	43.4
	Mickelfield School	215	215	100.0	69	32.1
	Oakhurst Girls Primary School	220	220	100.0	104	47.3
	Rondebosch Boys Preparatory School	732	732	100.0	554	75.7
	St Joseph's Marist College Junior	300	300	100.0	70	23.3
	Sub-total	2,052	2,052	100.0	1,075	52.4

Note: Only the first three grades of the Delft schools were included in the survey – representing between 26% and 51% of the total learners in these schools.

Following research ethics clearance (see Appendix 1A for ACET survey), the surveys began with a series of meetings with school principals to obtain their permission to conduct surveys and get their input on the appropriate dates for data collection. For the ACET survey, the questionnaire was accompanied by a cover letter to parents/guardians, a supporting letter from the local councillor and a two page information sheet explaining the 'walking bus' concept and its envisaged benefits (see

⁷ The higher proportion of male respondents in the Rondebosch survey resulted from the fact that three of the schools (Rondebosch Boys Preparatory, Diocesan College Preparatory and Diocesan College Pre-Preparatory) are boys only schools. These schools have a higher combined enrolment total compared to the two girls' only schools (Micklefield Girls Primary and Oakhurst Girls Primary) and the one co-ed school (St Joseph's Marist College Junior).

Appendices 1B-1D. The overall questionnaire response rate was 52% in Rondebosch schools (ACET survey), and 31% in Delft schools (GRSP-ZA survey).

Data capture was undertaken by GRSP-ZA for Delft and by the author for the ACET survey. A data capture template developed in MS Excel by the author at the same time as the survey questionnaire was used for the data capture. Data analysis for both surveys was undertaken by the author. Data were analysed in two phases: an initial phase aimed at extracting information that could be used to set up 'walking buses' (i.e. names, contact details and addresses of those willing to join 'walking buses'), and a second phase aimed at more detailed analysis of current travel patterns, the reasons why some learners do not walk to school, the problems faced by learner pedestrians, and the reasons why some parents were unwilling to participate in the 'walking bus' initiative.

3.3.1.4 Limitations of survey method

The results of the analysis of respondent group data should not be regarded as fully representative of all learners and parents at the participating schools in the two study neighbourhoods, or of all schools in the city, for the following reasons. Firstly, in Rondebosch, the schools surveyed were only those that showed the greatest parent interest in 'walking buses' during an earlier feasibility survey conducted in 2009 (see Behrens and Van Rensburg, 2009). It is possible that this introduced bias, in favour of NMT use, in the results obtained. Had all schools been surveyed, including those that showed lower levels of interest in the 'walking bus' initiative in the feasibility survey, it is likely that overall levels of parent interest in the initiative would have been lower. Secondly, the school group response rates of 52% and 31% would have introduced bias. More specifically, it is probable that parents and learners who were more predisposed to walking to school, or lived within walking catchments, were more likely to respond, than those who were not. The actual statistical indicator of all learners' and parents' support of the 'walking bus' concept lies somewhere between the indicator for the responder group, and the same indicator calculated on the assumption that all non-responders were by definition not supportive of the initiative in question. Thirdly, in Delft, the choice of only grade 1-3 may also have introduced some bias, as it is possible that the attitudes towards learner NMT use among parents of more vulnerable children in lower grades are different to those of parents of less vulnerable children in higher grades.

Given that the primary purpose of the surveys was to collect the data required to plan and implement 'walking buses' at schools with the greatest potential for success, the above limitations were not regarded as a major source of concern.

3.3.2 CIM survey

As stated in section 1.3, CIM refers to the degree to which children of different ages are allowed to make trips to school, friends, shops and other destinations unaccompanied by adults. CIM studies were conducted in England in 1970 and England and Germany in 1990. An international collaborative study replicating the England and Germany studies was conducted in 2010-2011. The South African part of this collaborative study was conducted by the author at schools in Cape Town and its hinterland.

3.3.2.1 Survey instrument

The standard English language CIM survey instrument, in the form of separate child and parent self-completion pen-and-paper questionnaires, was developed by the PSI (see Appendices 2G and 2H). The child questionnaire covered demographics, school trip mode use and travel time, mode preferences, attitudes towards safety, and independent mobility by public and non-motorised modes. The parent questionnaire covered demographics, independent mobility permission, reasons for adult accompaniment, and attitudes towards safety. The multi-lingual nature of the Western Cape population necessitated that the questionnaires were translated into two additional languages: Afrikaans and isiXhosa. The translated instruments were 'back-translated' into English to check that they had retained their original meaning. The English version was used in the higher income city schools, the Afrikaans version in the small town and rural schools, and the isiXhosa version in the lower income city schools. A (n=10) pilot survey was conducted at one of the lower income city schools, on the assumption that greatest respondent completion problems were likely to be experienced in these schools as they serve communities with relatively higher levels of illiteracy and innumeracy.

3.3.2.2 Sample design

Table 2 presents the settlement type and school grade stratification, sample sizes and response rates of the schools that participated in the CIM survey while Figure 5 shows the location of participating schools in the survey. The PSI required a standardised sample stratification across participating countries which covered four settlement types, namely: inner city, suburban, small town and rural settlements. However for the (n=984) CIM survey, the unique and diverse nature of socio-demographic and settlement patterns in the Western Cape necessitated a departure from the standard sample stratification used in the other participating countries. Instead of solely settlement type, sample stratification was based on both neighbourhood affluence and location, namely:

metropolitan high-income (n=170), metropolitan low-income (n=572), small town (n=203) and rural (n=39). Grades were selected to target children aged 7-15 years. At each school only one class per grade was surveyed. All learners in the selected classes at each school were included in the survey (except those whose parents had not granted permission-see opt-out slip in introductory letter to parents in Appendix 2E). The CIM survey was initially intended as a relatively elaborate pilot survey, to be followed by a larger, statistically representative study. The participating schools were recruited between June and October 2010. Initial contact with schools in the selected neighbourhoods was made through telephone. Emails were then sent to schools that expressed a willingness to participate in the survey with supporting documents attached namely, introductory letter, information sheet providing background information to the CIM survey (see Appendices 2C and 2D) and the survey questionnaires (Appendix 2G and 2H).

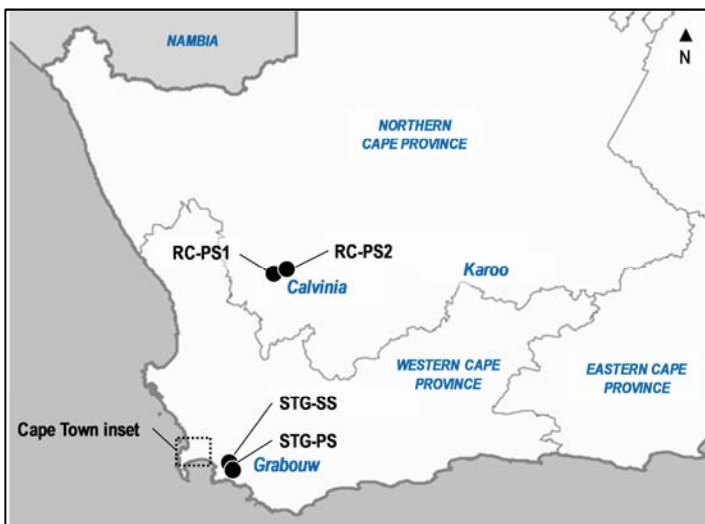
University of Cape Town

Table 2 Survey samples, by settlement and school type (CIM survey)

Settlement type	Neighbourhood/town	School level	School code	Total learners in school	Number of questionnaires distributed		Number of child questionnaires returned		Number of adult questionnaires returned	
						% of school		% returned		% returned
Metropolitan (high income)	Claremont	Primary	MHIC-PS	684	131	19.2	131	100.0	93	71.0
	Rondebosch	secondary	MHIR-SS	198	39	19.7	39	100.0	25	64.1
<i>Sub-total</i>				882	170	19.3	170	100.0	118	69.4
Metropolitan (low income)	Nomzamo	Primary	MLIN-PS	1,634	218	13.3	218	100.0	149	68.3
	Nomzamo	secondary	MLIN-SS	1,197	58	4.8	58	100.0	24	41.4
	Khayelitsha	Primary	MLIK-PS	1,251	203	16.2	203	100.0	80	39.4
	Khayelitsha	secondary	MLIK-SS	1,154	93	8.1	93	100.0	24	25.8
<i>Sub-total</i>				5,236	572	10.9	572	100.0	277	48.4
Small town	Grabouw	Primary	STG+PS	300	134	44.7	134	100.0	96	71.6
	Grabouw	secondary	STG-SS	189	69	36.5	69	100.0	39	56.5
<i>Sub-total</i>				489	203	41.5	203	100.0	135	66.5
Rural	Calvinia	Primary	RC-PS1	70	23	32.9	23	100.0	17	73.9
	Calvinia	Primary	RC-PS2	84	16	19.0	16	100.0	9	56.3
<i>Sub-total</i>				154	39	25.3	39	100.0	26	66.7
Grand total				6761	984	14.6	984	100.0	556	56.5

Notes:

1. The 100% child response rate was due to the administration of the surveys in class time.
2. Schools are identified by code because the research ethics clearance obtained from the Western Cape Department of Education for the CIM survey specified that schools should not be named in research publications.
3. The Grabouw primary and secondary schools indicated in the table are part of a combined school.



● CIM survey schools in Cape Town and its hinterland

Notes:

1. CIM schools = schools surveyed as part of the Policy Studies Institute collaborative project on child independent mobility
2. Table 2 presents further information on the participating schools in the CIM survey

Figure 5 Locality map of participating schools (CIM survey)

3.3.2.3 Data collection, capture and analysis

The CIM survey was conducted between October 2010 and March 2011, following research ethics clearance from both the University of Cape Town and the Western Cape Education Department (WCED) (see Appendices 2A and 2B). The CIM child questionnaires were completed in class (on Mondays to aid recall of activities that children participated in over the previous weekend) with the assistance of the author and the respective class teachers, while the adult questionnaires were completed at home by a parent or guardian. In the case of the two rural schools, parent

questionnaires were completed in a home interview. All parents with children in the selected classes were sent a cover letter one week in advance of the actual survey date. The letter provided background information about the survey, the survey date and offered parents the option to withdraw their children from the survey if they wished (see Appendix 2E). A reminder was subsequently sent out to all participating parents two days after the survey date reminding them to return the parent questionnaire to school if they had not already done so (see Appendix 2I).

Data capture was conducted by the author with the help of three undergraduate students in the Faculty of Engineering and the Built Environment at the University of Cape Town. The data capture template was provided by the PSI in SPSS. However, this was converted by the author to MS Excel format before the data capture process. Data analysis was then conducted by the author in MS Excel.

3.3.2.4 Limitations of survey method

The results of the analysis of the CIM survey data are indicative rather than statistically representative of all learners and parents in the study area. The number of schools surveyed represents a very small proportion of the total number of schools in the Province (the 14 primary schools represent 1.6% and the four secondary schools 1.2% of all primary and secondary schools). The small town and rural schools are particularly unrepresentative of their sample strata. A further limitation of the CIM survey data is bias introduced by non-response. The use of self-completion questionnaires resulted in item non-response and recording error (up to 5% for some questions), and a unit non-response rate of 43% in the case of the parent questionnaires.

3.4 'Walking bus' trial run, demonstration and evaluation

As stated in the introductory section of this chapter, the ACET/GRSP-ZA survey served two main purposes one of which was to collect the data needed to set up 'walking buses' (the other aim being to understand current child travel behavior). The initial phase of the data analysis described in section 3.3.1.3 facilitated the development of a database of potential 'walking bus' participants in preparation for the demonstration phase of the initiative in Rondebosch. The implementation of the Rondebosch 'walking buses' that followed is described in terms of the trial runs and demonstration phase.

3.4.1 Trial runs

The ACET implementation survey was followed by trial runs, conducted in November and December of 2010 over two weeks at two of the six participating Rondebosch schools. The two schools that were chosen for the trial runs were Rondebosch Boys Preparatory and Oakhurst Girls Primary. The two schools were chosen on the basis of two main criteria namely:

- High interest in the ‘walking bus’ concept shown during the survey (Table 22 compares parent interest in the initiative across participating schools);
- High clustering of households that expressed a willingness to participate in the initiative.

The clustering referred to above was obtained from mapping the addresses given in the questionnaire. The given addresses were geocoded (using batch geocoding in Google Maps). The two schools were chosen as they showed the highest clustering which made it easier to identify possible walking routes. While Micklefield Girls Primary School also showed high interest among parents, the potential participants were widely scattered and far away from each other which made it difficult to identify routes with sufficiently high numbers of participants. After identifying potential routes, the researcher then made contact via telephone and email with the parents who stayed close to the identified routes. Various stakeholders, including the local councillor, City of Cape Town representatives and school principals and parents, were engaged in the implementation of the trial runs.

Prior to the trial runs, a ‘walking bus’ planning tool was developed in MS Excel by the author (see Appendix 3A). The instrument, using certain assumptions built into it (e.g. average walking speed for children) automatically calculates travel time to school once one inputs data relating to distance to school and a start time. The intention was to have an adult volunteer stationed at each ‘bus stop’ five minutes before the departure time. That parent would then supervise the children gathered at that stop to wait for the arrival of the ‘bus’. Preparations also involved a parent meeting at which details of the ‘walking bus’ concept were introduced, and associated road safety issues for parent volunteers were discussed. To enhance ‘walking bus’ participants’ visibility to motorists, reflective vests for adult volunteers and reflective sashes for child participants were sourced from the City of Cape Town municipality and the Department of Community safety (Provincial Government of Western Cape) respectively (see Figure 18). Besides providing reflective vests for volunteers, the City of Cape Town also helped in route improvement (e.g. cleaning NMT subways). As part of the

preparations, consent forms were sent out to parents for completion and these were to be returned to the author before a child could participate in the initiative (see Appendix 1F).

The objectives of the trial runs included: determining the level of (learner and parent) participant attrition from survey to action; checking assumptions with respect to child walking speed; checking the adequacy of pedestrian crossing times at signalised intersections with a pedestrian phase; and observing the degree to which volunteers were able to supervise ‘walking buses’ (e.g. route and schedule adherence). The results from the trial runs are presented in section 6.1. Insights gained during the trial run informed the implementation of the ‘walking buses’ in 2011.

3.4.2 ‘Walking bus’ demonstration

Following the trial runs, ‘walking buses’ were launched at the two trial schools in April 2011. The original intention was to launch ‘walking buses’ at the four remaining schools at a later stage. However, this did not happen due to time constraints. The two demonstration schools advertised the ‘walking bus’ initiative in their respective newsletters at the end of the fourth term in 2010 (for example see Appendix 3F). Four routes were established with the ‘walking bus’ stops and routes catering for children at both schools. The buses operated only in the morning and collected children from designated collection points. All four buses operated at the two demonstration schools (i.e. they were combined ‘buses’ used by children at both Rondebosch Boys Preparatory and Oakhurst Girls Primary school. The main characteristics of each of the ‘buses’ are summarised in Table 3 while the four demonstration routes are shown in Appendix 3B.

The participants in the demonstration phase included those from the trial runs and new participants. Parents of all children who joined for the first time and those who participated in the trial runs but did not return the parental consent forms received parental consent form. However, as will be discussed in Chapter 6, the majority of parents did not return the signed parental consent forms. In spite of this, no child was stopped from participating in the initiative.

Table 3 Selected characteristics of the Rondebosch ‘walking buses’

	Number of stops	Route length (km)	Start time	Number of children at launch	Number of parent volunteers	Days per week
Park Road route	2	1.80	07h15	10	6	2
Ave de Mist route	3	1.75	07h15	19	10	5
Keurboom Road route	2	1.45	07h25	6	5	2
Liesbeek Parkway route	2	1.75	07h15	9	4	2

3.4.3 ‘Walking bus’ monitoring and evaluation

The ‘walking buses’ were monitored through fortnightly feedback via email and telephone from participating parents. The author either emailed or telephoned those parents who were actively involved in the ‘walking bus’ for each route. However, these were not ‘walking bus’ coordinators in the strict sense, only that they were actively involved in the running of their respective ‘buses’.

To evaluate the impacts and long-term viability of the ‘walking buses’ demonstrated in Rondebosch, qualitative interviews were conducted with participating parents (n=14) and children (n=16). The original intention was to utilise a mixed quantitative-qualitative method based on a pre-test and post-test study design. Towards this end, quantitative 'before' physical activity, odometer and school gate congestion data were collected at the two demonstration schools and at a control school (Grove Primary school in Claremont). The ‘after’ data was to be collected later in the year after the launch of the buses. However, by the time the quantitative ‘after’ data was supposed to be collected in late 2011, all four buses had ceased operating. The discontinuation of the ‘walking buses’ necessitated a methodological switch to purely qualitative method. The qualitative interviews undertaken are discussed in terms of method and limitations of evaluation method.

3.4.3.1 Evaluation method

Following ethics clearance from the University of Cape Town (see Appendix 3D) participant interviews were conducted between October and November 2011, eight to nine months after the launch of the ‘walking’ buses. The interviews were preceded by email and telephone requests made by the author directly to all parents who had been involved in the initiative, either as consent-givers or volunteers. Of these, 14 parents agreed to be interviewed. Home interviews were then conducted by the author with parents and their children, except in two instances where the children were not present. Of the 14 parents who were interviewed, 11 were mothers and three were fathers, while of the 16 children interviewed, five were girls and 11 were boys. While the author communicated his intention to interview parents to the schools, no school representatives were interviewed as part of the evaluation.

The interviews were conducted using an open-ended question schedule which was divided into two sections (see Appendix 3E). The first section raised questions for parents. These included questions on: child mode use before and after the introduction of ‘walking buses’; parent willingness to let their child continue using a ‘walking bus’; and parent perceptions on the impacts of ‘walking

buses'. The second section raised questions that were asked of the child respondents. These included: children's likes and dislikes about the 'walking buses'; and willingness to continue using the 'walking buses'.

3.4.3.2 Limitations of evaluation method

The results of the evaluation should not be seen as fully representative of all parents at the participating schools. Firstly, relatively few households participated in the demonstration phase of the 'walking buses'. At the time of the 2010 implementation survey, the two schools had a combined enrolment of 952 learners. Out of these only 44 (5%) participated in the demonstration. Secondly, some parents who participated in the initiative were unavailable for the interviews. Of the 25 parents who participated at the beginning either as consent-givers or volunteers, only 14 (56%) were available for the evaluation interviews. It is possible that the rest were unwilling to participate in the interviews because, after experimenting with the 'walking bus', they decided that they were no longer in favour of the initiative. If that was the case, then if such parents had taken part in the interviews it is possible that the results presented in chapter six would have been different.

3.5 Summary

The focus of this chapter was on the research method used in this dissertation. The methods used range from a literature review, school travel surveys, 'walking bus' trial run and demonstration to the evaluation of the 'walking buses' in Rondebosch. The findings from the three surveys and the qualitative evaluation interviews are presented in the next three chapters.

CHAPTER FOUR: SCHOOL TRAVEL SURVEY FINDINGS

The surveys described in the preceding chapter had two main purposes. Firstly, they sought to gain insights into child mobility and current travel behaviour. Secondly, the ACET and GRSP-ZA surveys also sought to recruit participants for the purposes of planning and demonstrating ‘walking buses’. This chapter presents findings on the former purpose, and where appropriate draws findings from both the ACET/GRSP-ZA and the CIM surveys. The key findings suggest children in middle- to higher-income neighbourhoods have experienced a decline in CIM with the majority being driven to school by car. The findings also suggest that while children from the poorer neighbourhoods have not experienced a similar decline in CIM, with the majority walking to school; they do so while feeling unsafe. The intervention that was deemed most appropriate in addressing both the declining NMT use and feeling unsafe was the ‘walking bus’. Findings on parental interest towards this initiative are presented in the next chapter. The key findings in this chapter are presented in terms of mode use; travel time to school; intergenerational comparison of school travel mode; parental ‘licences’ granted to children; and child attitudes.

4.1 Travel mode

Table 4 below shows main mode share in the different neighbourhoods. The results indicate an asymmetrical pattern in mode use between morning home *to school* trips and the afternoon *from school* trips. Car use was more prevalent in the morning home *to school* trips while walking was more common on the *from school* trips. This was especially noticeable in the higher-income neighbourhood schools where the private car is the dominant mode of school travel. For instance, in the CIM survey, among the high-income neighbourhood schools, car use dropped from 86% in the morning to 83% in the afternoon. This might reflect less parent chauffeuring in the afternoons resulting from the fact that work and school finishing times do not coincide. Similar results were reported in the USA by McDonald and Alborg (2009).

Table 4 Percentage school trip (main) mode use, by trip direction and school neighbourhood category (n= 2, 768).

		Walked most or all of the way	Cycled	Local bus or train (including paratransit)	Travel mode			Non-response and recording error	Total
					School bus	Car	Other		
Metropolitan (high-income) CIM survey (n=170)	to school	4.1	1.8	5.3	0.6	85.9	1.2	1.2	100
	from school	4.7	1.8	6.5	0.6	82.9	1.8	1.8	100
Metropolitan (high-income) ACET survey (n=1,075)	to school	5.9	1.5	1.1	0.0	90.2	0.1	1.2	100
	from school	6.0	1.5	0.8	0.0	87.8	2.1	1.7	100
Metropolitan (low-income) CIM survey (n=572)	to school	86.5	0.5	0.3	2.3	4.5	1.0	4.7	100
	from school	86.7	0.9	0.5	1.9	3.3	1.6	5.1	100
Metropolitan (low-income) GRSP-ZA survey (n=709)	to school	91.0	1.0	1.7	0.0	4.1	0.3	2.0	100
	from school	85.8	0.6	1.6	0.0	2.4	0.1	9.6	100
Small town (n=203)	to school	15.3	1.5	10.3	13.3	49.8	6.9	3.0	100
	from school	15.8	1.5	13.3	13.3	45.8	8.4	2.0	100
Rural (n=39)	to school	56.4	0.0	0.0	0.0	43.6	0.0	0.0	100
	from school	71.8	0.0	0.0	0.0	28.2	0.0	0.0	100

4.1.1 Factors influencing mode choice

4.1.1.1 Socio-economic characteristics of residential neighbourhood

Two school trip travel modes – walking and car passenger – were found to dominate in the different city neighbourhoods (see Table 4 above). Walking was the dominant travel mode in metropolitan low-income schools (around 87-91% for trips to school and 86-87% for trips from school). The car was the dominant travel mode in metropolitan high-income schools (around 86-90% for trips to school and 83-88% for trips from school). Children attending schools in the metropolitan high-income neighbourhoods seem to have limited independent mobility as they were found to travel to school using a dependent mode, the car. An unexpected finding was the high percentage of children who travelled by ‘car’ in the rural schools (28-44%), which is inconsistent with 2003 NHTS data for the Western Cape which indicated that car use accounted for 8-16% of education trips in rural districts (Department of Transport, 2007b). Further investigation revealed that this high percentage was due to the farmers hosting the two schools transporting children to school in farm vehicles (recorded as ‘car’ in questionnaires).

4.1.1.2 Child characteristics

Mode use to and from school by age is shown in Table 5 and Table 6 respectively.

