

EVALUATION OF A 'WALKING BUS' DEMONSTRATION PROJECT IN CAPE TOWN: Qualitative findings, implications and recommendations

P MUCHAKA and R BEHRENS

Centre for Transport Studies, Department of Civil Engineering, University of Cape Town, Private Bag X3, Rondebosch, 7701; Tel: 021-650 3499; patrick.muchaka@uct.ac.za; roger.behrens@uct.ac.za

ABSTRACT

This paper reports upon an evaluation of a project demonstrating 'walking buses' at selected schools in a higher income neighbourhood of Cape Town (Rondebosch). A qualitative 'after' survey of (n=16) learners and (n=14) parents was undertaken in order to evaluate the impacts of the initiative. Key findings 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 paper concludes with a discussion on the implications of the findings for municipalities and schools wishing to promote greater use of walking, and with recommendations on how 'walking buses' might be made more sustainable.

1. INTRODUCTION

While school travel has not received great attention in South African transport research, it has increasingly become part of an international transport research agenda. The relatively recent local interest in school travel emanates from two main concerns, namely: rising car dependence among schoolchildren in higher-income neighbourhoods and the concomitant decline in the use of active travel modes; and child pedestrian road safety concerns among children in lower-income neighbourhoods.

Available historical data in Cape Town suggest that there has been a significant shift in mode share for school trips in the middle-and higher-income neighbourhoods in the last three decades, with fewer children currently using the non-motorised travel (NMT) modes of walking and cycling (Muchaka *et al*, 2011). This is likely to have had negative impacts which include: increased traffic congestion within school precincts; reduced physical activity levels among children; and decreased child independent mobility and associated impacts on child spatial cognitive development. Supporting quantitative evidence of such impacts in South Africa is sparse. Recent studies do, however, illustrate that schools are a

significant vehicle trip generating land use. For instance, in a (n=1,075) survey conducted at six Rondebosch primary schools, Muchaka *et al* (2011) found that the private car accounted for 90% and 88% of home to school and school to home trips respectively (of which 32% and 50% were with a parent driving specifically to get the child to and from school respectively). Other studies confirm that child obesity is becoming a significant public health issue. For instance, Armstrong *et al* (2006), in a study of 10,195 primary school children, found that 2% of boys and 5% of girls were obese and 11% of boys and 18% of girls were overweight.

With regard to the vulnerability of children to road crashes, children in lower-income neighbourhoods – where walking is the main mode of school travel – are particularly at risk. For instance, data for the 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 various independent interventions have been introduced in the city of Cape Town, including scholar patrols, cycling initiatives and, more recently, ‘walking buses’.¹ There has, however, been little attempt to evaluate the impacts of these interventions. This paper, attempts to fill this gap by evaluating the impacts of ‘walking buses’ demonstrated at two Rondebosch schools in Cape Town in 2011.

The paper is divided into six sections including this introduction. Section 2 reviews how the impacts of ‘walking buses’ have been evaluated in various countries around the world. Section 3 describes the implementation of ‘walking buses’ in the study area. Section 4 describes the research method, while section 5 presents the findings. The paper concludes with a discussion on the implications of the findings, and with recommendations on how ‘walking buses’ might be made more sustainable.

2. LITERATURE REVIEW

The increasing international popularity of ‘walking buses’ stems from their ability to incorporate greater physical activity into children’s lives and thereby address obesity problems, and to reduce traffic congestion within school precincts. Furthermore, adult supervision can ensure a safer journey to and from school, and child participation can facilitate the development of safe road use behaviours and build essential skills that can be used later when walking independently. Finally, ‘walking buses’ can provide children and parents with opportunities to build friendships, and can contribute to child development in the form of improved spatial cognition.

These claimed benefits have been evaluated using a variety of methods that form a continuum from qualitative, through a mixture of qualitative and quantitative, to purely quantitative methods. For instance, Kearns *et al* (2003) conducted a qualitative evaluation using questionnaires, participant observation and key informant interviews (e.g. ‘walking bus’ coordinators and school principals) to assess the benefits, limitations and long-term

¹ 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). However, the concept is still relatively new in developing countries.

viability of 'walking buses' in Auckland (New Zealand). Kingham and Ussher (2005; 2007) also used qualitative questionnaires and key informant interviews to evaluate 'walking buses' in Christchurch (New Zealand). At the other end of the continuum, Sirard *et al* (2008) conducted a 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). 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, 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).

3. THE 'WALKING BUS' INITIATIVE

In an attempt to reverse the shift in mode use and improve learner pedestrian safety, two projects were initiated in a lower-income and a higher-income neighbourhood of Cape Town (Delft and Rondebosch respectively). The central aim of both projects was to implement a non-motorised school travel initiative in the form of 'walking buses'. The Delft project was conducted by the Global Road Safety Partnership-South Africa while the Rondebosch project was conducted by the African Centre of Excellence for Studies in Public and Non-motorised Transport.

The Rondebosch 'walking bus' initiative – the focus of this paper – arose out of concerns for traffic congestion around schools, and for child pedestrian and cyclist safety, shared by parents, the City of Cape Town and residents associations in the Rondebosch area. The intervention started with a (n=1,494) survey conducted at nine schools by Behrens and Van Rensburg (2009). The purpose of this survey was to assess the feasibility of school travel planning measures aimed at encouraging walking and cycling to and from school. The results of the survey indicated that, at some schools, there was a high level of interest among both children and parents in a 'walking bus' initiative.

As a result, another (n=1,075) survey was conducted in 2010 at the six primary schools that had shown the highest levels of interest in the initiative (Muchaka *et al*, 2010). The 2010 implementation survey aimed to create a database of willing 'walking bus' participants. The 2010 implementation survey showed lower levels of interest in the initiative than the 2009 feasibility survey. However, the percentage of parents willing to participate, either as consent-givers or volunteers was still sufficiently high to make 'walking buses' a viable intervention. The levels of interest in the initiative in the 2009 feasibility and 2010 implementation surveys are shown in table 1.

Table 1 Parental permission for learner participation in, and parent willingness to supervise, 'walking buses' (percentage)

| | | | Yes | No | Item non-response | Recording error | Total |
|---------------------------------------|--------------------------------------|--|------|------|-------------------|-----------------|-------|
| Feasibility survey, 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 |
| Implementation survey, 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 |

Children were also found to be interested in using NMT modes for school travel. This was supported by data from a further child independent mobility² survey (n=170) conducted in 2011 at two high-income schools in two neighbourhoods (including