Table 5 Percentage trip to school (main mode), by school neighbourhood and age category (n=2,010)

		Travel mode							Total
		Walked most or all of the way	Cycled	School bus	Local bus or train (including paratransit)	Car	Other	Non response and recording error	
Metropolitan high income (CIM survey) (n=165)	10 years and younger	4.2	2.8	0.0	1.4	88.7	2.8	0.0	100
	11 years and older	4.3	1.1	1.1	8.5	83.0	0.0	2.1	100
Metropolitan high income (ACET survey) (n=1066)	10 years and younger	5.5	1.2	0.0	0.3	91.4	0.1	1.5	100
	11 years and older	6.6	2.0	0.0	2.6	88.0	0.0	0.8	100
Metropolitan low income (CIM survey) (n=549)	10 years and younger	77.1	0.5	2.6	0.5	10.4	0.0	8.9	100
	11 years and older	91.3	0.3	2.2	0.3	1.7	1.4	2.8	100
Small town (CIM survey) (n=191)	10 years and younger	11.3	0.0	12.7	2.8	67.6	4.2	1.4	100
	11 years and older	18.3	2.5	11.7	15.8	40.8	8.3	2.5	100
Rural (CIM survey) (n=39)	10 years and younger	57.7	0.0	0.0	0.0	42.3	0.0	0.0	100
	11 years and older	53.8	0.0	0.0	0.0	46.2	0.0	0.0	100

Notes:

1. Non response and recording error to the question of child's age was excluded from the analysis. This was 0.8% ACET survey. For the CIM survey, these were 2.9%, 4%, 6% and 0% in the Metropolitan high income, metropolitan low-income, small town and rural neighbourhoods respectively
2. GRSP-ZA survey data was not presented in the table because the majority of child respondents in that survey fell into a single category (10 years and younger. This was because the survey was conducted among children in grades 1-3 only.

Table 6 Percentage mode use from school (main mode), by school neighbourhood and age category (n=2,010)

		Travel mode							Total
		Walked most or all of the way	Cycled	School bus	Local bus or train (including paratransit)	Car	Other	Non response and recording error	
Metropolitan high income (CIM survey) (n=165)	10 years or younger	2.8	2.8	0.0	4.2	85.9	2.8	1.4	100
	11 years or older	6.4	1.1	1.1	8.5	80.9	1.1	1.1	100
Metropolitan high income (ACET survey) (n=1066)	10 years and younger	5.2	1.2	0.0	0.9	88.9	2.2	1.6	100
	11 years and older	7.7	2.0	0.0	0.8	86.0	2.0	1.5	100
Metropolitan low income (CIM survey) (n=549)	10 years and younger	80.2	0.5	2.1	0.5	7.8	1.0	7.8	100
	11 years and older	91.0	0.6	2.0	0.6	1.1	2.0	2.8	100
Small town (CIM survey) (n=191)	10 years and younger	15.5	0.0	11.3	2.8	62.0	5.6	2.8	100
	11 years and older	16.7	2.5	11.7	20.8	36.7	10.0	1.7	100
Rural (CIM survey) (n=39)	10 years and younger	65.4	0.0	0.0	0.0	34.6	0.0	0.0	100
	11 years and older	84.6	0.0	0.0	0.0	15.4	0.0	0.0	100

Notes:

1. Non response and recording error to the question of child's age was excluded from the analysis. This was 0.8% for the ACET survey. For the CIM survey, these were 2.9%, 4%, 6% and 0% in the Metropolitan high income, metropolitan low-income, small town and rural neighbourhoods respectively
2. GRSP-ZA survey data was not presented in the table because the majority of child respondents in that survey fell into a single category (10 years and younger. This was because the survey was conducted among children in grades 1-3 only.

The results indicate an increase in independent mobility with age with regard to the use of active modes. The percentage of children who walked increased as children grew older and there was a

decline in car use for school trips with age in some of the neighbourhoods. This was particularly the case at the CIM survey small town schools. For instance, with respect to home *to school* trips, the percentage of children who walked at the small town schools rose from 11% for children aged 10 years and younger to 18% for children aged 11 years and older. On the other hand, car use declined from 68% among children aged 10 years and younger to 41% among children aged 11 years and older. There was also a slight decline in car use with age in the metropolitan high income neighbourhood schools (from 89% to 83% and 91% to 88% among children aged 10 years and younger and 11 years and older in the CIM and ACET survey respectively). Similar age-related findings were reported by Yarlagaadda and Srinivasan (2008) and Davison et al (2008). This suggests that the possibility of independent school travel by NMT modes increases with child's age.

The results also indicate significant gender differences with regard to mode use. Walking was slightly higher among boys in some neighbourhoods while the reverse was also true among the other neighbourhoods. A rather surprising finding in the Metropolitan high-income neighbourhoods (where the private car is the dominant mode) was that more girls than boys walked to school. For instance, in the CIM survey among high income city children, 3.8% of boys walked to school compared to 4.8% of girls who walked to school. In the afternoon 3.8% boys walked compared to 5.7% girls. The corresponding figures in the ACET survey were 5.1% (boys) vs. 9.2% (girls) for *to school* trips and 4.6% (boys) vs. 12.1% (girls) for *from school* trips. Tables 7 and Table 8 show mode use by gender.

Table 7 Percentage mode use to school (main mode), by gender and school neighbourhood category (n=2,703)

		Travel mode							Total
		Walked most of all the way	Cycled	School bus	Local bus or train (including paratransit)	Car	Other	Non response and recording error	
Metropolitan high income (CIM survey) (n=165)	Male	3.8	2.6	1.3	5.1	84.6	0.0	2.6	100
	Female	4.6	1.1	0.0	5.7	86.2	2.3	0.0	100
Metropolitan high-income (ACET survey) (n=1,075)	Male	5.1	1.7	0.0	0.9	90.8	0.1	1.4	100
	Female	9.2	0.5	0.0	1.9	87.9	0.0	0.5	100
Metropolitan low income (GRSP survey) (n=695)	Male	91.7	0.7	0.0	2.0	4.0	0.0	1.7	100
	Female	91.3	0.8	0.0	1.5	4.3	0.5	1.5	100
Metropolitan low income (CIM survey) (n=533)	Male	86.4	0.8	3.2	0.8	4.8	0.8	3.2	100
	Female	86.2	0.0	1.8	0.0	4.9	1.1	6.0	100
Small town schools (CIM survey) (n=196)	Male	17.8	2.2	12.2	12.2	50.0	3.3	2.2	100
	Female	13.2	0.9	13.2	9.4	50.9	9.4	2.8	100
Rural schools (CIM survey) (n=39)	Male	60.0	0.0	0.0	0.0	40.0	0.0	0.0	100
	Female	52.6	0.0	0.0	0.0	47.4	0.0	0.0	100

Note: Non response and recording error to the question of gender was 5.8%, 0% and 2% for the CIM, ACET and GRSP surveys and was excluded from the analysis.

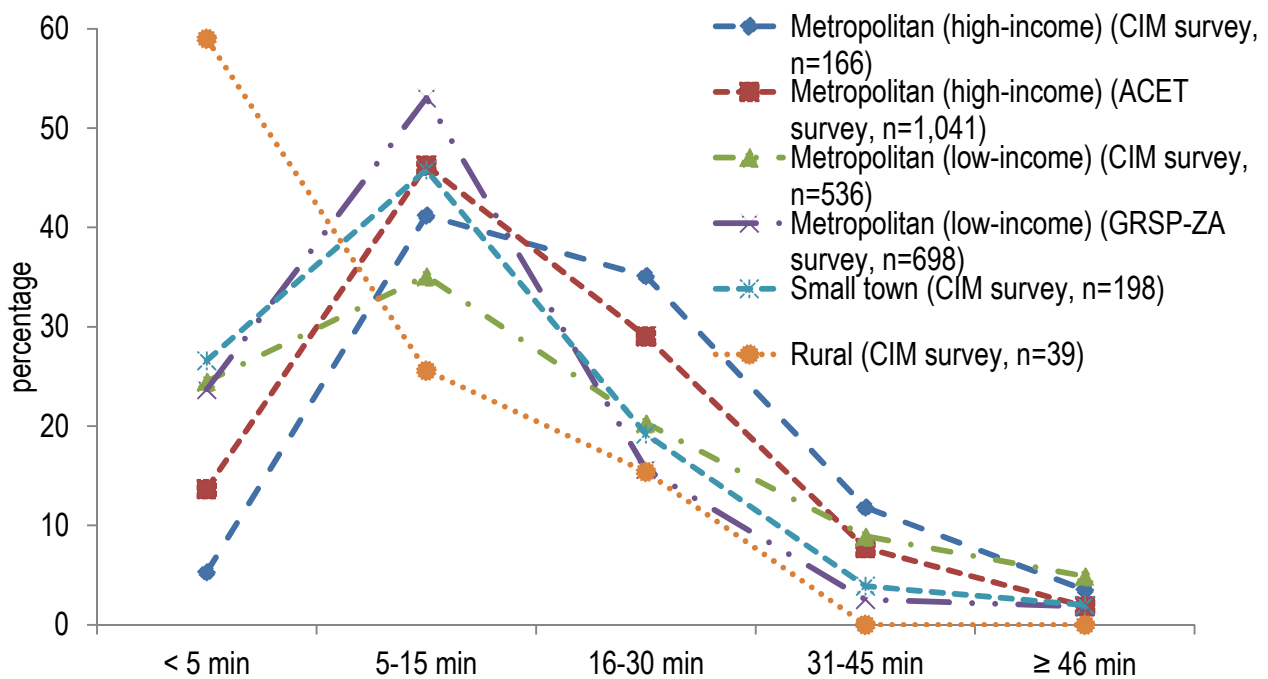
Table 8 Percentage mode use from school (main mode), by gender and school neighbourhood category (n=2,703)

		Travel mode						Non response and recording error	Total
		Walked most of/all the way	Cycled	School bus	Local bus or train (including paratransit)	Car	Other		
Metropolitan high income (CIM survey) (n=165)	Male	3.8	3.8	1.3	5.1	83.3	0.0	2.6	100
	Female	5.7	0.0	0.0	8.0	82.8	3.4	0.0	100
Metropolitan high-income (ACET survey) (n=1075)	Male	4.6	1.7	0.0	0.6	89.1	2.2	1.8	100
	Female	12.1	0.5	0.0	1.9	82.5	1.9	1.0	100
Metropolitan low income (GRSP survey) (n=695)	Male	85.8	0.3	0.0	2.0	1.7	0.0	10.2	100
	Female	87.0	0.5	0.0	1.3	3.1	0.3	7.9	100
Metropolitan low income (CIM survey) (n=533)	Male	88.4	0.8	2.4	0.8	3.2	2.0	2.4	100
	Female	86.6	0.4	1.8	0.4	3.9	1.4	5.7	100
Small town schools (CIM survey) (n=196)	Male	20.0	2.2	12.2	16.7	41.1	5.6	2.2	100
	Female	12.3	0.9	13.2	11.3	50.0	10.4	1.9	100
Rural schools (CIM survey) (n=39)	Male	70.0	0.0	0.0	0.0	30.0	0.0	0.0	100
	Female	73.7	0.0	0.0	0.0	26.3	0.0	0.0	100

Note: Non response and recording error to the question of gender was 5.8%, 0% and 2% for the CIM, ACET and GRSP surveys and was excluded from the analysis.

4.2 Time spent travelling to school

Travel time distributions for the different school neighbourhood categories are shown in Figure 6. The majority of learners across all categories spent less than 30 minutes travelling to school. The percentage of children who spent more than 30 minutes travelling to school in metropolitan high-income and low-income schools (15% and 14% respectively) is slightly less than the comparable 2003 NHTS figure of 20% for education trips in Cape Town (but this value included tertiary education activities which are likely to be longer than school trips on average). Overall, the findings are broadly consistent with the 2003 NHTS finding that 16% of primary school trips were longer than 30 minutes (DOT, 2007b). Given the very different mode use shares presented in section 4.1.1, the similarity of the travel time distributions presented in Figure 6 is surprising – suggesting perhaps a similar tolerance to maxima in overall travel time budgets observed elsewhere (see, for instance, Schafer and Victor 2000). The rural schools are an outlier here, but probably peculiar to specific farm school travel arrangements.



Note: Item non-response rates for the survey question relating to school trip travel time were as follows: 2% in the metropolitan high-income CIM survey, 3% in the ACET survey, 6% in the metropolitan low-income CIM survey, 2% in the GRSP-ZA survey, 2% in the small town CIM survey, and 0% in the rural CIM survey.

Figure 6 Distribution of school travel time by all modes, by school neighbourhood category (n=2,768)

4.3 Intergenerational comparison of school travel mode

Table 9 illustrates mode use changes over time. Changes in mode use over time are reflected in the comparison of travel mode used by parents when they were in school and the mode used by their children during the CIM survey. Notwithstanding the problems of identifying ‘usual’ behaviour in travel surveys, this inter-generational comparison suggests that, with the exception of lower-income metropolitan communities, all school categories had experienced a shift from walking to car use. This was most pronounced amongst the higher income metropolitan communities in the CIM survey, where, of the 96 children who travelled to school by car, 53% of their parents walked to school when they were children (alternatively, of the 60 parents who walked to school when children, 85% send their children to school by car).

Table 9 Inter-generational comparison of school trip (main) mode use, by school neighbourhood category (CIM survey, n=507)

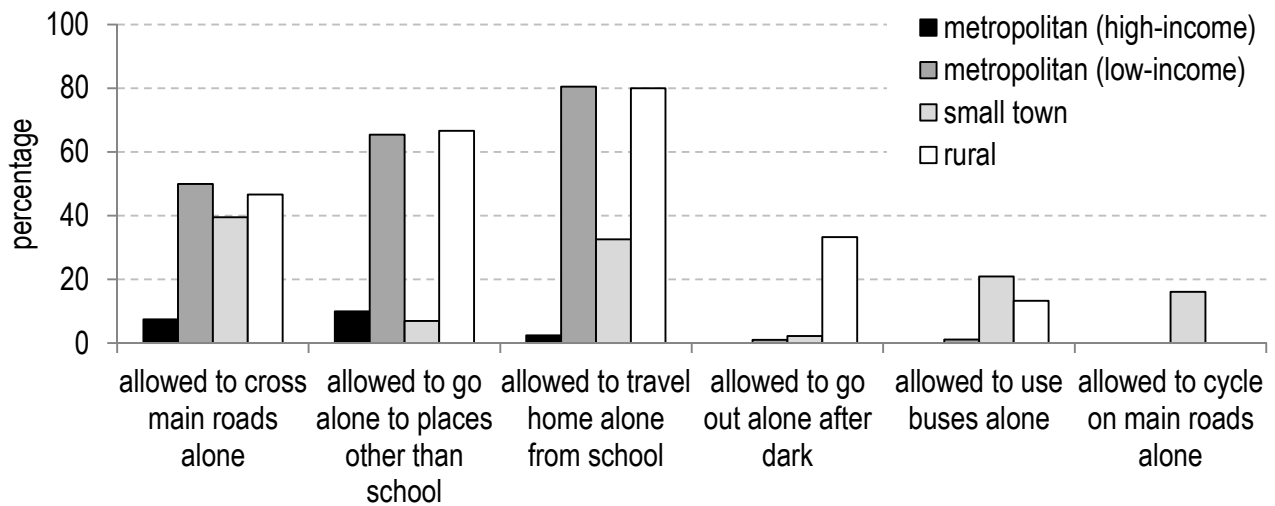
	Child's usual travel mode to school							Child's usual travel mode to school							
	Metropolitan (high-income) (n=108)							Metropolitan (low-income) (n=249)							
	Walk	Cycle	School bus	Bus/train	Car	Other	Total	Walk	Cycle	School bus	Bus/train	Car	Other	Total	
Parent's usual travel mode to school	walk	3	0	1	5	51	0	60	200	1	8	1	14	2	226
	%	60.0		100	83.3	53.1		55.6	90.9	100	100	100	93.3	50.0	90.8
	Cycle	0	0	0	0	3	0	3	2	0	0	0	0	1	3
	%	0.0		0.0	0.0	3.1		2.8	0.9	0.0	0.0	0.0	0.0	25.0	1.2
	school bus	1	0	0	0	3	0	4	7	0	0	0	0	0	7
	%	20.0		0.0	0.0	3.1		3.7	3.2	0.0	0.0	0.0	0.0	0.0	2.8
	bus/train	1	0	0	1	6	0	8	1	0	0	0	0	0	1
	%	20.0		0.0	16.7	6.3		7.4	0.5	0.0	0.0	0.0	0.0	0.0	0.4
Car	0	0	0	0	32	0	32	4	0	0	0	1	0	5	
%	0.0		0.0	0.0	33.3		29.6	1.8	0.0	0.0	0.0	6.7	0.0	2.0	
Other	0	0	0	0	1	0	1	6	0	0	0	0	1	7	
%	0.0		0.0	0.0	1.0		0.9	2.7	0.0	0.0	0.0	0.0	25.0	2.8	
Total	5	0	1	6	96	0	108	220	1	8	1	15	4	249	
%	100		100	100	100		100	100	100	100	100	100	100	100	
Parent's usual travel mode to school	Small town (n=124)							Rural (n=26)							
	walk	11	1	10	8	40	9	79	12	0	0	0	10	0	22
	%	61.1	50.0	76.9	61.5	58.8	90.0	63.7	75.0				100		84.6
	Cycle	0	1	0	0	0	0	1	2	0	0	0	0	0	2
	%	0.0	50.0	0.0	0.0	0.0	0.0	0.8	12.5				0.0		7.7
	school bus	2	0	3	1	9	1	16	0	0	0	0	0	0	0
	%	11.1	0.0	23.1	7.7	13.2	10.0	12.9	0.0				0.0		0.0
	bus/train	1	0	0	2	2	0	5	0	0	0	0	0	0	0
%	5.6	0.0	0.0	15.4	2.9	0.0	4.0	0.0				0.0		0.0	
Car	3	0	0	1	15	0	19	2	0	0	0	0	0	2	
%	16.7	0.0	0.0	7.7	22.1	0.0	15.3	12.5				0.0		7.7	
Other	1	0	0	1	2	0	4	0	0	0	0	0	0	0	
%	5.6	0.0	0.0	7.7	2.9	0.0	3.2	0.0				0.0		0.0	
Total	18	2	13	13	68	10	124	16	0	0	0	10	0	26	
%	100	100	100	100	100	100	100	100				100		100	

Note: Item non-response rates for the survey question relating to school trip mode use were 9%, 10%, 8% and 0% for metropolitan high-income, metropolitan low-income, small town and rural school respondents respectively.

4.4 Parental 'licences'

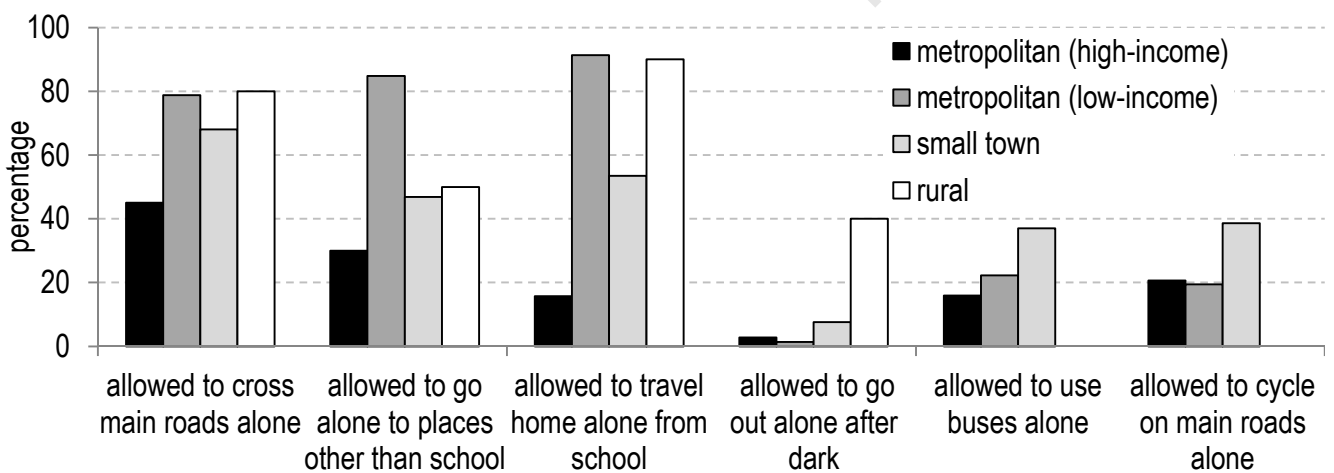
Figures 7 and 8 present findings from the CIM survey with respect to parental permission, or 'licensing'⁸, for different independent mobility activities.

⁸ Licences refer to a set of permissions that parents allow their children. According to Hillman et al (1990) the ages at which these parental licences are issued reflect parental judgements about the degree of maturity and competence required by their children to cope safely with the perceived dangers that lie outside the home.



Note: Item non-response rates for the survey questions relating to parental 'licences' with respect to 7-10 year old children ranged between 0-3%, 4-26% and 2-13% for metropolitan high-income, metropolitan low-income and small town school respondents respectively. There was no item non-response for these questions among rural school respondents.

Figure 7 Parental 'licences' granted to 7-10 year old children by school neighbourhood category, (CIM survey, n=196)



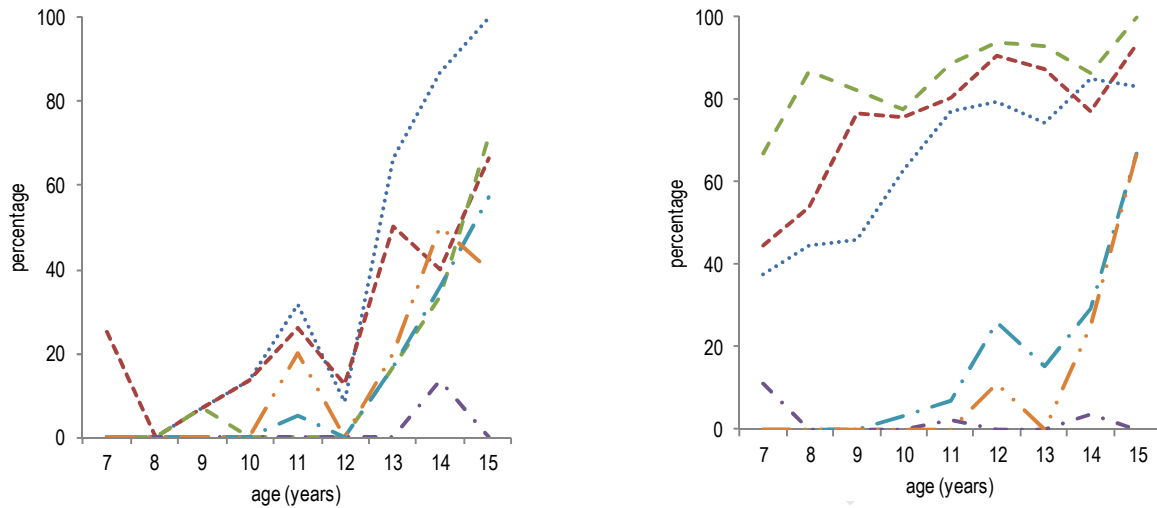
Note: Item non-response rates for the survey questions relating to parental 'licences' with respect to 11-15-year-old children ranged between 0-9%, 5-25% and 0-12% for metropolitan high-income, metropolitan low-income and small town school respondents respectively. There was no item non-response for these questions among rural school respondents.

Figure 8 Parental 'licences' granted to 11-15-year-old children, by school neighbourhood category (CIM survey, n=319)

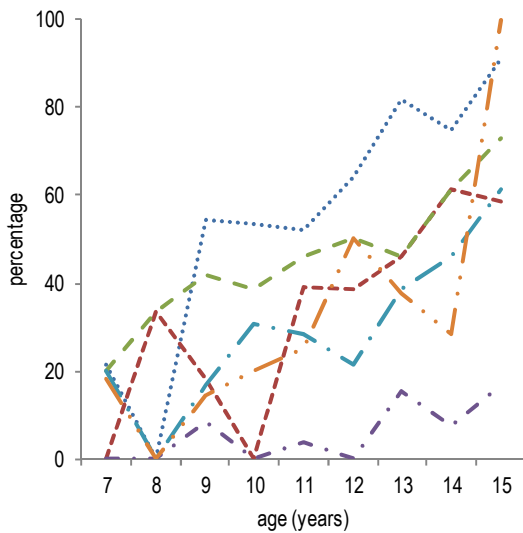
Unsurprisingly, there was a consistent increase found in the proportion of children who were granted 'licences' by age, across all school neighbourhood categories. More surprising, however, was the extent of the differences found between school neighbourhood categories. High-income city children were granted considerably fewer 'licences' to cross roads, come home from school alone, and go to other places alone than their low-income counterparts. Very few children of all ages were allowed to go out alone after dark. These findings reflect the concerns for security discussed in section 4.6.4, and the prevailing high crime rates in South Africa (see section 2.1.2). Figure 9(a-c)

further disaggregates these findings on the basis of age. Figure 9(d) disaggregates the ACET and GRSP-ZA data further by gender, and reveals a clear pattern of boys being granted independent mobility ‘licences’ earlier than girls.

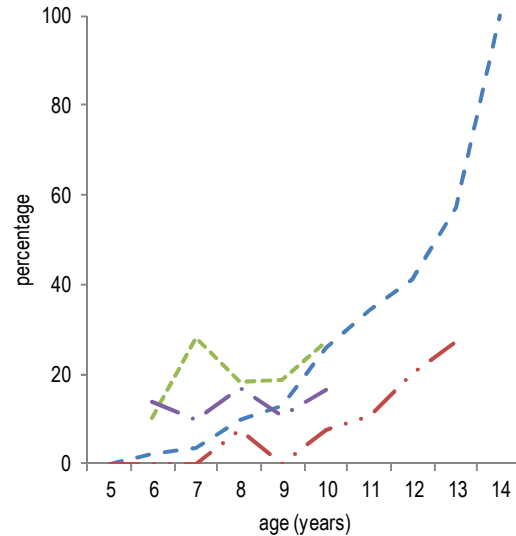
(a) CIM survey: Metropolitan (high-income) (n=112) **(b) CIM survey: Metropolitan (low-income) (n=237)**



(c) CIM survey: Small town (n=124)



(d) ACET and GRSP-ZA surveys: Metropolitan (high- and low-income) (n=1,653)



- allowed to cross main roads alone
- allowed to go alone to places other than school
- allowed to travel home alone from school
- allowed to go out alone after dark
- allowed to use buses alone
- allowed to cycle on main roads alone

- allowed to travel alone in neighbourhood: Rondebosch boys (n=845)
- allowed to travel alone in neighbourhood: Rondebosch girls (n=201)
- allowed to travel alone in neighbourhood: Delft boys (n=268)
- allowed to travel alone in neighbourhood: Delft girls (n=339)

Figure 9 Growth in the granting of parental ‘licences’ by age and gender (n=2,126)

4.5 Adult accompaniment

4.5.1 Adult accompaniment for weekend trips

Table 10 Weekend child independent mobility, by school neighbourhood category and destination activity (CIM survey, n=984)

		Destination / activity							
		Friend's home	Relatives	Shops	Spent time with friends	Playground	Played sport	Walked or cycled around	Place of worship
Metropolitan (high-income) (n=170)	number of trips	74	81	121	39	53	68	79	55
	%	43.5	47.6	71.2	22.9	31.2	40.0	46.5	32.4
	no. without an adult	42	19	30	30	30	38	41	16
	%	56.8	23.5	24.8	76.9	56.6	55.9	51.9	29.1
Metropolitan (low-income) (n=572)	number of trips	450	306	399	264	314	254	244	261
	%	78.7	53.5	69.8	46.2	54.9	44.4	42.7	45.6
	no. without an adult	371	171	299	204	251	164	197	144
	%	82.4	55.9	74.9	77.3	79.9	64.6	80.7	55.2
Small town (n=203)	number of trips	136	113	169	88	89	100	120	93
	%	67.0	55.7	83.3	43.3	43.8	49.3	59.1	45.8
	no. without an adult	99	45	95	69	52	54	95	28
	%	72.8	39.8	56.2	78.4	58.4	54.0	79.2	30.1
Rural (n=39)	number of trips	25	22	12	31	3	5	22	7
	%	64.1	56.4	30.8	79.5			56.4	
	no. without an adult	21	9	6	22	2	4	19	1
	%	84.0	40.9	50.0	71.0			86.4	

Significant differences were found in trip coupling patterns across higher and lower-income city neighbourhoods. Table 10 indicates that independent mobility was consistently higher in the lower-income communities for weekend trip destinations (the only exceptions were two trip purposes undertaken by rural children). Small town and rural children were found to be consistently more independent than higher-income city children. Further analysis of these data indicated that independence increases with age for some activity destinations (friend's home, shop and playground), but decreases with age for others where the activity is more likely to be undertaken by the household as a group (relatives, and place of worship).

4.5.2 Adult accompaniment for school trips

Table 11 indicates that independent mobility was also higher in the lower-income communities for school trips (8% and 6% of lower-income city children travelled to school with a parent or other adult respectively, compared to 79% and 15% of higher-income city children). Given that children in the 7-15 year range do not have drivers licences, the particularly high rates of adult

accompaniment for school trips in metropolitan high-income communities is clearly also a result of the observed high car passenger share of modal split (see Table 4).

Table 11 Percentage school trip coupling, by trip direction and school neighbourhood category (CIM survey, n=984)

		Trip coupling					Non-response
		Travelled alone	Travelled with parent	Travelled with another parent	Travelled with an older child/teenager	Travelled with a child of same age or younger	
Metropolitan (high-income) (n=170)	to school	4.7	78.8	14.7	15.9	17.6	0.6
	from school	7.1	75.3	12.9	14.1	12.9	1.2
Metropolitan (low-income) (n=572)	to school	53.8	8.4	6.1	12.9	36.5	1.7
	from school	45.1	6.1	6.3	12.4	35.0	3.8
Small town (n=203)	to school	7.9	33.0	31.0	13.8	18.2	2.5
	from school	7.9	27.6	34.5	14.8	21.7	2.0
Rural (n=39)	to school	2.6	5.1	43.6	23.1	23.1	0.0
	from school	5.1	2.6	28.2	25.6	38.5	0.0

Note:

1. Percentages do not total 100% as some respondents indicated more than one type of travel companion.

Table 12 shows percentage reasons for adult accompaniment on school trips while Tables 13 and 14 show those reasons by age category and gender respectively.

Table 12 Percentage reasons for adult accompaniment on school trips by neighbourhood category (CIM survey, n=497)

	Opportunity to spend time with child	Opportunity for exercise or to get out of house	Opportunity for exercise or to get out of house	Concern about traffic danger	Child unreliable or too young	Danger from adults	Fear of bullying by other children	Opportunity to meet people (e.g. teachers)	On the way to another activity (for parent/child)	School too faraway	Other
CIM Metropolitan high-income neighbourhood schools (n=112)	29.7	0.9	43.2	23.4	47.7	1.8	3.6	8.1	66.7	15.3	
Metropolitan low-income neighbourhood schools (n=241)	28.6	10.0	68.9	14.9	34.0	40.2	8.3	7.9	22.0	3.7	
Small town schools (n=119)	31.1	4.2	34.5	19.3	36.1	14.3	19.3	16.0	36.1	13.4	
Rural schools (n=25)	16.0	16.0	12.0	8.0	0.0	12.0	4.0	20.0	12.0	36.0	

Disregarding distance to school, crime (48%) and traffic danger (43%) were the most common reasons given by parents for adult accompaniment in the metropolitan high-income neighbourhoods. In the metropolitan low-income neighbourhoods – somewhat inconsistently given

the CIM concerns reported in section 4.6.4 – the main reasons given by parents for adult accompaniment were concerns for traffic safety (69%) and bullying (40%).

Table 13 Percentage reasons for adult accompaniment on school trips by neighbourhood and age category (CIM survey, n=497)

		Opportunity to spend time with child	Opportunity for exercise or to get out of house	Concern about traffic danger	Child unreliable or too young	Danger from adults	Fear of bullying by other children	Opportunity to meet people (e.g. teachers)	Opportunity to meet people (for parent/child)	On the way to another activity (for parent/child)	School too faraway	Other
CIM Metropolitan high-income neighbourhood schools (n=112)	7-10 years	22.5	0.0	37.5	40.0	47.5	5.0	5.0	12.5	67.5	12.2	
	11-15 years	33.8	1.4	46.5	14.1	47.9	0.0	2.8	5.6	66.2	17.1	
Metropolitan low-income neighbourhood schools (n=241)	7-10 years	11.1	0.0	77.8	0.0	55.6	55.6	11.1	0.0	0.0	0.0	
	11-15 years	30.4	11.5	66.9	10.8	29.7	36.5	6.1	9.5	25.0	4.7	
Small town schools (n=119)	7-10 years	28.9	0.0	35.6	17.8	35.6	13.3	15.6	8.9	48.9	15.6	
	11-15 years	32.4	6.8	33.8	20.3	36.5	14.9	21.6	20.3	28.4	12.2	
Rural schools (n=25)	7-10 years	20.0	20.0	13.3	13.3	0.0	13.3	6.7	6.7	20.0	33.3	
	11-15 years	10.0	10.0	10.0	0.0	0.0	10.0	0.0	40.0	0.0	40.0	

Table 14 Percentage reasons for adult accompaniment for school trips by neighbourhood and gender (CIM survey, n=497)

		Opportunity to spend time with child	Opportunity for exercise or to get out of house	Concern about traffic danger	Child unreliable or too young	Danger from adults	Fear of bullying by other children	Opportunity to meet people (e.g. teachers)	Opportunity to meet people (for parent/child)	On the way to another activity (for parent/child)	School too faraway	Other
Metropolitan high-income neighbourhood schools (n=112)	Female	30.4	0.0	42.9	23.2	51.8	3.6	3.6	7.1	64.3	23.2	
	Male	27.1	1.7	44.1	23.7	44.1	0.0	3.4	10.2	67.8	8.6	
Metropolitan low-income neighbourhood schools (n=241)	Female	30.4	11.6	68.1	12.3	34.1	44.2	9.4	7.2	19.6	3.6	
	Male	22.5	10.8	71.2	18.0	34.2	38.7	7.2	9.9	29.7	3.6	
CIM Small town schools (n=119)	Female	28.8	6.8	38.4	20.5	45.2	15.1	21.9	11.0	34.2	12.3	
	Male	34.0	2.0	26.0	18.0	24.0	14.0	14.0	22.0	36.0	18.0	
Rural schools (n=25)	Female	18.2	9.1	9.1	18.2	0.0	18.2	0.0	18.2	18.2	36.4	
	Male	13.3	20.0	13.3	6.7	0.0	13.3	6.7	20.0	13.3	33.3	

There were significant age differences regarding the reasons particularly in the metropolitan low-income neighbourhood schools (for instance concern over traffic danger declined from 78% among children aged 7-10 years to 69% among children aged 11-15 years. The corresponding figures for

danger from adults were 56% for 7-10 year olds and 30% for 11-15 year old. Data from the ACET and GRSP-ZA surveys support the notion that parental licensing is granted largely on the basis of perceived security and safety risk. Disregarding distance to school, in both Rondebosch and Delft, fear of criminals and traffic safety were the most commonly cited reasons for not walking, and for adult accompaniment, to school (see section 4.5.2).

4.6 Child attitudes

4.6.1 Preferred mode

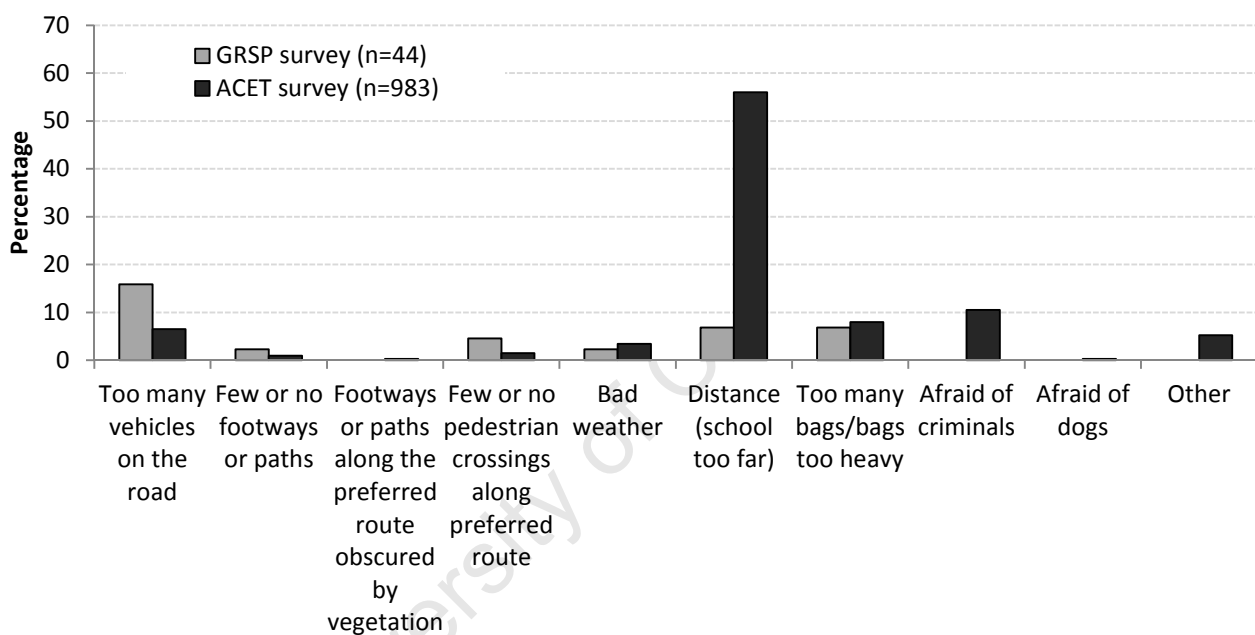
Table 15 Preferred school trip mode use, by actual mode and school neighbourhood category (CIM survey, n=901).

		Actual travel mode to school							Actual travel mode to school						
		Metropolitan (high-income) (n=159)							Metropolitan (low-income) (n=509)						
		Walk	Cycle	School bus	Bus/train	Car	Other	Total	Walk	Cycle	School bus	Bus/train	Car	Other	Total
Preferred travel mode to school	walk	4	0	0	0	10	0	14	246	1	1	0	6	1	255
	%	66.7	0.0	0.0	0.0	7.2	0.0	8.8	53.4	33.3	9.1	0.0	23.1	16.7	50.1
	Cycle	1	1	0	2	39	0	43	44	2	0	1	1	0	48
	%	16.7	33.3	0.0	25.0	28.1	0.0	27.0	9.5	66.7	0.0	50.0	3.8	0.0	9.4
	school bus	0	0	0	0	5	1	6	83	0	8	1	1	2	95
	%	0.0	0.0	0.0	0.0	3.6	50.0	3.8	18.0	0.0	72.7	50.0	3.8	33.3	18.7
	bus/train	0	1	0	1	5	0	7	10	0	1	0	0	0	11
	%	0.0	33.3	0.0	12.5	3.6	0.0	4.4	2.2	0.0	9.1	0.0	0.0	0.0	2.2
Car	1	1	1	5	74	1	83	77	0	0	0	18	1	96	
%	16.7	33.3	100	62.5	53.2	50.0	52.2	16.7	0.0	0.0	0.0	69.2	16.7	18.9	
other	0	0	0	0	6	0	6	1	0	1	0	0	2	4	
%	0.0	0.0	0.0	0.0	4.3	0.0	3.8	0.2	0.0	9.1	0.0	0.0	33.3	0.8	
Total	6	3	1	8	139	2	159	461	3	11	2	26	6	509	
%	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Preferred travel mode to school	Small town (n=194)							Rural (n=39)							
	walk	13	0	3	1	5	0	22	4	0	0	0	1	0	5
	%	41.9	0.0	11.1	5.0	5.1	0.0	11.3	18.2	0	0	0	5.9	0	12.8
	Cycle	7	3	2	3	15	3	33	10	0	0	0	5	0	15
	%	22.6	100	7.4	15.0	15.2	21.4	17.0	45.5	0	0	0	29.4	0	38.5
	school bus	1	0	13	2	5	0	21	3	0	0	0	2	0	5
	%	3.2	0.0	48.1	10.0	5.1	0.0	10.8	13.6	0	0	0	11.8	0	12.8
	bus/train	1	0	1	9	1	0	12	0	0	0	0	0	0	0
%	3.2	0.0	3.7	45.0	1.0	0.0	6.2	0.0	0	0	0	0.0	0	0.0	
Car	9	0	8	5	71	5	98	5	0	0	0	9	0	14	
%	29.0	0.0	29.6	25.0	71.7	35.7	50.5	22.7	0	0	0	52.9	0	35.9	
other	0	0	0	0	2	6	8	0	0	0	0	0	0	0	
%	0.0	0.0	0.0	0.0	2.0	42.9	4.1	0.0	0	0	0	0.0	0	0.0	
Total	31	3	27	20	99	14	194	22	0	0	0	17	0	39	
%	100	100	100	100	100	100	100	100	0	0	0	100	0	100	

Note: Item non-response rates for the survey question relating to preferred school trip travel mode use were 7%, 11%, 3% and 0% for metropolitan high-income, metropolitan low-income, small town and rural school respondents respectively.

Children’s current and preferred modes for school travel are shown in Table 15. A notable difference between current and preferred modes was a preference for cycling instead of cars. For instance, in the CIM survey, of the 139 high-income city children travelling to school by car, 28% indicated that they would prefer to travel by bicycle. This suggests a desire for higher independent mobility among children in the high-income neighbourhoods. Given the findings with respect to feeling unsafe discussed in subsection 4.6.4 below, it is unsurprising that, of the 461 low-income city children who walk to school, 35% indicated they would rather travel by school bus (18%) or car (17%).

4.6.2 Reasons for not walking to school



Notes:

1. The question asked “Which of the following most prevents you from walking to or from school? (Tick one)”. Some respondents (183 in ACET survey) selected more than one reason. In these cases responses have been weighted as a fraction of one, depending on the number of reasons selected.
2. Distributions do not add up to 100% in the chart as the item non-response category is omitted (61.4% in GRSP survey schools and 7.1% in ACET survey schools). The high item non-response rate for this question amongst the GRSP survey schools renders these data unreliable.

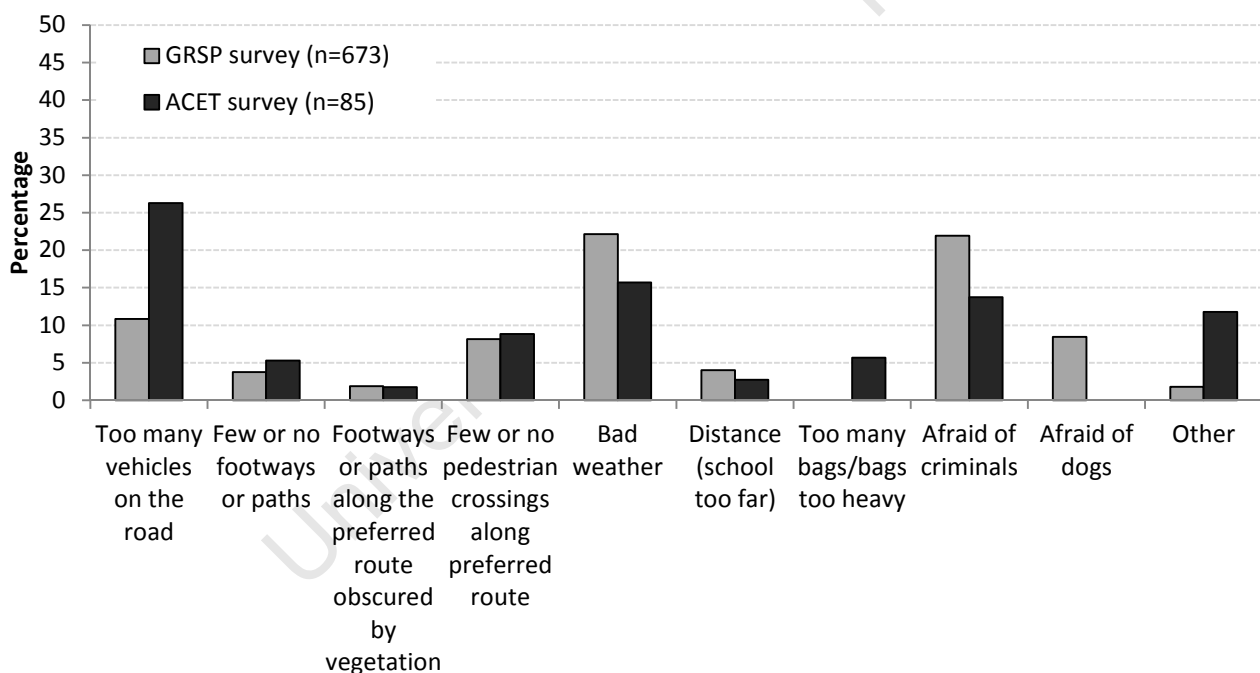
Figure 10 Most important reason cited by learners for not walking to and from school– Percentage (ACET/GRSP-ZA surveys, n=1,027)

The ACET and GRSP-ZA surveys asked children who used modes of travel other than walking the reasons for not walking. The majority of learners in Delft (GRSP-ZA survey) currently walk to school. However, among the few who do not walk to school – noting the high item non-response for this question in the survey – the most commonly cited barrier to walking was high traffic volumes, followed by distance and security concerns. In Rondebosch (ACET survey), in comparison, the majority of learners do not walk, and most of these respondents identified distance as the main reason for not walking, followed by fear of criminals and the number of bags (containing heavy extra-mural equipment) that need to be carried. In Rondebosch, the spatial separation between

school and home is therefore an important factor in school travel mode choice mirroring findings from elsewhere (e.g. Yarlagadda and Srinivasan, 2008; DiGuseppi, 2008). The most important reasons cited for not walking to school in the ACET and GRSP-ZA surveys are shown in Figure 10.

4.6.3 Problems encountered by learner pedestrians

The ACET and GRSP-ZA surveys also sought to gain insights into some of the problems faced by children while walking to and from school. Findings with respect to the most important problems encountered by learners while walking to and from school in the two neighbourhoods are shown in Figure 15. In Delft (GRSP-ZA survey), the main problems identified included fear of criminals, bad weather and road safety concerns due to high traffic volumes. In Rondebosch (ACET survey), road safety concerns associated with high traffic volumes, bad weather and security concerns were identified as the most important problems experienced.



Notes:

1. The question asked "Which of the following is the biggest problem that you encounter while walking to and from school? (Tick one)". Some respondents (268 in Delft and 16 in Rondebosch) selected more than one reason. In these cases responses have been weighted as a fraction of one, depending on the number of reasons selected.
2. Distributions do not add up to 100% in the chart as the item non-response category is omitted (17.1% in Delft schools and 8.2% in Rondebosch schools).

Figure 11 Most important problem encountered by learners who walk to and from school, by neighbourhood category-Percentage (ACET and GRSP-ZA surveys, n=758)

4.6.4 Child perception of neighbourhood safety

Tables 16 and 17 show child concerns about neighbourhood safety by age and gender.

Table 16 Percentage neighbourhood concerns by age and school neighbourhood categories (CIM survey, n=708)

		Traffic	Getting lost	Bullying	Strangers	Do not feel that I am old enough to go about on my own	Not knowing what to do if someone speaks to me	Other fears
Metropolitan high-income neighbourhood schools	7-10 years	27.8	50.8	37.5	63.3	34.4	38.6	11.3
	11-15 years	23.8	26.7	19.5	56.8	18.3	22.4	26.4
	Total	25.4	36.7	26.8	59.5	25.2	28.9	19.8
Metropolitan low income	7-10 years	46.5	48.6	45.8	46.1	43.7	39.7	53.5
	11-15 years	39.9	43.3	45.9	48.5	41.1	33.3	43.3
	Total	41.8	44.9	45.9	47.7	41.8	34.9	47.0
Small town	7-10 years	34.0	54.0	44.4	59.2	35.2	33.9	22.5
	11-15 years	32.3	43.0	31.0	66.7	15.5	26.2	29.3
	Total	32.9	46.7	35.7	64.2	22.5	28.9	26.7
Rural	7-10 years	60.0	52.0	44.0	72.0	48.0	44.0	8.0
	11-15 years	23.1	15.4	53.8	76.9	15.4	23.1	0.0
	Total	47.4	39.5	47.4	73.7	36.8	36.8	5.3

Table 17 Percentage neighbourhood concerns by gender and school neighbourhood category (CIM survey, n=708)

		Traffic	Getting lost	Bullying	Strangers	Do not feel that I am old enough to go about on my own	Not knowing what to do if someone speaks to me	Other fears
Metropolitan high-income neighbourhood schools	Female	28.0	48.1	31.6	67.1	29.5	31.6	25.3
	Male	22.7	21.7	20.0	51.4	19.1	24.6	14.1
	Total	25.5	36.0	26.2	59.6	24.7	28.3	20.0
Metropolitan low-income neighbourhood schools	Female	40.8	46.4	52.4	50.3	42.6	38.1	44.5
	Male	42.9	41.5	40.0	44.7	41.8	30.0	45.2
	Total	41.8	44.1	46.6	47.6	42.2	34.2	44.8
Small town schools	Female	32.5	54.2	40.2	72.3	27.5	26.4	35.8
	Male	32.4	37.0	32.1	52.8	18.4	31.2	16.7
	Total	32.5	46.2	36.3	63.2	23.1	28.7	27.0
Rural schools	Female	57.9	57.9	68.4	84.2	42.1	42.1	5.3
	Male	40.0	25.0	30.0	65.0	35.0	35.0	5.0
	Total	48.7	41.0	48.7	74.4	38.5	38.5	5.1

The CIM survey found that, of the four school neighbourhood categories, low-income city children felt most unsafe when travelling in their local neighbourhoods (41% vs. 22% and 11% for high income city and small town children respectively). Across all strata, it was found that there are age and gender differences in how safe children feel in their local neighbourhoods. Feeling unsafe declined with age amongst children in all neighbourhoods except metropolitan low-income. With respect to gender, 45% of low-income city girls felt unsafe compared to 35% of low-income city

boys. The equivalent comparison for high-income city girls and boys was 25% vs. 19% respectively. No gender difference was found amongst the small town children surveyed. These findings are reflected in reported independent mobility concerns. Fear of strangers was the dominant concern of high-income city children (60%, followed by getting lost [37%]), low-income city children (47%, followed by bullying [45%]), and small town children (64%, followed by getting lost [47%]), and rural children (74%, followed by bullying [49%]).

4.7 Summary

The survey findings presented in this chapter indicate that CIM and NMT use has declined in the higher-income neighbourhoods of Cape Town. Car use for school trips was high (ranging from 83-91% of trips). Furthermore, the intergenerational comparison of travel mode used by parents and by children show that most of the parents who now drive their children to school used NMT when they were in school. While the lower-income communities of Cape Town may not have experienced great shifts in school trip modal share, children from less-affluent households are particularly exposed to further problems, in the form of vulnerability to road crashes and crime while walking as shown by the findings on parent and child attitudes. An intervention that can simultaneously address the high rates of car use and the traffic safety and security concerns that were identified in the results is the 'walking bus'. The results on children's preferred travel mode also indicate the prospects of a NMT intervention were high. The next chapter looks at the second main aim of the ACET/GRSP-ZA surveys namely, to gauge parent interest in a non-motorised school travel initiative in the form of 'walking buses'.

CHAPTER FIVE: SCHOOL TRAVEL SURVEY FINDINGS

The results presented in Chapter 4 indicate that children in higher-income neighbourhoods have experienced a decline in CIM and there is in fact a desire for more independence. While children in the lower-income neighbourhood schools have more independence when walking to school, they walk while feeling unsafe. The ACET/GRSP-ZA surveys described in Chapter 3 had as one of their purposes, the goal of collecting data that could be used to develop, implement and monitor an intervention that could address these concerns. This chapter presents findings regarding this goal. The key findings are discussed at two levels. The first level which is much broader is in terms of insights on the willingness of parents to either allow their children to participate in ‘walking buses’ or volunteer themselves to supervise learner ‘walking bus’ groups and reasons for rejecting the ‘walking bus’ idea in the two neighbourhoods. The second level is much narrower since it concentrates on the ACET survey only and focuses on the extraction of data that could be used to set up actual ‘walking buses’ in Rondebosch.

5.1 Parent interest in Delft and Rondebosch

5.1.1 ‘Walking bus’ permission

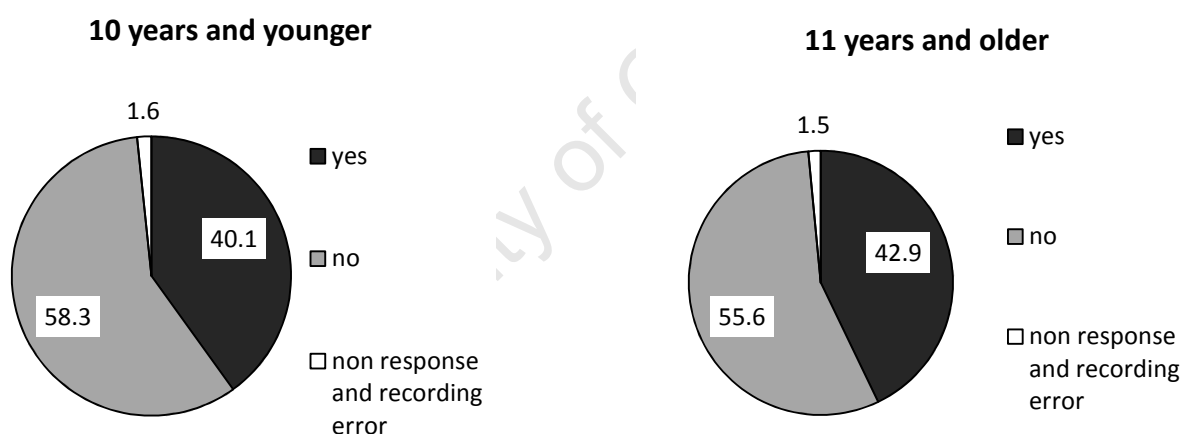
The ACET and GRSP-ZA surveys indicated positive interest in the concept of ‘walking buses’ among parents, both in terms of letting children join ‘walking buses’ and supervising those ‘buses’ (see Table 18). Parent interest in permitting children to join a ‘walking bus’ was found to be higher in Delft than in Rondebosch (51% vs. 41%). However, parent willingness to volunteer to supervise ‘walking buses’ among Delft schools was marginally lower when compared to Rondebosch schools (16% vs. 17%).

In the case of the Rondebosch schools (ACET survey), there was a decline in willingness from the feasibility survey in 2009 (in which parents were simply asked to state an ‘in principle’ response) to the implementation survey in 2010 (in which parents were asked to provide physical addresses and contact details when providing permission and volunteering) – from 53% to 41% for child permission, and 33% to 17% for parent volunteers. For comparative purposes, the 2009 ACET feasibility survey findings with regard to parent interest are also presented in Table 18.

Table 18 Parent permission for learner participation in, and parent willingness to supervise, ‘walking buses’, by school group (percentage)

		Yes	No	Non-response	Recording error	Total
GRSP-ZA survey (Delft) (n=709)	permit child to join walking bus	50.5	29.8	19.7	0.0	100
	volunteer to supervise walking bus	15.5	57.3	27.2	0.0	100
ACET survey (Rondebosch), 2010 (n=1,075)	permit child to join walking bus	41.1	57.3	1.4	0.2	100
	volunteer to supervise walking bus	17.2	77.2	5.6	0.0	100
ACET survey (Rondebosch), 2009 (n=1,494)	permit child to join walking bus	52.5	43.1	4.3	0.0	100
	volunteer to supervise walking bus	33.1	62.7	4.3	0.0	100

In terms of child characteristics, ‘walking bus’ permission in the ACET survey was marginally higher among older children than younger children (43% of children aged 11 years and older were allowed to join a ‘bus’ compared with 40% of children aged 10 years or younger). With regard to gender, more girls than boys were given permission in the ACET survey while in the GRSP-ZA survey more boys than girls were given permission. Figure 12 and Table 19 present findings on ‘walking bus’ permission by age and gender respectively.



Notes

- 1 Non-response and recording error to the question of child respondent's age in the ACET survey was 0.8%. This was excluded from the analysis.
- 2 GRSP-ZA data was not shown because the majority of children (98%) fell into one age category (10 years and younger). This was because the survey was conducted among children in grades 1-3 only.

Figure 12 ‘Walking bus’ permission by age category-Percentage (ACET survey, n=1,066)

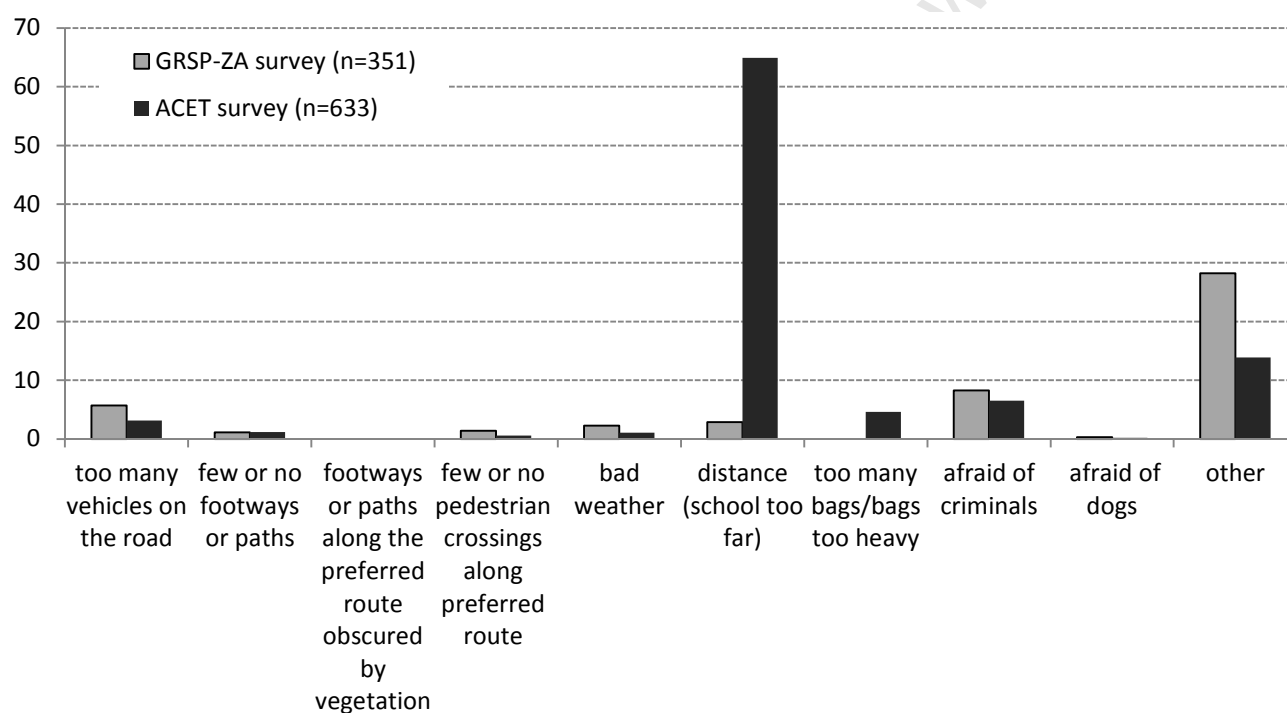
Table 19 'Walking bus' permission by child's gender and neighbourhood category- Percentage (ACET/GRSP-ZA surveys, n=1,770)

		Yes	No	Non response and recording error	Total
ACET survey	Male	39.4	58.8	1.8	100
	Female	48.5	51.0	0.5	100
	Total	41.1	57.3	1.6	100
GRSP-ZA survey	Male	52.5	29.4	18.2	100
	Female	49.5	30.1	20.4	100
	Total	50.8	29.8	19.4	100

Note

Recording error and non-response to the question of child respondent gender was 0% and 2% for the ACET and GRSP-ZA surveys respectively, and this was excluded from the analysis

5.1.2 Reasons for rejecting 'walking bus'



Notes:

1. The question asked "What is the main reason you are not willing to let your child use the walking bus? (Tick one)". Some respondents (68 in Rondebosch) selected more than one reason. In these cases responses have been weighted as a fraction of one, depending on the number of reasons selected.
2. Distributions do not add up to 100% in the chart as the item non-response category is omitted (49.9% in Delft schools and 3.7% in Rondebosch schools). The high item non-response rate for this question amongst the Delft schools renders these data unreliable.

Figure 13 Most important reason cited by parents for rejecting 'walking bus', by school group-Percentage (ACET/GRSP-ZA surveys, n=984)

Among the parents who were not interested in participating in 'walking buses' in Rondebosch, the main reason cited was distance (see Figure 13). This is likely to be because of the larger catchment areas served by Rondebosch schools, which results in a significant proportion of learners living

outside a maximum walking distance radius (in the region of 1.5 km). Further disaggregation by age showed that distance was more of an issue among the younger children (10 years and younger) compared to older children (11 years and older) as shown in Table 20. In Delft, security was cited as a major hindrance. The ‘other’ reason category was also important, and reasons cited by parents in this category included, *inter alia*: ‘my child is too old to use a ‘walking bus’; ‘car use is more convenient for me on my way to work/dropping off siblings at other schools’; and ‘other parent volunteers may not be reliable or suitable’.

Table 20 Percentage reasons for rejecting ‘walking bus’ by age category (ACET survey, n=613)

	Too many vehicles on the road	Few or no footways or paths	Footways or paths along the preferred route obscured by vegetation	Few or no pedestrian crossings along preferred route	Bad weather	Distance (school too far)	Too many bags/bags too heavy	Afraid of criminals	Afraid of dogs	Other	Non response and recording error	Total
10 years and younger	3.5	1.4	0.0	0.3	1.2	68.4	2.6	6.3	0.2	13.1	3.0	100
11 years and older	2.7	1.0	0.2	1.3	1.1	58.5	8.4	6.6	0.4	15.9	4.1	100
Total	3.2	1.3	0.1	0.7	1.1	64.9	4.7	6.4	0.3	14.1	3.4	100

Notes:

1. Non response and recording error to the age question among children whose parents were not willing to give permission to use ‘walking buses’ in the ACET survey was 3.2%. This was excluded from the analysis.
2. Data from the GRSP-ZA survey is not presented because only 2% of child respondents in that survey were in the 11-15 years age category. This was because the survey was conducted among children in grades 1-3 only.

Table 21 Percentage reasons for rejecting ‘walking bus’ by child’s gender and neighbourhood (ACET/GRSP-ZA surveys, n=960)

		Too many vehicles on the road	Few or no footways or paths	Footways or paths along the preferred route obscured by vegetation	Few or no pedestrian crossings along preferred route	Bad weather	Distance (school too far)	Too many bags/bags too heavy	Afraid of criminals	Afraid of dogs	Other	Non response and recording error	Total
Rondebosch (ACET survey, n=618)	Male	3.2	1.3	0.1	0.5	1.2	65.4	4.8	5.7	0.3	14.0	3.7	100
	Female	2.7	1.0	0.0	1.2	0.9	62.9	4.2	10.8	0.0	13.6	2.9	100
Delft (GRSP-ZA survey, n=342)	Male	5.6	1.4	0.0	0.0	2.8	3.5	0.0	10.4	0.7	26.4	49.3	100
	Female	6.1	1.0	0.0	2.5	2.0	2.5	0.0	6.6	0.0	29.8	49.5	100

5.2 Rondebosch ‘walking bus’ participant database development

5.2.1 Parent interest

Table 22 shows parent willingness to let children join a ‘walking bus’ across the participating Rondebosch schools. Interest ranged from 27% to 51% with interest being lowest at Diocesan College Pre-Preparatory School and highest at Oakhurst Girls Primary School.

Table 22 Parent willingness to let children join a walking bus by school across Rondebosch schools (ACET survey, n=1,075)

		Willing to let child join a ‘walking bus’	Not willing	Non response and recording error	Total
Diocesan College Preparatory School	Number of permissions	54	129	3	186
	%	29.0	69.4	1.6	100
Diocesan College Pre-Preparatory School	Number of permissions	25	65	2	92
	%	27.2	70.6	2.2	100
Micklefield Girls Primary School	Number of permissions	35	34	0	69
	%	50.7	49.3	0.0	100
Oakhurst Girls Primary School	Number of permissions	53	50	1	104
	%	50.9	48.1	1.0	100
Rondebosch Boys Preparatory School	Number of permissions	251	293	10	554
	%	45.3	52.9	1.8	100
ST Joseph’s Marist College Junior	Number of permissions	24	45	1	70
	%	34.3	64.3	1.4	100
Total	Number of permissions	442	616	17	1075
	%	41.1	57.3	1.6	100

Among the parents who expressed a willingness to let their children join a ‘walking bus’ in Rondebosch, 42% were willing to supervise a ‘walking bus’. The non-response category most likely means that such parents were not willing to let children join a ‘walking bus’. Parent interest in supervising ‘walking buses’, across all the participating Rondebosch schools is shown in Table 23. As with interest in letting children join a ‘walking bus’, the non-response category might be taken to mean that such parents were not willing to supervise ‘walking buses’.

Table 23 Parent willingness to volunteer to supervise a ‘walking bus’ across Rondebosch schools (ACET survey, n=442)

		Willing to volunteer	Not willing	Non response and recording error	Total
Diocesan College Preparatory School	Number of parents %	19 35.2	25 46.3	10 18.5	54 100
Diocesan College Pre-Preparatory School	Number of parents %	16 64.0	3 12.0	6 24	25 100
Micklefield Girls Primary School	Number of parents %	19 54.3	9 25.7	7 20	35 100
Oakhurst Girls Primary School	Number of parents %	24 45.3	24 45.3	5 9.4	53 100
Rondebosch Boys Preparatory School	Number of parents %	104 41.4	118 47.0	29 11.6	251 100
ST Joseph's Marist College Junior	Number of parents %	3 12.5	18 75	3 12.5	24 100
Total	Number of parents %	185 41.9	197 44.6	60 13.0	442 100

5.2.2 Adult volunteer to child ratios

Table 24 shows the number of parents who were available to supervise ‘walking buses’ and compares this to the number of children who were allowed to join a ‘walking bus’. Further interrogation of the data revealed that the list of potential participants across all schools in Rondebosch was actually smaller than the overall figures presented in Table 24. This is a result of various factors chief of which seems to be that in principle many parents were interested in the concept but when it came to providing details for the actual planning of the ‘buses’, some parents were not forthcoming with their contact details. Such respondents were then struck off from the list of participants. Another reason was that of duplication resulting from the fact that some parents had had more than one child. Such parents completed more than one questionnaire leading to double-counting of the number of available volunteers. In the survey, parents were asked to state whether or not there was another adult in the household who could be available to supervise the ‘walking buses’. The results for the ‘walking bus’ participants after removing duplications and cases of missing data, and adding the ‘other adult’ category are summarised in Table 25.

Table 24 Overall adult volunteer to child ratio at Rondebosch schools (ACET survey, n=442)

	Parent volunteer	Other adult volunteer	Total volunteers	Willing to let child join a WSB	Child to volunteer ratio
Diocesan College Preparatory school	19	1	20	54	3
Diocesan College Pre-Preparatory school	16	5	21	25	1
Micklefield Girls Primary school	19	3	22	35	2
Oakhurst Girls Primary school	24	4	28	53	2
Rondebosch Boys Preparatory school	104	15	119	251	2
ST Joseph's Marist College Junior	3	0	3	24	8
Total	185	28	213	442	2

Table 25 Adult volunteer to child ratio at Rondebosch schools (after removing duplicates and data with missing contact details) - ACET survey

	Number of participating learners	Total number of volunteers	Child to volunteer ratio
Diocesan College Preparatory school	17	11	2
Diocesan College Pre-Preparatory school	44	15	3
Micklefield Girls Primary school	28	21	1
Oakhurst Girls Primary school	49	27	2
Rondebosch Boys Preparatory school	227	109	2
ST Joseph's Marist College Junior	21	3	7
Total	386	186	2

5.3 Summary

The results presented in section indicated that 'walking buses' could be a viable intervention in the two neighbourhoods of Delft and Rondebosch. It was found that 51% and 41% of parents were willing to permit their children to participate in a 'walking bus', while 16% and 17% of parents were willing to volunteer to supervise 'walking buses' in Delft and Rondebosch respectively. The results in Rondebosch reflect the limitation of stated preference type responses and a gap between stated intention and preparedness for action. The results showed a decline in willingness from the feasibility survey in 2009 (in which parents were simply asked to state an 'in principle' response) to the implementation survey in 2010 (in which parents were asked to provide physical addresses and contact details when providing permission and volunteering) – from 53% to 41% for child permission, and 33% to 17% for parent volunteers. However, levels of interest were still sufficiently high enough to make 'walking buses' a viable intervention. 'Walking buses' were subsequently trialled and implemented in both neighbourhoods as described in section 3.4. The Rondebosch

walking buses' were then evaluated eight to nine months after their launch. The findings from that evaluation are discussed in the next chapter.

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CHAPTER SIX: 'WALKING BUS' FINDINGS

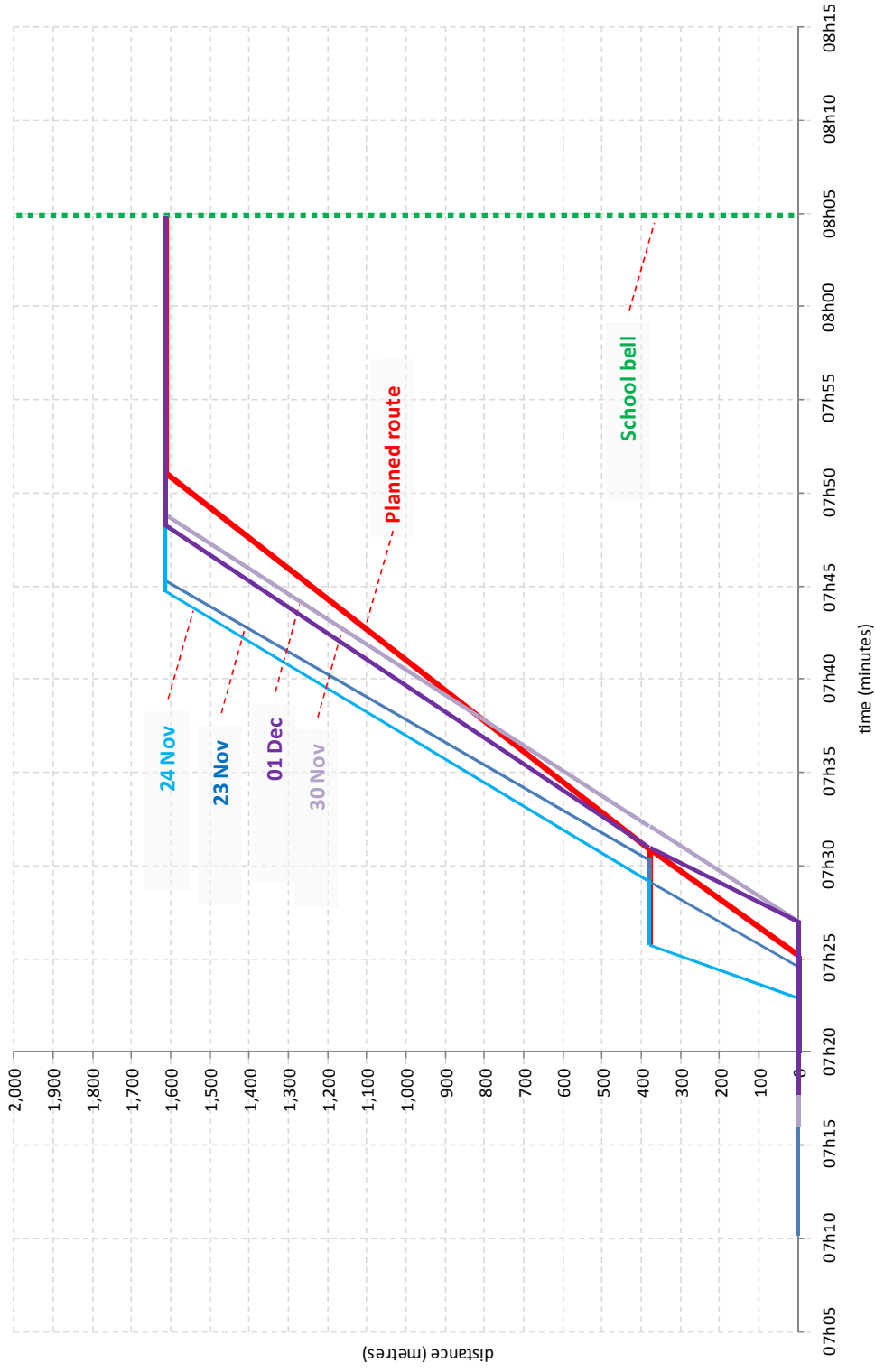
This chapter presents the findings from the trial runs and evaluation of the Rondebosch 'walking buses'. The discussion on the evaluation findings is preceded by a discussion of the findings from the trial runs that were conducted over four days between November and December 2010. Key findings from the evaluation interviews among children (n=16) and parents (n=14) are then discussed in terms of learner travel behaviour prior to, and after, the setting up of 'walking buses', and insights into the impacts of 'walking buses'. The chapter is divided into three sections. Section 6.1 discusses the trial run results. In section 6.2, the results from the qualitative evaluation interviews are presented. The chapter concludes with a summary of findings in section 6.3.

6.1 Trial run results

A total of 23, 36, 31 and 28 learners used the 'buses' on the first, second, third and fourth days of the trial runs respectively. There was, however, significant 'churning' with some participants dropping off and being replaced by new participants. Interestingly the number of parents volunteering to supervise the 'buses' during the trials considerably exceeded minimum requirements (specified as a maximum ratio of one adult to 10 learners). In addition to supervising the 'buses', the parent volunteers played an active role in route improvement by identifying sections of the routes that required cleaning or re-alignment. For instance, Rondebosch Boys Preparatory School Route 2 was re-aligned based on parent recommendations.

The results suggested that although the route lengths in this study were longer than the recommended 1.5 km found in literature, children could walk these distances and there were no complaints of the distance being excessive from both child and parent participants. The trial runs highlighted the importance of introducing 'walking buses' that cater for learners from different schools in the neighbourhood, because some parents had children at different schools. In terms of child walking speed, the trial runs showed that the average child walking speed is 1m/sec. The results from the trial runs were entered into a table (see Appendix 3C). The results on walking speed are shown in figures 14 to 17 while some photographs taken during the trial runs are shown in Figure 18.

Distance (m) 1,600
 Planned speed (m/s) 1.00
 Actual speed (23 Nov) (m/s) 1.33
 Actual speed (24 Nov) (m/s) 1.21
 Actual speed (30 Nov) (m/s) 1.11
 Actual speed (01 Dec) (m/s) 1.16
 Actual mean speed (m/s) 1.20
 Difference (planned vs. actual mean) (m/s) 0.20



Note. Figures 14-17 were plotted using the data presented in Appendix 3C. Actual walking speed for each route was timed and later plotted against assumed (planned) time

Figure 14 Rondebosch Boy Preparatory School trial run walking time (Route 1 AM)

Distance (m) 1,900
 Planned speed (m/s) 1.00
 Actual speed (23 Nov) (m/s) 0.96
 Actual speed (24 Nov) (m/s) 0.99
 Actual mean speed (m/s) 0.98
 Difference (planned vs. actual mean) (m/s) -0.03

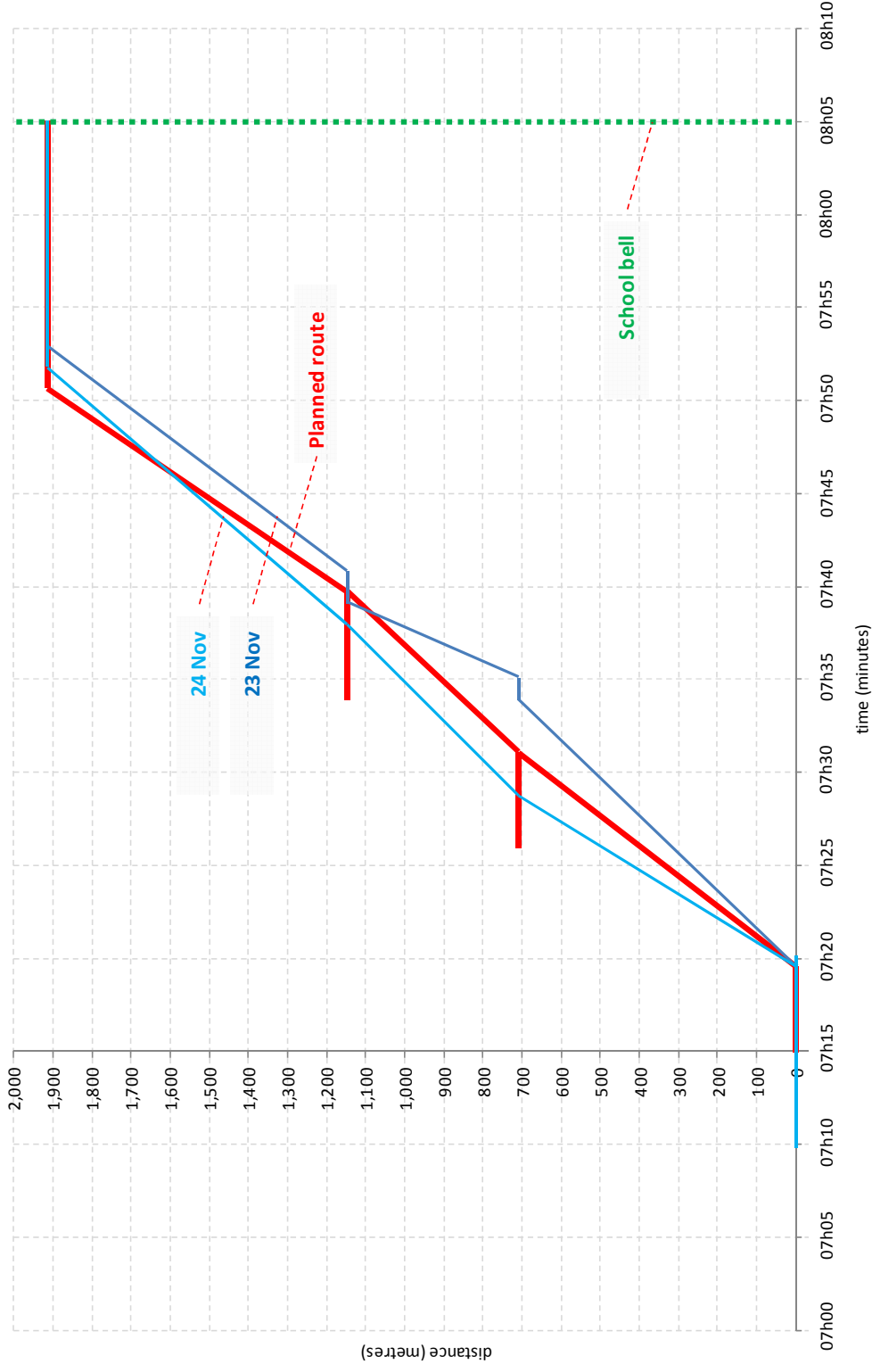


Figure 15 Rondebosch Boy Preparatory School trial run walking time (Route 2 AM)

Distance (m)	1,750
Planned speed (m/s)	1.00
Actual speed (30 Nov) (m/s)	1.04
Actual speed (01 Dec) (m/s)	1.04
Actual mean speed (m/s)	1.04
Difference (planned vs. actual mean) (m/s)	0.04

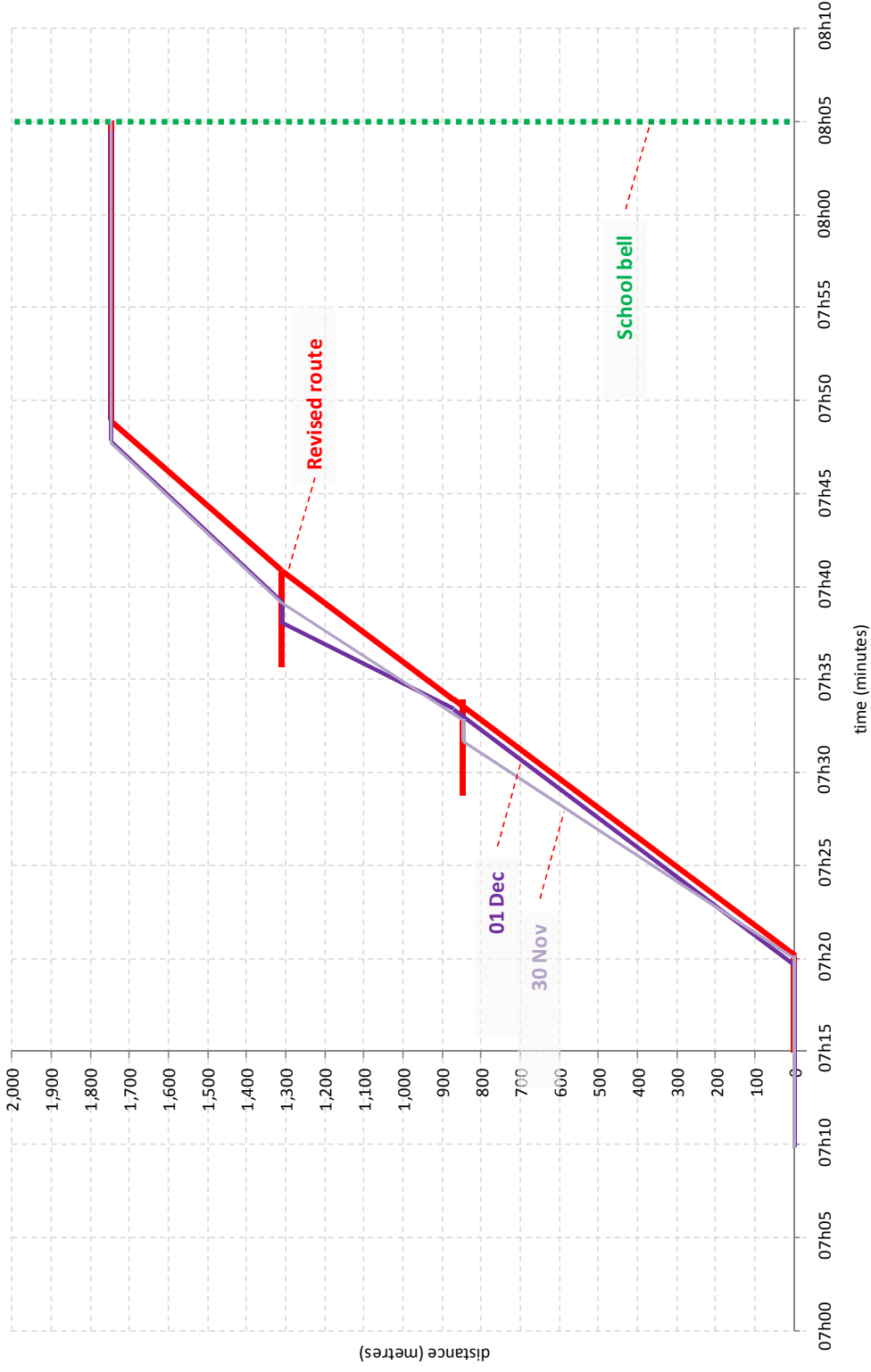


Figure 16 Rondebosch Boy Preparatory School trial run walking time Route 2 AM (realigned route)

Distance (m) 1,250
 Planned speed (m/s) 1.00
 Actual speed (23 Nov) (m/s) 1.04
 Actual speed (24 Nov) (m/s) 1.30
 Actual speed (30 Nov) (m/s) 1.23

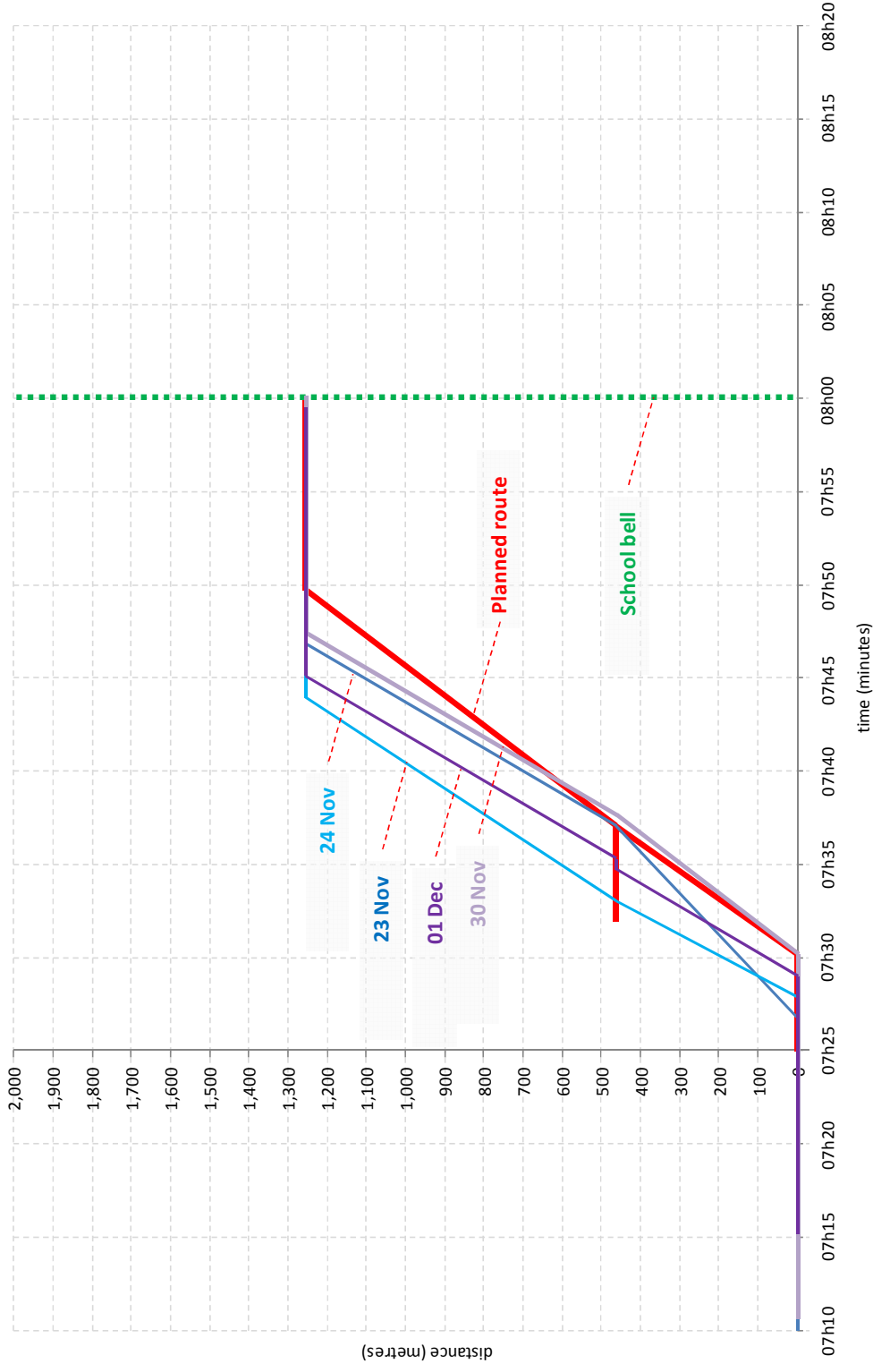


Figure 17 Oakhurst Girls Primary School trial run walking time (Route 1 AM)

Rondebosch Boy Preparatory School Route 1 AM



Rondebosch Boy Preparatory School Route 2 AM



Oakhurst Girls Primary School Route 1 AM



Figure 18 Rondebosch schools ‘walking bus’ trial run photographs

6.2 ‘Walking bus’ evaluation findings

As described in section 3.4.2, after the trial runs, the ‘walking buses’ in Rondebosch were launched in April 2011. The impacts of the buses were then evaluated eight to nine months after their establishment using qualitative interviews. Key findings of the qualitative interviews are discussed in terms of: learner travel behaviour prior to, and after, the setting up of ‘walking buses’; reasons for discontinuing the respective ‘walking buses’; and insights gained into the impacts of ‘walking buses’ from both child and parental perspectives. Matters related to mode use, reasons for stopping using ‘walking buses’ and experiences while using the ‘walking bus’ are highlighted using selected quotations.

6.2.1 Mode use to school

Despite the small quantitative nature of the sample, the results do indicate that ‘walking buses’ have the potential to generate transport system benefits in terms of influencing mode choice change (see Table 26). Of the 12 parents who indicated that prior to the ‘walking bus’ initiative they chauffeured their children to school every day by car, seven (58%) reported that they walk with their children to school at least once a week at the time of the interview. A further parent (parent respondent 13) indicated that her son was only using a lift club because the ‘walking bus’ had ceased to operate, and that her child would have continued walking if the ‘bus’ had continued. As a corollary, nine (75%) out of the 12 parent respondents were willing to let their children use a ‘walking bus’ if the service was resumed. The role of the ‘walking bus’ in behaviour change was described by one parent respondent, who stated:

Parent respondent 10 [mother of a 10 year old boy in grade 4]: *“Prior to the introduction of the walking bus, it had never occurred to me that walking to school could be an option ...”*

6.2.2 Reasons for stopping participation in the ‘walking bus’

Several reasons were cited by parents for stopping participation in the ‘walking bus’, with four (29%) out of the 14 parents saying it was difficult to walk in winter. It seems the problem with winter was not weather *per se*, although this is likely to have played some role. Instead it was reported that it was too dark to walk in the mornings to feel safe or be seen clearly by vehicle drivers, as illustrated by the following:

Parent respondent 2 [mother of an 8 year old boy in grade 3]: *“We stopped when winter set in. Not so much because of adverse weather but because in winter, it was still too dark around 07h15 when we were supposed to start walking. We hoped to start again in summer. However, the bus is no longer operating so we walk alone on certain days.”*

Another reason centred on parent volunteers. One parent said their ‘bus’ was too small and had too few reliable parent volunteers, resulting in her walking the children to school every day when the bus operated as she was the only volunteer. Although parent respondent 12 cited distance to school as too far as the main reason for discontinuation, it seems her decision to stop also arose from her frustration with the lack of co-operation from her fellow volunteers, as illustrated by her response to the question on the impacts of the ‘walking bus’ on parents:

Parent respondent 12 [mother of a 10 year old boy and a 13 year old girl in grade 7 and 4 respectively]: *“It (walking bus) enabled me to meet with other parents. However, at times I felt that other parents were not playing their part. I ended up supervising the bus even on days when it wasn't my turn to do so. I would get to the bus stop only to find that the parent on the roster was not there to collect the children. In such cases I was forced to walk with the children to school.”*

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Table 26 Mode use to school before and after the introduction of ‘walking buses’, and willingness to continue using ‘walking buses’

Parent respondent	Parent's Gender	Volunteer or Consent-giver	Child mode use before WSB	Current mode use	Willingness to let child continue using WSB	Child respondent	Child's gender	Child willingness to continue using WSB
1	Female	Both	Walking	Walking	No	1	Girl	Yes.
2	Female	Both	Car (lift club)	Walking 2 mornings per week and lift club other days	Yes	2	Boy	Yes
3	Female	Both	Car	Walking	Yes	3	Boy	Yes
4	Female	Both	Car	Walking	Yes.	4a	Girl	Yes
5	Male	Consent giver	Car	Walking	Yes	4b	Girl	Yes
6	Female	Both	Car	Car	No	5	Boy	Yes
7	Female	Both	Walking	Walking	No	Child not available	--	--
8	Female	Both	Car	Car	No	Child not available	--	--
9	Male	Both	Car	Walking once a week	Yes	7	Girl	Yes
10	Female	Both	Car	Walking once a week	Yes	8a	Boy	Yes
11	Male	Both	Car (Lift club)	Walking/cycling once a week and car on other days	Yes (once/twice per week)	8b	Boy	No
12	Female	Both	Car (Lift club)	Walking/cycling once a week and car on other days	Yes (once/twice per week)	Child not available	--	--
13	Female	Both	Car (Lift club)	Car (Lift club)	No	10	Boy	Yes
14	Female	Both	Car	Walking once a week and car on other days	Yes	11a	Boy	Yes
						11b	Boy	Yes
						12a	Girl	Yes
						12b	Boy	Yes
						13	Boy	Yes
						14	Boy	Yes

Notes:

1. Parent 3 was only willing to be part of the ‘walking bus’ on the condition that more people join in as the bus she was part of was too small and she ended up supervising the bus on most days
2. In some cases, two children were interviewed at a household. Such children are designated ‘a’ and ‘b’
3. In all cases except two, parents were interviewed together with their children

6.2.3 Impacts of ‘walking buses’

The impacts of the ‘walking buses’ are discussed from both child and parental perspectives.

6.2.3.1 Impacts on children

Both parents and children appeared to think that the ‘walking buses’ had a positive impact on children. The majority of children who were interviewed seem to have enjoyed their experiences with the ‘buses’. While some of the parents were no longer interested in the ‘walking bus’, all the children with the exception of one were willing to use it again. The positive impacts identified were that it was fun and helped them to get some physical exercise, as illustrated by the following:

Child respondent 1 [7 year old girl in grade 2]: *“It helps you to get energy out. At times you wake up with lots of energy and you can get that energy out while walking to school.”*

Child respondent 2 [8 year old boy in grade 3]: *“The walking bus keeps you fit and it is a lot of fun.”*

Child respondent 8a [10 year old boy in grade 4]: *“I liked it because we could take the dogs with us on the walking bus.”*

Parent’s views on the impacts on children were also largely positive and these also centred on it being fun and allowing children to exercise, as shown by the following responses:

Parent respondent 4 [mother of 10 and 8 year old girls in grade 5 and 2 respectively]: *“The exercise is brilliant for the children as they have very little time to exercise during the day.”*

Parent respondent 7 [mother of 13 year old girl in grade 7]: *“While we have always walked alone, she found it fun walking in a group.”*

Parent respondent 9 [father of a 10 year old boy in grade 5]: *“It is a way for him to get energy out and meet with other children. However, the bags are a problem considering the distance to school. This might not be an issue if trolleys were introduced to make it easier for the children to walk.”*

Besides being fun and a form of exercise, other parents felt the benefits were more to do with preparing children to move around independently, as illustrated by the following responses:

Parent respondent 6 [mother of 10 year old boys in grade 4]: *“It is empowering for the children. They can now walk from school alone if I am unable to pick them up. Before the bus, this is something I would have never let them do.”*

Parent respondent 8 [mother of 10 and 8 year old boys in grade 4 and 2 respectively]: *“My children now know how to get home on their own. They use the walking bus route to travel home on their own on some days.”*

Two (14%) of the parents felt that the ‘walking bus’ had had no impact on their children. In the case of one parent (parent respondent 1), this was because the child had been walking to school before the ‘walking bus’ initiative started. In the case of the other parent (parent respondent 5), this was because the child used the ‘walking bus’ for a very short period of time (one month and only on Fridays when he did not have to carry sports equipment).

6.2.3.2 Impacts on parents

The impacts reported by parents on themselves were mostly positive, and centred around the ‘walking bus’ helping to build a sense of community and allowing parents to know each other. This is reflected in the following response:

Parent respondent 3 [mother of an 11 year old boy in grade 5]: *“It has allowed me to get to know parents I may never have got to know. I used to see some of the parents taking their children to school but we did not know each other. Now we know each other and we stop to chat when we meet...”*

However, there were also some negative impacts which centred on the loss of family time, inflexible schedule and lack of cooperation from other parents, as reflected by the following responses:

Parent respondent 1 [mother of a 7 year old girl in grade 2]: *“The bus schedule was too inflexible and was impacting on family time. Therefore I would rather walk alone with my child to school.”*

Parent respondent 5 [father of a 10 year old boy in grade 5]: *“I prefer to drive my son to school as this gives us time to bond with each other.”*

Parent respondent 12 [mother of a 13 year old boy and a 10 year old girl in grade 7 and 4 respectively]: *“... at times I felt that other parents were not playing their part. I ended up supervising the bus even on days when it wasn't my turn to do so. I would get at the bus stop and find that the parent on the roster was not there to collect the children. In such cases I was forced to walk with the children to school.”*

6.3 Summary

This chapter focused on the findings from the trial run and evaluation of ‘walking buses’ demonstrated at two schools in Rondebosch. The findings presented in this chapter suggest that while scheduled ‘walking buses’ may be established with considerable levels of support and enthusiasm from parents and schools, they are difficult to sustain over the longer term. The ‘after’ qualitative interviews indicated that both parents and learners found the ‘walking bus’ experience beneficial, but that the organisational burden of an inflexible, scheduled system was too great. Despite not enduring over the long term, the ‘walking buses’ did however result in some longer term behavioural changes. The majority of participants interviewed in the ‘after’ survey, continued to walk to school independently, whereas previously they were driven to school by car. A discussion on the implications of these findings for municipalities and schools wishing to promote greater use of walking, and recommendations on how ‘walking buses’ might be made more sustainable are provided in the next chapter.

CHAPTER SEVEN: DISCUSSION AND CONCLUSION

This dissertation set out to explore how independently mobile children are in the context of Cape Town and selected towns and rural settlements within its hinterland, how this independent mobility varies across population and space, how it has changed over time. It also aimed to assess the prospects of greater NMT use among children for school trips, demonstrate a school travel NMT initiative and evaluate the impacts of such an initiative. The implications of the results presented in the dissertation are discussed in terms the tension between ‘walking buses’ and CIM, and implications of ‘walking bus’ demonstration findings for local authorities and school wishing to promote greater walking for school travel.

7.1 Are ‘walking buses’ incompatible with CIM within the local context?

With regards to independent mobility, the directions of the findings of the research are perhaps largely intuitive and unsurprising. Of greater interest is the magnitude of the variation and heterogeneity observed, which reflects the inequalities of contemporary South African society and the dualistic nature of the transport systems that operate within South African settlements.

The results presented suggest that children in the higher-income neighbourhoods have experienced a decline in independent mobility. The results also suggest that while children in the lower-income neighbourhoods have higher independent mobility, they feel unsafe while travelling alone. As discussed in section 2.2.2.1, ‘walking buses’ have been criticised as simply replacing one form of adult accompaniment over another (see for example Kearns et al, 2003 and Hillman, 2006). It can therefore be argued that children using a ‘walking bus’ are not independently mobile in the strict sense of the term.

Despite this apparent tension, ‘walking buses’ seem to be an appropriate intervention in both the lower- and higher-income neighbourhoods of Cape Town, reducing child independence in the former and acting as a first step in regaining it in the latter. With regard to the former, in the light of the vulnerability of child pedestrians to road crashes and molestation (as presented in the literature review) and the high feelings of being unsafe expressed by children in the surveys (for instance it was found that the proportion of lower-income city children travelling to school alone or with other children of the same age (90%) was considerably greater than the proportion of low-income city

children who felt safe when travelling alone in their local neighbourhood (55% in the case of girls and 65% in the case of boys), arguably greater adult accompaniment and less independence is required. With regard to the higher-income neighbourhoods, 'walking buses' may represent a necessary first step towards regaining child independence. In such communities, perceptions of risk may have been inflated and parents have arguably become overly risk averse. A working hypothesis requiring future research is that it is unlikely that parents in wealthier communities will permit greater CIM without first reintroducing a culture of walking and satisfying their concerns with respect to the ability of their children to negotiate neighbourhood street networks safely. Some of the selected quotations from the evaluations of 'walking buses' in Rondebosch in Chapter 6 certainly point to 'walking buses' as providing the preconditions of increased CIM by empowering children and giving them the confidence to walk independently.

7.2 'Walking bus' demonstration and policy implications

As discussed in the previous section, a mitigating action appropriate to both socio-economic contexts i.e. low-income and high-income neighbourhoods, may be voluntary 'walking buses', which increase adult accompaniment and decrease child independence in the former, and represent a necessary first step towards regaining child independence in the latter. 'Walking buses' were therefore demonstrated in a low-income neighbourhood (Delft) and a high-income neighbourhood (Rondebosch). The Rondebosch project was evaluated eight to nine months after being set up. The aims of this evaluation were to assess the impacts of the 'walking bus' initiative in participating schools, and to explore possible improvements in the establishment of 'walking buses' in future initiatives.

With regard to the setting up of 'walking buses' the survey results reflect the limitation of stated preference type responses and a gap between stated intention and preparedness for action. The caveat in setting up 'walking buses' is that significant interest expressed in surveys may not necessarily result in the successful and sustained implementation of NMT initiatives. For instance, in the case of the Rondebosch schools, there was decline in willingness from the feasibility survey in 2009 (in which parents were simply asked to state an 'in principle' response) to the implementation survey in 2010 (in which parents were asked to provide physical addresses and contact details when providing permission and volunteering) – from 53% to 41% for child permission, and 33% to 17% for parent volunteers.

With regard to the impacts of the initiative, the ‘after’ qualitative interviews conducted in Rondebosch indicated that both parents and learners found the ‘walking bus’ experience on the whole beneficial, but that the organisational burden of an inflexible, scheduled system was too great. Despite failing to endure over the long term, the ‘walking buses’ did result in widespread longer term behavioural changes. The majority of participants interviewed in the ‘after’ survey, continued to walk to school independently, at least once a week, whereas previously they were solely driven to school by car. Thus it would appear, that in some instances at least, the ‘walking buses’ served as an intermediate step between car dependence and walking to school. The extent to which these findings are similar to those of ‘walking bus’ evaluation studies conducted elsewhere is difficult to gauge as the various studies identified in the literature review were not focussed on what occurred after ‘walking buses’ ceased to operate.

With regard to possible improvements in future ‘walking bus’ initiatives, the results presented in this dissertation demonstrate that while scheduled ‘walking buses’ may be established with considerable levels of support and enthusiasm from parents and schools, they are difficult to sustain over the longer term. One of the key lessons from the research experience was that the institutional arrangements surrounding ‘walking buses’, and the degree of proactive support provided by the school and the local municipality, are just as important as the technical questions around setting up the ‘walking buses’ and optimising routes and schedules. In retrospect, insufficient attention was given to establishing these institutional arrangements. In terms of longevity, the Rondebosch ‘walking buses’ were as a result short lived (less than six months). While perhaps briefer than most, this short life-span mirrors findings from previous evaluations elsewhere. For instance, in Christchurch (New Zealand), Kingham and Ussher, (2005) found that 26 out of 56 routes that started operating in September 2000 (at the start of the initiative) had ceased operating by mid-2003 (at the time of the study). Similarly, in the United Kingdom, Mackett et al (2004) reported that 12 out of the 26 ‘buses’ included in their study in Hertfordshire County which began in January 2002, had ceased operating by the time of their evaluation survey in May 2002. In Australia, Ross and Butera (2004) also reported of a proportion of schools (no specific figure was given) dropping out within a year of the ‘walking bus’ programme initiation. This suggests that while ‘walking bus’ programmes supported by local authorities may last for several years, individual ‘walking bus’ routes tend to have much shorter life-spans.

The implication for local municipalities interested in promoting NMT initiatives for school travel is that they should be directly involved in such initiatives in the following key areas: promoting the adoption of initiatives at schools; risk assessment of routes and making any necessary engineering

improvements; providing funds to cover costs (e.g. acquiring trolleys for school bags, and reflective vests and training volunteers); and actively supporting the initiative after set up by promoting it and providing on-going incentives.

Scrutiny of the experience of 'walking bus' programmes that have endured over a prolonged period in other countries reveals that local authorities were or are heavily involved in the process. For example, according to Collins and Kearns (2005), in Auckland (New Zealand) the initial impetus for 'walking buses' largely came from City Council Road Safety coordinators who provided both the initial ideas and on-going advice (through sample letters and survey material sent to parents, and convening on-going parent meetings where the initiative was sold to parents). The Auckland Local Council then conducted an assessment of every new 'walking bus' route in order to identify any infrastructure improvements needed to improve child safety (Kingham and Ussher, 2005). In terms of funding, a regional government body called the Auckland Regional Transport Authority (ARTA), offered start-up grants of up to NZD1, 500 per route and NZD200 operating grants to cover costs (Collins and Kearns, 2010). The grant is used to provide on-going incentives and reward children who participate in the 'walking buses' (by providing 'walking bus' tickets to participating children which earn a child points towards a personal reward or school house points). ARTA is also involved in the design and analysis of 'walking bus' assessment surveys conducted at the end of each school year. These surveys are aimed at understanding the changes, successes and challenges in the adoption of the initiative in Auckland. Many of the 'walking buses' in Christchurch (New Zealand) were also set up by the local authority: the Christchurch City Council (Kingham and Ussher, 2005). In the United Kingdom, local authorities are also involved in the setting up of 'walking buses'. For instance, a 2001 survey conducted for the Department of Transport reported in Mackett et al (2003) revealed that 50 out of 102 local authorities surveyed had implemented one or more 'walking buses' and a further 31 planned to do so. Key to the success of any such initiatives has been dedicated municipal staff whose responsibility is to drive the initiative. Such personnel are involved in diffusing the idea to schools and providing planning and implementation support. However, while local authority involvement is crucial, Ross and Butera (2004) cautioned against making this too formal and contend that this might work against the idea as it might end up appearing as if the local authorities are imposing the initiative on schools. The following quote from a council official in Victoria (Australia) supports Ross and Butera (2004)'s caution:

“they [school council] had their group dynamics, and we [the group from the council], were trying to enter their group dynamic, all of a sudden trying to present [information about the

program]. They said, yes thank you very much, we will take it on board. And then nothing happened' (City official cited in Ross and Butera, 2004: 11)

Provincial and local authorities can also be involved in two other areas namely volunteer recruitment and providing insurance cover. With regard to volunteer recruitment two approaches were used in the demonstration of 'walking buses' in Cape Town: namely parent volunteers and independent volunteers from a volunteer organisation. In Delft, although parent volunteers were recruited during the surveys, they were ultimately not used to supervise the 'buses'. Instead, volunteers from Red Cross (South Africa) were recruited. On the other hand, parent volunteers were used in Rondebosch. As a result of the short-lifespan of the 'buses' in the two neighbourhoods, it is difficult to say which system works better than the other. For Ross and Butera (2004), using parents has several benefits chief of which is the fact that parents are known to other parents, school staff and the children, and therefore represent a "safe" type of volunteer. A third approach that is worth considering, that came out during the course of informal discussions between the author and officials from the Provincial Government of Western Cape's Department of Community Safety was to use the Safe Schools volunteers at each school to escort children to school since they go to work at the same time as children go to school. Such volunteers would then be paid using funds from the Expanded Public Works Programme (EPWP). This approach of using council or school employees was also reported in Ross and Butera (2004). With regard to insurance, the Road Accident Fund covers all forms of road crashes. As a result, local authorities could use this instead of creating a specialised insurance fund to cover 'walking buses'.

For local schools interested in promoting NMT initiatives for school travel, the implications are that they should also be more involved. While the international literature suggests that schools are typically not directly involved in the day-to-day running of 'walking buses' (Collins and Kearns, 2003; Mackett et al, 2003; Kingham and Ussher, 2005), they can help significantly in setting them up and sustaining them. In the United Kingdom for instance, many schools are involved in the setting up of 'walking buses' as a result of their 'school travel plan' (Mackett et al 2003). Involvement of the school can take the form of on-going promotion in their newsletters and parents meetings, and through the facilitation of on-going recruitment of parent volunteers and of the establishment and maintenance of parent organising committees.

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APPENDICES

Appendix 1: ACET (and GRSP-ZA) survey instruments

University of Cape Town

Appendix Removed Due to Visible Signatures

University of Cape Town

Appendix 1B: Covering letter to parents/guardians for ACET survey



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



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21 July 2010

Dear parent/Guardian

In an effort to reduce traffic congestion leading to schools, and to promote more sustainable and healthier ways of travelling to school, a research project is underway to establish and monitor 'walking buses' at participating schools in the Rondebosch area. The research project is being conducted with the support of school principals, the City of Cape Town, and the Rondebosch Community Improvement District.

The project follows the encouraging findings of a feasibility study carried out in 2009, which you may have participated in. This study found that 50% of responding parents in the nine participating schools (living within 1,000 m of the school) indicated an, in principle, willingness to supervise learner walking groups to school, and 40% from school. The survey also indicated that 70% of the same group of parents were willing to allow their children to walk under the supervision of another parent.

Please find attached:

- a letter of support from Councillor Owen Kinahan;
- a description of a so-called 'walking bus'; and
- the questionnaire we are requesting that you complete and return to the school.

We would be most grateful if you would take the time to read the attached information and participate in the survey.

Yours faithfully

Signed by candidate

A/Prof Roger Behrens
Director: Centre for Transport Studies

Appendix 1C: Supporting letter from local councilor (ACET survey)

PROTEA SUBCOUNCIL (SUBCOUNCIL 20)

City of Cape Town
Alphen Centre
Main Road
CONSTANTIA 7806

Isixeko Sasekapa
Alphen Centre
Main Road
CONSTANTIA 7806

Stad Kaapstad
Alphen Sentrum
Hoofweg
CONSTANTIA 7806

Chairperson: Councillor Owen Kinahan

Tel: 021 794 2493 Fax: 021 794 7692 / 086 5760693 Cell: 083 2617484
E-Mail: owen.kinahan@capetown.gov.za

Protea Subcouncil incorporates wards, 58, 59, 62 and 73: Bergvliet, Bishopscourt, Claremont, Constantia, Harfield Village, Heathfield, Kenilworth, Meadowridge, Mowbray, Newlands, Plumstead, Rondebosch, Rosebank, Wynberg

St Patrick's Day - 2010-03-17

Dear School Principals

NON MOTORISED TRANSPORT PROJECT FOR RONDEBOSCH SCHOOLS

Firstly, may I say that I am very impressed by your enthusiastic response to the survey carried out late last year by the Centre for Transport Studies (CfTS) at UCT ? Thank you all so much for your warm support for this important initiative to address safer and more effective access to our local schools. Parents, teachers, zealous members of the cycling community and officials in various departments of the Cape Town City Council are also enthusiastically on board.

Valuable information was gathered by the survey. CfTS will now commence demonstration projects which I urge you to support in the same generous way. A more elaborate learner and parent survey will be carried out to better understand school travel behaviour and where there is sufficient support, schools will be asked to collaborate in introducing "walking busses". This is only one of the alternatives to our present experience of gridlock and low quality interaction with the local environment. I am confident it will quickly catch on and provide a proud template for Cape Town.

In recent weeks, The City Council has carried out an extensive audit of the 25 year old bicycle demonstration project. Lines have been repainted, new signs erected, kerbs repaired and last week the approaches to Belmont, Silwood and Erin Road subways were cleared of vegetation and years of vagrant detritus at a cost of R24 000. I am about to contract ADT to lock and unlock the subways to prevent them from becoming dormitories and havens of petty crime. They will again become safe and clean routes for local pedestrians and cyclists.

There is a further exciting initiative in its very early stages to explore the possibility of a school bus shuttle. We will be exploring this with you all too.

Please continue to support the research and demonstration projects of CfTS. I think there are exciting and significant advantages for our community.

Yours sincerely

COUNCILLOR OWEN KINAHAN

This document may be submitted electronically without signature

Rondebosch Schools Non-motorised Transport Initiative



Walking buses

What is a walking school bus?

A 'walking bus' is a group of children who walk to school along a set route escorted by two adult volunteers, one of whom leads (the 'driver') and the other follows (the 'conductor'). The adult volunteers are usually parents of children in the walking bus. They supervise the walking bus on a rostered basis. The ratio of adults to children is usually 1:8, so the walking bus contains around 16 children. Typically walking bus routes are 1,000-1,500 m long. The idea was first put into practice by the Hertfordshire County Council (in the United Kingdom) in the late 1990s, and it has since become popular in many parts of Asia, Australasia, Europe and North America.

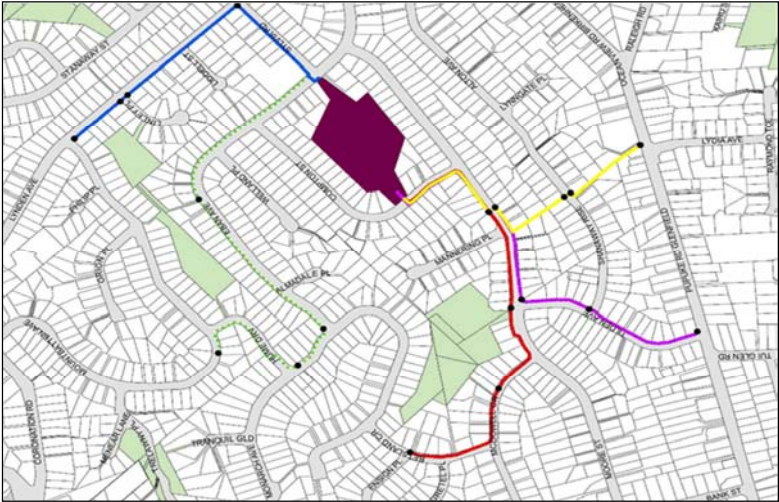
Some walking buses pick up children from outside their houses, while others have designated stops and schedules for children to join the bus along its route to school. The process, led by the same or different parents, is reversed for the return journey. Children in the walking bus usually wear reflective sashes or vests to ensure that they are visible to motorists while walking, thereby enhancing their safety on the road. To make walking easier, especially for younger children, children's bags are sometimes put in a trolley pushed by one of the adult volunteers. Walking buses are most commonly used by children in junior school, who have not yet developed the necessary road safety skills to walk without adult supervision. The service is free and every child is welcome to join even if their parents are not able to participate.

Why introduce walking buses?

The number of children being driven to school in the Southern Suburbs of Cape Town has increased dramatically over the last 30 years, with an associated decline in the numbers travelling by foot and bicycle. A survey conducted in 1976 found that amongst middle- and high-income households, 49% of trips to school were on foot or by bicycle, 13% were by train or bus, and 38% were by car. A survey of Rondebosch schools in 2009 found that trips to school by foot or bicycle have declined to 8% (7% on foot and 1% by bicycle), trips by public transport have declined to 3%, and trips by car have increased to 87%. This dramatic change must have had significant impacts on traffic congestion patterns and associated environmental externalities, independent child mobility and associated spatial cognition development, and levels of child exercise and health.

School walking buses are one way of reversing this decline. They can help to ease traffic congestion and air pollution within school precincts, because every child walking is potentially one less car on the road. Furthermore, adult supervision ensures a safe journey to and from school, while allowing children an opportunity for physical exercise and to build friendships. Adult supervision also helps to develop appropriate road safety behaviour in children, thereby building essential skills they can later use when walking independently.

Examples of walking buses



S



Source: Google Images various

Appendix 1E: Example survey questionnaire

Rondebosch Schools
Non-Motorised Transport Initiative

Questionnaire ID number: (do not fill in)

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Date of survey:

SCHOOL: DIOCESAN COLLEGE PREPARATORY

D	D	M	M	2	0	1	0
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LEARNER TRAVEL SURVEY



Purpose

This survey is being undertaken to understand learner travel behaviour in the Rondebosch area in order to make school travel safer and more sustainable. The data collected will be used to establish walking buses (please refer to the attached information sheet for an explanation of the walking bus concept). The questionnaire is intended for completion by parents/guardians in conjunction with their children. All the information collected will be used for the stated purposes only, and will be treated in the strictest of confidence. If you agree to participate in the survey, please proceed.

PLEASE ANSWER THE FOLLOWING QUESTIONS:

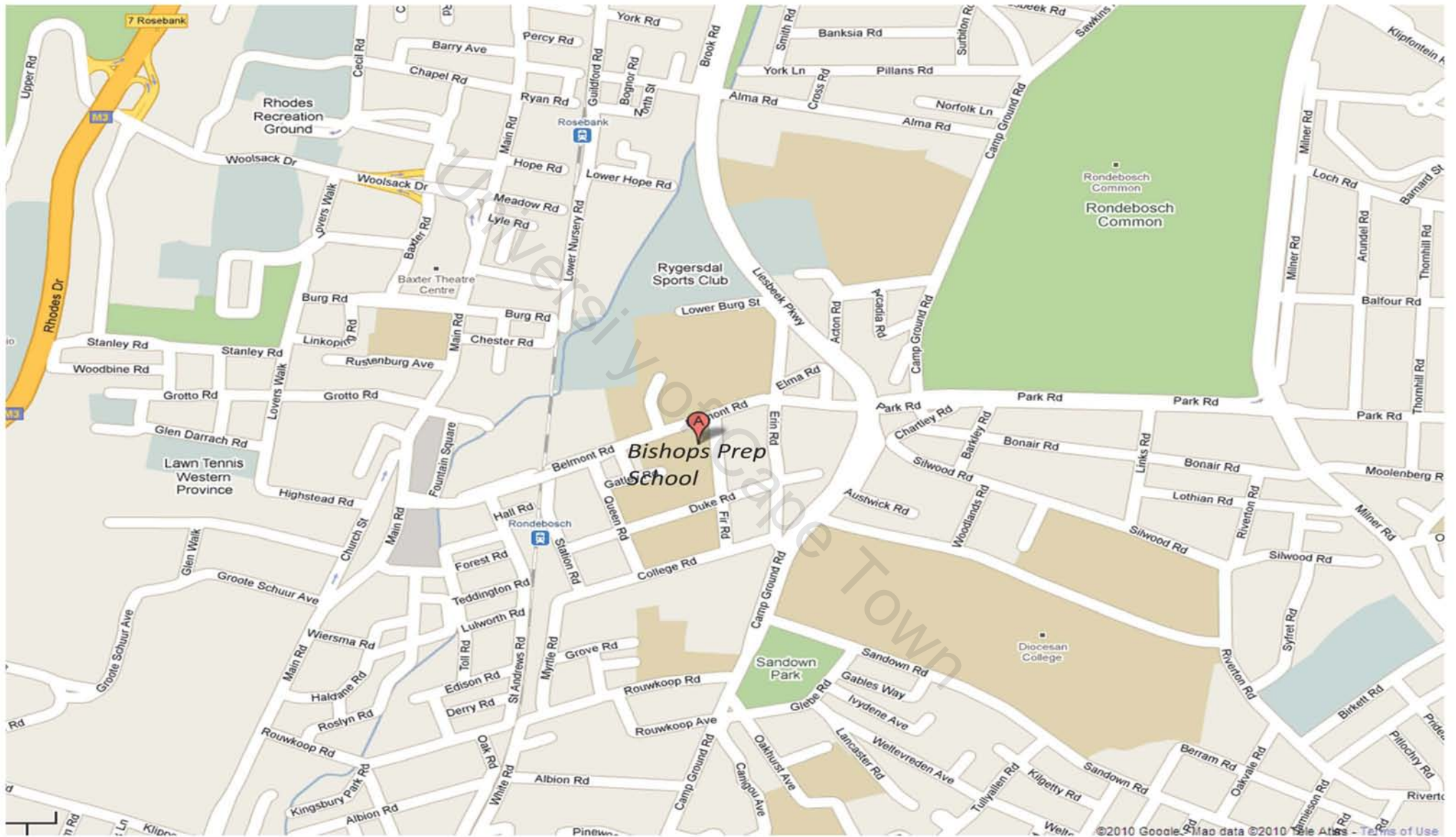
1. In which of the following suburbs do you live?
(Tick one)
- Athlone
 - Claremont
 - Crawford
 - Mowbray
 - Newlands
 - Rondebosch
 - Rondebosch East
 - other (Please specify) _____

INFORMATION ABOUT THE LEARNER (TO BE COMPLETED BY THE LEARNER WITH A PARENT/GUARDIAN'S HELP)

2. What is your gender? (Tick one)
- Male
 - Female
3. How old are you? _____ years
4. What grade are you in? Grade _____
5. How long did it take you to travel to school today? (Tick one)
- less than 5minutes
 - 6-10minutes
 - 11-15minutes
 - 16-20minutes
 - 21-25minutes
 - 26-30minutes
 - 31-35 minutes
 - 36-40minutes
 - 41-45minutes
 - 46 or more minutes

6. **How did you travel TO SCHOOL today** (for the longest part of the journey)? (Tick one)
- walked most of/all the way
 - cycled
 - minibus-taxi
 - bus
 - train
 - car passenger (parent driver on way to work)
 - car passenger (parent driver specifically for school trip)
 - car passenger (part of organised lift club)
 - car passenger (other parent driver, not part of lift club)
 - other (Please specify) _____
7. **Did you travel straight to school, or did you go somewhere on the way to school?** (Tick one)
- travelled straight to school
 - went somewhere else first
8. **How did you travel FROM SCHOOL today** (for the longest part of the journey)? (Tick one)
- walked most of/all the way
 - cycled
 - minibus-taxi
 - bus
 - train
 - car passenger (parent driver on way from work)
 - car passenger (parent driver specifically for school trip)
 - car passenger (part of organised lift club)
 - car passenger (other parent driver, not part of lift club)
 - other (Please specify) _____
9. **Did you travel from school straight home, or did you go somewhere else before returning home?** (Tick one)
- travelled straight home
 - went somewhere else first
10. Answer this question only if you did not tick 'walked most of/all the way' in either question 6 or 8. (If you ticked 'walked most of/all the way', go to question 11)
- Which of the following most prevents you from walking to or from school?** (Tick one) Go to question 13
- too many vehicles on the road
 - few or no footways or paths
 - footways or paths along the preferred route obscured by vegetation
 - few or no pedestrian crossings along preferred route
 - bad weather
 - distance (school too far)
 - too many bags/bags too heavy
 - afraid of criminals
 - afraid of dogs
 - other (Please specify) _____
11. Answer this question only if you ticked 'walked most of/all the way' in either question 6 or 8, or both. (If you did not tick 'walked most of/all the way', go to question 13)
- Which of the following is the biggest problem that you encounter while walking to and from school?** (Tick one)
- too many vehicles on the road
 - few or no footways or paths
 - footways or paths along the preferred route obscured by vegetation
 - few or no pedestrian crossings along preferred route
 - bad weather
 - distance (school too far)
 - too many bags/bags too heavy
 - afraid of criminals
 - afraid of dogs
 - other (Please specify) _____
12. **Draw the route you use to walk to and from school on the map provided.** Use arrows to show the direction walked if routes to and from school are different. (See the example provided)

Walking route to and from school (Provide the route/s only if you walked to or from school)



INFORMATION ABOUT PARENT/GUARDIAN'S WILLINGNESS TO LET CHILDREN USE WALKING BUSES (TO BE COMPLETED BY A PARENT/GUARDIAN)

13. Do you allow your child to walk in your neighbourhood unaccompanied by an adult? Yes No
14. If walking buses were started at the school, would you let your child use them? (Tick one) yes no (Go to question 16)
15. Walking buses can operate between the school and homes in the surrounding area or a convenient pick-up and drop-off point near the school a walking bus that operates between homes and school (Go to question 17) a walking bus that operates between a pick-up and drop-off point and school (Go to question 18)
- If walking buses were started at the school, which type of 'bus' would you let your child use? (Tick one)**
16. What is the main reason you are not willing to let your child use the walking bus? (Tick one) too many vehicles on the road few or no footways or paths footways or paths obscured by vegetation few or no pedestrian crossings bad weather distance (school too far) too many bags/bags too heavy unsafe because of criminals unsafe because of dogs other (Please specify) _____

END OF THE SURVEY IF YOU ANSWERED 'NO' TO QUESTION 14. THANK YOU. PLEASE GIVE THE QUESTIONNAIRE TO YOUR CHILD TO RETURN TO THE SCHOOL.

17. In order to design appropriate walking bus routes, we need details of where the learners who would join the 'bus' live. street number _____ street name _____

Please provide the following details about your child.

18. In order to establish walking buses, we need details of those learners who would join the 'bus' surname _____ first name _____ parent/guardian's phone _____
- Please provide the following details about your child.**

19. Walking buses are flexible so that children can use them mornings only, or afternoons only, or both mornings and afternoons on particular days.

On which days and journeys would your child use the walking bus? When is the latest he/she could be collected and the earliest he/she could be dropped off? (Tick as many days and journeys as necessary)

	Morning		Afternoon	
Mon	<input type="checkbox"/> before:	AM	<input type="checkbox"/> after:	PM
Tues	<input type="checkbox"/> before:	AM	<input type="checkbox"/> after:	PM
Wed	<input type="checkbox"/> before:	AM	<input type="checkbox"/> after:	PM
Thurs	<input type="checkbox"/> before:	AM	<input type="checkbox"/> after:	PM
Fri	<input type="checkbox"/> before:	AM	<input type="checkbox"/> after:	PM

20. The success of walking buses depends on having adult volunteers to escort walking school children. yes (Go to question 21) no (end of survey)

Would you or another adult in your household be willing to volunteer to escort children on a rostered basis? (Tick one)

END OF SURVEY IF YOU ANSWERED 'NO' TO QUESTION 20. THANK YOU. PLEASE GIVE THE QUESTIONNAIRE TO YOUR CHILD TO RETURN TO THE SCHOOL

21. In order to develop a roster for adult volunteers to escort learners, we need details about parents who would be available.
- If you are willing to volunteer, please write down your full name and contact details below** (If not, available please go to question 24)
- surname _____
- first name _____
- home phone (021) _____
- work phone _____
- mobile phone _____
- email address _____

22. **Please indicate the day/s and times that you would be available to volunteer.** (Tick as many as necessary in one or both columns)

Morning

Afternoon

Monday

Tuesday

Wednesday

Thursday

Friday

	Morning	Afternoon
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		

23. **Please indicate how often you would be willing to volunteer.** (Tick one)
- 1 morning or afternoon every 2 weeks
- 1 morning or afternoon per week
- 2 mornings or afternoons per week
- 3 mornings or afternoons per week
- 4 mornings or afternoons per week
- 5 mornings or afternoons per week
- Undecided

24. **Please provide details of another adult volunteer (if any) in your household who would be willing to volunteer** (If none, skip to question 27)
- surname _____
- first name _____
- home phone (021) _____
- work phone _____
- mobile phone _____
- email address _____

25. Please indicate the day/s and times that the other adult would be available to volunteer. (Tick as many as necessary in one or both columns)

Morning

Afternoon

Monday

Tuesday

Wednesday

Thursday

Friday

	Morning	Afternoon
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		

26. Please indicate how often the other adult would be

Willing to volunteer. (Tick one)

- 1 morning or afternoon every 2 weeks
- 1 morning or afternoon per week
- 2 mornings or afternoons per week
- 3 mornings or afternoons per week
- 4 mornings or afternoons per week
- 5 mornings or afternoons per week
- Undecided

27. In order to avoid counting the same adult volunteer twice or more times in different questionnaires, please indicate how many other children you have at this school, besides the one referred to in this questionnaire. (Tick one)

- 0
- 1
- 2
- 3
- 4
- 5

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE. PLEASE GIVE IT TO YOUR CHILD TO RETURN TO THE SCHOOL.

RONDEBOSCH BOYS PREPARATORY SCHOOL:

WALKING BUS INITIATIVE



PARENTAL CONSENT FORM



I (the undersigned) hereby give consent for my child to participate in a parent-run walking bus initiative.

I understand that my child will walk to school in a group, under the supervision of adult volunteers who have been briefed on road safety protocols. I understand that my child must be taken to a designated waiting point at specified times, in order to join the walking bus. I will not leave my child at the waiting point unless he/she is supervised by a designated parent volunteer, and I have verified that the bus has not already passed this point.

I undertake to inform the designated walking bus coordinator if my child will not be using the bus on a day(s) when he is expected to so.

I recognise that my child's journey to and from school is my responsibility even when part of a walking bus. I shall not hold parent volunteers or my child's school (or its bona fide representative) liable for any damage or injury sustained by my child whilst part of a walking bus.

PLEASE PRINT

Child's Name.....

School:

Signed: (parent/guardian)

Parent's Name:.....

Date:

Telephone Number:

Appendix 2: CIM survey instruments

University of Cape Town

Appendix 2A: Faculty of Engineering and the Built Environment ethics clearance for CIM survey

University of Cape Town

Appendix Removed Due to Visible Signatures



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Centre for Transport Studies

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The Principal
[School address]

26 July 2010

Dear Madam

Study of Children's Independent Mobility among Children and Teenagers aged 7–15 years old

The Centre for Transport Studies (University of Cape Town) in conjunction with the Policy Studies Institute (UK) intends to undertake a study on children's independent mobility among children aged 7-15 years (i.e. grade 1-7 in primary school and grade 8-9 in secondary school). The aim of this research is to explore children's independent mobility—that is the degree to which children of different ages are allowed to make trips to school, friends, shops and other destinations unaccompanied by adults – how this has changed over time and its implications for children's personal and physical development. This research project will replicate a longitudinal study from 1971-2010 being conducted in the UK, in seven countries: Australia, New Zealand, Indonesia, Japan, India, Tanzania and South Africa.

We are currently recruiting schools in the Western Cape to participate and we would be delighted if you would agree to your school being involved in this research. Further details of the previous research and its findings, our plans for the research and some of the potential benefits to the schools involved are given in the attached note. If you would like to get in touch with us or have any questions, you can contact me on the contact details given above

Yours sincerely

A/Prof Roger Behrens
Director: Centre for Transport Studies



Child independent mobility information sheet for schools

Independent Mobility as a Critical Aspect of Children's Development and Quality of Life:

A longitudinal comparison over four decades in England, a cultural one over two decades with Germany, and an international extension to other countries.

In February 2011, the Centre for Transport Studies (UCT) in conjunction with the Policy Studies Institute (PSI), a research institute at the University of Westminster (UK) is planning to replicate a *Children's Independent Mobility* study that was carried out in 5 primary schools and 5 secondary schools in England, in 1971 and England and Germany in 1990. This is a study of Children's Independent Mobility among Children and Teenagers aged 7–15 years old. Child independent mobility refers to the degree to which children of different ages are allowed to make trips to school, friends, shops and other destinations unaccompanied by adults. The study is being repeated in England and Germany and replicated in other countries across the world (including Australia, New Zealand, Indonesia, Japan, India, Tanzania and South Africa) during the course of 2010.

When the last study was published in 1990, it had a revolutionary effect on the way that children's health and well-being was viewed by policymakers. The report of the study – published as *One False Move... a study in Children's Independent Mobility* challenged Britain's Department of Transport's view that the marked decline in child fatalities on the roads was explained by the fact that Britain's roads had become much safer. The study demonstrated that the reduction was partly attributable to a dramatic reduction in children's freedom and independent mobility over the previous decades, i.e. children were removed from danger rather than the danger being removed from the environment. For instance, it found that, in 1971, 80 per cent of 7- and 8-year old children got to school unaccompanied by an adult but by 1990 this proportion had fallen to 9 per cent.

The 1990 study was also duplicated in German schools. It found that English children enjoyed substantially less freedom and mobility than their German counterparts in equivalent towns and villages. The findings generated a revision in the way that children's independent mobility, road safety, and wider measures of children's health was assessed and catered for in national policy. It also started an international debate about children's well-being. The report of the original research can be found at: <http://john-adams.co.uk/books/>

We are seeking to replicate the research in South Africa with a focus on Western Cape schools. The survey will focus on one class from each school grade (from seven years old upwards), getting the pupils to fill in a questionnaire of approximately two sides of A4 paper and 20 simple questions (please see attached questionnaire). Among younger children, this will take around three quarters of an hour, although older ones are very likely to be able to complete it more quickly.

We will also ask each child to take home a questionnaire of approximately three A4 pages-see attached- (with questions focussed on parental attitudes to their child getting about outside the home on their own),

for completion by one parent or guardian and then to return it to school on the following day in the envelope provided where we will collect it. We understand that there may be some practical restrictions on how the survey is conducted, and would be happy to talk to you about altering our methodology to suit your school.

There will be no cost to your school to take part in the work, and you may gain some benefits. First, CFTS can provide your school with an anonymised dataset on how far children in different grades have to travel to school, their method of transport and what restrictions are placed on their mode of transport by their parents. Second, the work should also be of interest to the children themselves, and could be incorporated into geography, maths, and local history lessons. Third, your school will be contributing to a landmark survey that could have far-reaching impacts on how policymakers can improve children's well-being and development.

The project as a whole will be led at PSI by Ben Shaw, head of Environment Group at PSI. In South Africa the project will be led by Associate Professor Roger Behrens, Director of the Centre for Transport Studies in the faculty of Engineering and the Built Environment at the University of Cape Town. We would like to highlight that the research has obtained approval from the UCT's Faculty of Engineering and the Built Environment Ethics Committee which is intended to ensure the research is conducted to the highest ethical standards.

This note gives only a brief overview of the project. We are of course happy to discuss this further or provide details as required including the questionnaires and procedures we intend to use.

Yours faithfully

Roger Behrens
Director: Centre for Transport Studies

Appendix 2E: Parent recruitment letter (CIM survey)



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



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Centre for Transport Studies**

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13 January 2010

Dear Parent/Guardian

Study of Children's Independent Mobility among Children and Teenagers aged 7 – 15 years old

I am writing to inform you a researcher from the Centre for Transport Studies (University of Cape Town) will be visiting your child's school to conduct some research.

This research is about children's independent mobility-that is, the extent to which children and young people travel to and from school, friend's houses, shops etc. *without adult supervision*. This research repeats surveys that were carried out in the UK in 1971 and in the UK and Germany in 1990, and will allow us to understand how children's travel and play outside and adult supervision of this has changed over time. The research is being carried out in conjunction with the Policy Studies institute/PSI (UK) and is being replicated in 7 countries including South Africa.

What does the research involve?

The research will be conducted in class as part of your child's normal school day. A teacher will be present and your child will be asked to complete a brief questionnaire of around 25 questions which covers the types of transport they use, how they travelled around over the previous week and activities that they travelled to and from at the weekend. Depending on the age of your child, it is estimated that this will take between 20 and 50 minutes.

As part of this work, the researchers would also like one parent or guardian to complete a questionnaire asking about how your child travels around, with a brief section on how you travelled to school when you were younger. It should take about 10 minutes to fill in. Your child will bring this questionnaire home to you. Please fill it in, and give it back to them to hand in at school the following day.

The research project has been approved by the University's Faculty of Engineering Ethics board to ensure the research is run in an acceptable way. The project is led by Roger Behrens, Director of the UCT's Centre

for Transport Studies. If you have any queries you can contact the project leader on the contact details above.

What will happen to the data gathered?

Your answers and those of your child will be kept confidential. The surveys will be processed and all information linking individual questionnaires to children/parents will be removed in the results we publish. The name of the school will not be used in any results we publish. The questionnaires will be destroyed following completion of the project. The anonymous data that is retained to allow comparison with any future research will be kept in accordance with the Universities' policies.

Participation in this research is voluntary. You and your child do not have to take part in the research, and can withdraw at any point during the project. If you do not want your child to take part in the research for whatever reason, please fill in the form below and return it to the school office; there will be no negative consequences for your child's education.

Yours sincerely

A/Prof Roger Behrens
Director: Centre for Transport Studies

.....

If **you DO NOT** want to take part in the research; or if you **DO NOT** want **your child** to take part in the research; please fill in the form below and return it to school before [insert date]

Name of Child (please print in capitals)

Class name / number

Teacher

Appendix 2F: Script to introduce Questionnaire to older Primary School children and to Secondary School children

To the teacher: 1. Please read out to learners

2. Ask for any opt-out forms and collect these (if there are any)

This is a survey to find out about how you travel around – whether you travel on your own, if you go with your friends or parents, and how you get about whether you walk, go in the car or go on your bike or the bus. We also want to find out what sort of things you do when you are outside.

Please answer honestly – this is a very important study, and we want you to be truthful. If you feel uncomfortable answering any of the questions, please do let me know; there won't be any problems if you don't answer a question. All of your answers will be kept private and we won't know who filled in this questionnaire, only the class it was completed in. Please do put your hand up if you need help.

Some of the questions will require you to tick a box, or boxes, to give your answer. Others will require you to write a few words to answer them. Sometimes you may be asked to skip some questions. So please read the instructions for each question carefully and answer as best you can. Please tick the boxes and write your answers clearly.

I'm going to give you two questionnaires. Put the questionnaire written 'HOW YOUR CHILD GETS ABOUT' in your bag and give it to your parent when you get home. Do not write your name on the questionnaires.

NB *Please make sure that children have put away the questionnaire written 'HOW YOUR CHILD GETS ABOUT' so that they do not fill in the wrong questionnaire*

Hand out questionnaires and once everyone has a form

Has everyone got a questionnaire written 'HOW YOU GET ABOUT' at the top? Do not write your name on the questionnaire.

Please fill them out quietly. If you have any questions, put your hand up and I will try to help you.

Once everyone have completed the survey: Collect the questionnaires filled in by children

Thank you very much!






As I said before, I have given you another questionnaire. Please take this home and give it to your parent or guardian. Please try and make sure your father or mother or guardian has filled it and return it back to school.

Appendix 2G: Child questionnaire**HOW YOU GET ABOUT****A questionnaire for children and young people 7 to 15 years old**

- Please answer the questions as best you can – there are no right or wrong answers.
- We will not know who filled in this questionnaire, only the class it was completed in.
- Please ask if you have any questions.

TRAVELLING TO AND FROM SCHOOL**1) How did you get to school this morning?**

(Only tick one box, to show the main method you used)

-  Walked most or all the way
-  Cycled
-  School bus
-  Local bus or train
-  Car
- Other please write in:

2) Who did you travel to school with this morning?

(Tick as many boxes as you need)

- Travelled on my own
- Parent
- Another adult
- Older child / teenager
- Child of same age or younger






3) How long did it take you to travel to school this morning?

(Only tick one box)

- Less than 5 minutes
- 5 to 15 minutes
- 16 to 30 minutes
- 31 to 45 minutes
- 46 minutes or more

4) How will you go home today?

(Only tick one box)

-  Walk most or all the way
-  Cycle
-  School bus
-  Local bus or train
-  Car
- Other please write in:






5) Who will you travel home with today?

(Tick as many boxes as you need)

- Travelling home alone
- Parent
- Another adult
- Older child / teenager
- Child of same age or younger

6) How would you like to be able to travel to and from school?


(Only tick one box)

-  Walk most or all the way
-  Cycle
-  School bus
-  Local bus or train
-  Car
- Other please write in:

WALKING



7a) Are you allowed to cross main roads on your own?

- YES (Please go to  Question 7c)
- NO

7b) If you don't cross main roads on your own, would you like to be allowed to do so?

YES

NO

7c) How old were you when you first crossed main roads on your own?

(Please estimate if you are not sure)

Age


Not allowed to cross roads on my own

CYCLING



8a) Do you have a bicycle?

YES

NO (Please go to  Question 9)

8b) Are you allowed to cycle on main roads by your parents?

YES At what age were you first allowed?

Age

NO

8c) If you have a bicycle, are you allowed to ride it to go to places (like the park or friend's houses) without any grown ups?

YES

NO

Don't have a bicycle

8d) How many times do you cycle in a typical week (both with and without parents) including the weekend?

Once a week or less

One or two days a week

Three or more days a week

Don't have a bicycle

BUSES



9) Are you allowed to go on local buses on your own (other than a school bus)?

- YES
- NO

AT THE WEEKEND

10) Which of these activities did you do this weekend (yesterday or on Saturday):

(tick the first column if you did these things on your own or with another young person)
 (tick in the second column if you did them with a parent or other adult)

		On your own or with another young person	With a parent or other adult
	Visited a friend's home	<input type="checkbox"/>	<input type="checkbox"/>
	Visited relatives or grown-ups	<input type="checkbox"/>	<input type="checkbox"/>
	Went to a youth club (including Scouts, Guides, Cadets, Sunday school etc.)	<input type="checkbox"/>	<input type="checkbox"/>
	Went to the shops	<input type="checkbox"/>	<input type="checkbox"/>
	Went to a library	<input type="checkbox"/>	<input type="checkbox"/>
	Went to a cinema	<input type="checkbox"/>	<input type="checkbox"/>
	Spent time with friends outside after dark	<input type="checkbox"/>	<input type="checkbox"/>
	Went to a playground, park or playing fields	<input type="checkbox"/>	<input type="checkbox"/>
	Played sport or went swimming (individual or team sports or lessons)	<input type="checkbox"/>	<input type="checkbox"/>
	Went for a walk or cycled around	<input type="checkbox"/>	<input type="checkbox"/>
	Went to a concert or nightclub	<input type="checkbox"/>	<input type="checkbox"/>
	Visited a place of worship	<input type="checkbox"/>	<input type="checkbox"/>
	Other (<i>please write in</i>):	<input type="checkbox"/>	<input type="checkbox"/>
	Other (<i>please write in</i>):	<input type="checkbox"/>	<input type="checkbox"/>
	Other (<i>please write in</i>):	<input type="checkbox"/>	<input type="checkbox"/>

WHERE YOU LIVE

11a) How safe do you feel on your own in your local neighbourhood?

(Only tick one box)

- Not allowed out on my own
- Very safe
- Fairly safe
- Not very safe
- Not at all safe

11b) When you are outside on your own or with friends are you worried by any of the following?

(Tick as many boxes as you need)

	Yes	No	Don't know
Traffic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting lost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bullying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strangers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do not feel that I am old enough to go about on my own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not knowing what to do if someone speaks to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11c) Is there anything else you are worried about when you are outside on your own or with friends?

Please write in:.....

ABOUT YOU

12) How old are you?

Age

13) Are you...?

a Girl or a Boy

Thank you very much for your help 😊

Appendix 2H: Adult questionnaire (CIM survey)

HOW YOUR CHILD GETS ABOUT

Questions for the father, mother or carer of a child 7 to 15 years old

THE FOLLOWING QUESTIONS ARE ABOUT YOUR CHILD

- This form should take about ten minutes to complete.
- Please only answer in relation to the child who gave you this form – do not answer about any other children in your household.
- Please answer the questions honestly and as best you can.
Your answers will be made anonymous and will be kept confidential.

Coming home from school



1a) Does your child travel home from school alone?

YES - When did you first let them travel home from school alone?

Age

NO - At what age will you be likely to let your child travel home from school alone?

Age

1b) How many days a week is your child typically collected from school by an adult?

(Please insert number)

times each week

1c) What are your main reasons for picking your child up from school (even if you no longer do)?

(Please tick no more than three boxes)

<input type="checkbox"/>	1. Opportunity to spend time with my child
<input type="checkbox"/>	2. Opportunity for exercise or to get out of house
<input type="checkbox"/>	3. Concern about traffic danger
<input type="checkbox"/>	4. Child unreliable or too young
<input type="checkbox"/>	5. Danger from adults

<input type="checkbox"/>	6. Fear of bullying by other children
<input type="checkbox"/>	7. Opportunity to meet people (teachers, other parents etc)
<input type="checkbox"/>	8. On the way to an activity for you or the child (e.g. shopping, visiting a relative, after school club etc)
<input type="checkbox"/>	9. School too far away
<input type="checkbox"/>	10. Other, please write in:

1d) How long would it typically take you to get to your child's school?

(Insert a time however large or small, or tick 'Don't know / Not applicable')

On foot		<i>minutes</i>	or <input type="checkbox"/> Don't know / Not applicable
By car		<i>minutes</i>	or <input type="checkbox"/> Don't know / Not applicable
Public transport		<i>minutes</i>	or <input type="checkbox"/> Don't know / Not applicable

1e) Is the school the nearest one your child can attend?

- YES (Please go to Question 1g)
- NO

1f) If NO, what is the main reason for your child attending this school? (Tick as many as you need)

<input type="checkbox"/>	1. No places available at nearest school
<input type="checkbox"/>	2. Did not want to send child to local school or preferred a specific school elsewhere
<input type="checkbox"/>	3. Wanted a specific type of school (faith school, performing arts, etc)
<input type="checkbox"/>	4. Moved home after child started at school
<input type="checkbox"/>	5. Travel easier
<input type="checkbox"/>	6. Other, please write in:

1g) Does your child have a long-standing illness, disability or infirmity?

- YES - Please give brief details (optional).....
- NO

Other journeys

2a) When going to places other than school that are within walking distance, is your child taken there or allowed to go alone?

- Usually goes alone (Please go to Question 3)
- Usually taken
- Varies





2b) What is the approximate number of round trips made each week to accompany your child, excluding the journey to school?

(For example, travelling to the swimming pool and then home again would count as one round trip)

Round trips each week

2c) What is the method of travel most frequently used on these trips?

(Tick as many as you need)

-  Walk most or all the way
-  Cycle
-  Local bus or train
-  Car
- Other method, please write in:

Crossing roads

3) Is your child allowed to cross main roads alone?

Please note: this question is included for all parents of children aged between 7 and 15 years old. Please answer even if the answer seems obvious.

- YES **What age was your child first allowed to do so?**


Age
- NO **What age do you think you will allow your child to do so?**

Age

Going out after dark



4a) Is your child usually allowed to go out alone after dark?

- YES (Please go to  Question 5)
- NO

4b) If NO, what is the main reason your child is not allowed to go out alone after dark?
 Please write in:.....

Cycling



5) Is your child allowed to cycle on main roads alone?

- Does not own a bicycle
- YES - **At what age was your child first allowed to cycle on main roads alone?**

Age
- NO **At what age do you think you will allow your child to cycle on main roads alone?**

Age

Buses



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

YES At what age was your child first allowed to travel on buses alone?

Age

NO At what age do you think you will allow your child to travel on buses alone?


Age

Mobile Phones



7a) Does your child have a mobile phone?

YES

NO (Please go to  Question 8)

7b) If YES, does this give you more confidence about letting your child go out alone?

YES

NO

Child does not go out alone

Traffic

8) How worried are you about the risk of your child being injured in a traffic accident when crossing a road?

Very

Quite

Not very

Not at all

Don't know / not sure

The following questions are about you



9a) When you were a child aged 8 or 9, how did you usually travel to school?

(Only tick one box)

- Walked most or all the way
- Cycled
- School bus
- Local bus or train
- Car
- Other. Please write in:.....

9b) How did the distance you had to travel to *primary* school compare with the distance your child has to travel to *primary* school?

Much less	Less	About the same	Further	Much further
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9c) At about what age were you allowed to get about on your own?

Age

10) To what extent do you agree or disagree with the following two statements? Put a cross in the box which best matches your opinion.

	Agree strongly	Agree	Neither agree nor disagree	Disagree	Disagree strongly
10a) Most adults who live in the neighbourhood look out for other people's children in the area	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10b) Some young people and adults in the area make you afraid to let your children play outdoors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Your household



11a) Does your household have regular use of a car (including car share)?

- No
 Yes, **1** car
 Yes, **2** or more cars

11b) How many adults in your household, including yourself, have a full driving licence?

Number

12) How many people live in your home, including yourself?

<input style="width: 100%; height: 100%;" type="text"/>	Children aged 10 years or less
<input style="width: 100%; height: 100%;" type="text"/>	Children aged 11 to 15 years
<input style="width: 100%; height: 100%;" type="text"/>	Everyone else aged 16 or more
<input style="width: 100%; height: 100%;" type="text"/>	TOTAL

13) Does your family own your home or is it rented?

- Own home (with or without mortgage)
- Rented home from Council or Housing Association
- Private rented
- Live in a relative's home
- Temporary accommodation
- Other

14) Do you have access to outside space(s) where your children can play?
(Please tick all the relevant boxes)

<input type="checkbox"/>	1. Garden
<input type="checkbox"/>	2. Park which you can reach without crossing a main road
<input type="checkbox"/>	3. Park you reach by crossing a main road
<input type="checkbox"/>	4. Quiet residential road

<input type="checkbox"/>	6. Shared communal space
<input type="checkbox"/>	7. Other please write in
<input type="checkbox"/>	8. No suitable outside space available

15) Please write in your postcode

--	--	--	--	--	--	--	--

16a) How old are you?

Please tick the boxes for you and (if applicable) your partner Your husband, wife or partner (if applicable)

Under 30	<input type="checkbox"/>		<input type="checkbox"/>
30 to 44	<input type="checkbox"/>		<input type="checkbox"/>
45 or over	<input type="checkbox"/>		<input type="checkbox"/>

16b) What gender are you?

Please tick the boxes for you and (if applicable) your partner

	You	Your husband, wife or partner (if applicable)
Male	<input type="checkbox"/>	<input type="checkbox"/>
Female	<input type="checkbox"/>	<input type="checkbox"/>

17a) Are you in paid work?

	You	Your husband, wife or partner (if applicable)
Yes, full-time	<input type="checkbox"/>	<input type="checkbox"/>
Yes, part-time	<input type="checkbox"/>	<input type="checkbox"/>
No	<input type="checkbox"/>	<input type="checkbox"/>

17b) If you are in paid work, do you work at home or elsewhere?

	You	Your husband, wife or partner (if applicable)
Home	<input type="checkbox"/>	<input type="checkbox"/>
Elsewhere	<input type="checkbox"/>	<input type="checkbox"/>

17c) What is your current or most recent job title?

You

Your husband / wife / partner.....

17d) If you are an employee, what is made or done at your place of work?

You

Your husband / wife / partner.....

Please give the completed questionnaire to your child to take back to school tomorrow, the following day or as soon as possible after that.

Thank you very much for your help 😊

Appendix 2I: Reminder to parents to return questionnaire (CIM survey)



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



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Rondebosch
SOUTH AFRICA

Telephone: +27 (21) 650 3499
Facsimile: +27 (21) 689 7471
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Website: www.cfts.uct.ac.za

9 February 2011

Dear Parent/Guardian

Earlier in the week, your child should have brought home a questionnaire for you to complete, on how they travel about.

If you haven't yet returned this questionnaire and would like to participate in the research, we would be very grateful if you could return the questionnaire to the school tomorrow, the following day or early next week. You can either give the questionnaire to your child to hand in at the school.

The questionnaire is part of an important research project trying to find out the age at which children travel to and from school, friend's houses, shops etc and play outside *without an adult* and the factors that affect this. We hope that the research will lead to actions that improve the local environments that young people grow up in.

The research is being conducted by researchers from the Centre for Transport Studies at University of Cape Town. If you have any questions about the research, **or did not receive a questionnaire**; please contact Roger Behrens at the Centre for Transport Studies by email or telephone on the number given above or Patrick Muchaka by email, Patrick.Muchaka@uct.ac.za

THANK YOU

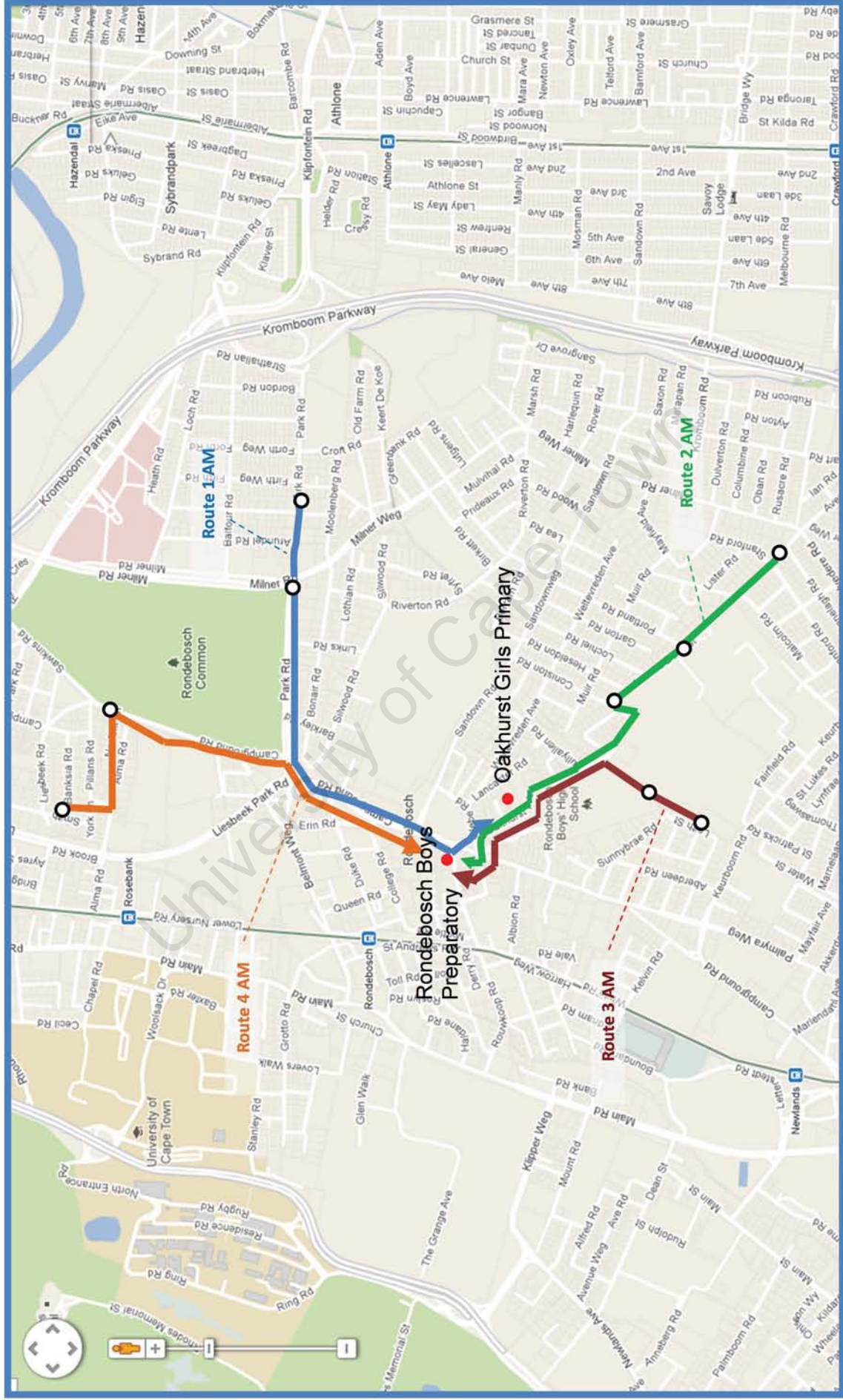
Appendix 3: Rondebosch ‘Walking bus’ demonstration and evaluation materials

University of Cape Town

Appendix 3A: 'Walking bus' planning tool

starting time (military)	07:15									
School	Rondebosch Boys Preparatory/Oakhurst Girls Route Two									
	wait	walk	wait	walk	wait	walk	arrival	Walk	arrival	
MONDAY	Stop 1 (Corner Ave de Mist and Belvedere Roads)		Stop 2 (Corner Ave de Mist and Coniston Roads)		Stop 3 (Oakhurst and Locarno Roads)		OGPS	RBPS		
	begin wait	depart	begin wait	depart	begin wait	depart	arrive	depart	arrive	
	distance (m)	0	850	450	200	250				
	cumulative distance (m)	0	850	1300	1500	1750				
	cumulative minutes	0	5	19	19	27	30	30	34	
	cumulative minutes (time)	00:00	00:05	00:19	00:19	00:26	00:26	00:30	00:30	00:34
	time (military)	07:15	07:20	07:29	07:34	07:36	07:41	07:45	07:45	07:49
Parent volunteers	adult 1	xxxxx	adult 3	xxxxx	adult 4	xxxxx				
	adult 2	xxxxx								
Child participants (a) RBPS	child 1	xxxxx	child 8	xxxxx	child 15	xxxxx				
	child 2	xxxxx	child 9	xxxxx	child 16	xxxxx				
	child 3	xxxxx	child 10	xxxxx	child 17	xxxxx				
	child 4	xxxxx	child 11	xxxxx	child 18	xxxxx				
	child 5	xxxxx	child 12	xxxxx	child 19	xxxxx				
	child 6	xxxxx	child 13	xxxxx	child 20	xxxxx				
	child 7	xxxxx	child 14	xxxxx	child 21	xxxxx				
Child participants (b) OGPS	child 1	xxxxx	child 7	xxxxx	child 13	xxxxx				
	child 2	xxxxx	child 8	xxxxx	child 14	xxxxx				
	child 3	xxxxx	child 9	xxxxx	child 15	xxxxx				
	child 4	xxxxx	child 10	xxxxx	child 16	xxxxx				
	child 5	xxxxx	child 11	xxxxx	child 17	xxxxx				
	child 6	xxxxx	child 12	xxxxx	child 18	xxxxx				

Appendix 3B: Rondebosch 'walking bus' routes



Appendix 3C: 'Walking bus' trial run walking speed results

Mean

Planned	Tuesday 23 November 2011			Wednesday 24 November 2011			Tuesday 30 November 2011			Wednesday 1 December 2011		
	time	route stakevalue	time	route stakevalue	time	route stakevalue	time	route stakevalue	time	route stakevalue	time	route stakevalue
RBPS route 1 (AM)												
bus stop 1 begin wait	07:20	0	07:10	0	07:17	0	07:16	0	07:18	0	07:18	0
bus stop 1 depart	07:25	0	07:25	0	07:23	0	07:27	0	07:27	0	07:27	0
bus stop 2 begin wait	07:26	380	unknown	380	unknown	380	unknown	380	unknown	380	unknown	380
bus stop 2 arrive	07:31	380	07:29	380	07:26	380	07:31	380	07:31	380	07:31	380
bus stop 2 depart	07:31	380	07:30	380	07:29	380	07:32	380	07:31	380	07:31	380
school gate arrival	07:51	1220	07:45	1220	07:45	1220	07:49	1220	07:48	1220	07:48	1220
school bell	08:05	1220	08:05	1220	08:05	1220	08:05	1220	08:00	1220	08:00	1220
bus stop 1 learners	11		8	-3	14	3	13	2	9	-2	9	-2
bus stop 2 learners	9		8	-1	5	-4	2	-7	3	-6	3	-6
total learners	20		16	-4	19	-1	15	-5	12	-8	12	-8
consent forms	20		11	-9	11	-9	11	-9	11	-9	11	-9
bus stop 1 parent volunteers	3		3	0	3	0	5	2	6	3	6	3
bus stop 2 parent volunteers	4		4	0	4	0	1	-3	1	-3	1	-3
total parent volunteers	7		7	0	7	0	6	-1	7	0	7	0
RBPS route 2 (AM)												
bus stop 1 begin wait	07:15	0	07:10	0	07:10	0	07:10	0	07:10	0	07:10	0
bus stop 1 depart	07:20	0	07:20	0	07:20	0	07:20	0	07:20	0	07:20	0
bus stop 2 begin wait	07:26	700	unknown	700	unknown	700	unknown	700	unknown	700	unknown	700
bus stop 2 arrive	07:31	700	07:34	700	07:29	700	07:32	700	07:33	700	07:33	700
bus stop 2 depart	07:31	700	07:35	700	07:31	700	07:33	700	07:34	700	07:34	700
bus stop 3 begin wait	07:34	400	unknown	400	unknown	400	unknown	400	unknown	400	unknown	400
bus stop 3 arrive	07:39	400	07:40	400	07:38	400	07:39	400	07:38	400	07:38	400
bus stop 3 depart	07:39	400	07:41	400	07:39	400	07:39	400	07:39	400	07:39	400
school gate arrival	07:51	750	07:53	750	07:52	750	07:48	750	07:48	750	07:48	750
school bell	08:05	750	08:05	750	08:05	750	08:05	750	08:05	750	08:05	750
bus stop 1 learners	16		1	-15	8	-8	6	-10	7	-9	7	-9
bus stop 2 learners	2		0	-2	2	0	3	1	4	2	4	2
bus stop 3 learners	10		1	-9	5	-5	2	-8	2	-8	2	-8
total learners	28		2	-26	15	-13	11	-17	13	-15	13	-15
consent forms	28		1	-27	6	-22	6	-22	6	-22	6	-22
bus stop 1 parent volunteers	1		1	0	3	2	1	0	4	3	4	3
bus stop 2 parent volunteers	1		0	-1	2	1	1	0	1	0	1	0
bus stop 3 parent volunteers	2		1	-1	1	-1	1	-1	1	-1	1	-1
total parent volunteers	4		2	-2	6	2	3	-1	6	-1	6	-1

11.0
4.5
15.5

4.3
2.5
6.8

5.5
2.3
2.5
10.3

2.3
1.0
1.0
4.3

Appendix 3C (continued)

OGPS route 1 (AM)	Planned		Tuesday 23 November 2011		Wednesday 24 November 2011		Tuesday 30 November 2011		Wednesday 1 December 2011		Mean
	time	route stakevalue	time	route stakevalue	time	route stakevalue	time	route stakevalue	time	route stakevalue	
bus stop 1 begin wait	07:25	0	07:10	0	07:16	0	07:15	0	07:15	0	0
bus stop 1 depart	07:30	0	07:27	0	07:28	0	07:30	0	07:29	0	0
bus stop 2 begin wait	07:32	450	unknown	450	unknown	450	unknown	450	unknown	450	450
bus stop 2 arrive	07:37	450	07:32	450	07:33	450	07:37	450	07:35	450	450
bus stop 2 depart	07:37	450	07:37	450	07:33	450	07:37	450	07:35	450	450
school gate arrival	07:50	800	07:47	800	07:44	800	07:47	800	07:45	800	800
school bell	08:00	800	08:00	800	08:00	800	08:00	800	08:00	800	800
bus stop 1 learners	5		4	-1	2	-3	4	-1	2	-3	3.0
bus stop 2 learners	1		1	0	0	0	1	0	1	0	0.8
total learners	6		5	-1	2	-4	5	-1	3	-3	3.8
consent forms	6		0	-5	0	-6	0	-5	0	-6	
bus stop 1 parent volunteers	1		1	0	1	0	3	2	1	0	1.5
bus stop 2 parent volunteers	1		1	0	0	-1	1	0	0	-1	0.5
total parent volunteers	2		2	0	1	-1	4	2	1	-1	2.0

Appendix 3E: 'Walking bus' qualitative interview schedule

Rondebosch Schools

Non-Motorised Transport Initiative

Interviewer

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Date of interview

D	D	M	M	2	0	1	1
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**'WALKING BUS' QUALITATIVE
EVALUATION INTERVIEW**



I would like to ask you and your child a few questions about your experiences while using the 'walking bus'. These questions are aimed at evaluating the outcomes of the initiative and to seek suggestions on how the initiative may be improved. May I proceed?

Questions for parents/guardians

1. How did your child travel to school before s/he started using the walking bus?
2. How is your child currently travelling to school?
3. What would you say was the main reason why your child stopped using the walking bus?
4. What impacts has the 'walking bus' had on your child since s/he started using the 'bus'?
5. What impacts has the 'walking bus' initiative had on you?
6. Do you think that the walking bus can be improved? If so, in what ways?
7. If the walking bus resumes, would you be willing to let your child use it?

Questions for children

1. What did you like about using the 'walking bus'?
2. Was there anything that you disliked about the 'walking bus'? If so, what was it?
3. If the walking bus resumes, would you be willing to use it again?



NEWSLETTER

NEWSLETTER NO. 39

2 December 2010

RONDEBOSCH BOYS' PREPARATORY SCHOOL

Dear Parents

➤ **MAGIC MOMENT : MYSCHOOL**

I am just so proud of our MySchool earnings, with nearly 60% of cardholders using their card, nearly 500 parents! We are 3rd in the Western Cape with R4600 donated to school funds for the month of October. Remember, keep swiping as Christmas is here!

➤ **WALKING BUSES**

We look forward to the implementation of the "Walking Buses" more fully in 2011. Trial runs have taken place over the past two weeks and have proved very successful and exciting for those boys (and parents) who have been involved to date. Thank you to the parents who have assisted as "drivers" and or "conductors".

If any other families would like to make use of this system next year, please make contact with Patrick Muchaka on the following email address: patrick.muchaka@uct.ac.za or on 078 165 6409.

➤ **IMPORTANT DATES FOR THE 1ST TERM 2011**

To assist you with your planning for next year, we have e-mailed the important dates for the 1st term. It has also been posted on the website. Please note that this is subject to alteration and we will update you during the 1st week of next year.

➤ **FOOD HAMPERS FOR CLEANING STAFF**

At this time of the year it is customary to show our gratitude and appreciation towards our cleaning staff by giving them each a parcel of groceries. To ensure that each parcel contains a wide range of gifts we have suggested that each class bring a different item of food. This, however, is just a suggestion and if you feel that you would like to donate something else, please feel free to do so. These are to be sent to school by Wednesday 8 December 2010. Thank you in advance for your generosity and to those who have already contributed.

Collection points : FP – Mrs Wood-Callander SP – Mrs Hoogwerf

Gr	1/C	Packet of sweets	Gr	4/B	Mayonnaise
	1/B	Packet of biscuits		4/D	Tin of soup
	1/H	100g slab of chocolate		4/H	Sugar
	1/J	Fruit juice / cooldrink		4/L	Tin of tuna/fish
Gr	2/C	1 litre long life milk	Gr	5/H	Flour
	2/H	Coffee		5/L	Jar of peanut butter
	2/S	Canned fruit		5/S	Rice
	2/W	Large packet of chips		5/W	Tin vegetables
Gr	3/B	Tin of jam	Gr	6/A	Cooking oil
	3/C	Tea		6/B	Pasta
	3/M	Puddings (non-perishable)		6/M	Chutney
	3/R	Breakfast cereal		6/S	Marmite/Vegemite/Bovril
Gr	7/A	Tomato sauce	Gr	7/F	Condensed / Ideal Milk
	7/S	Tinned meat		7/V	Baked beans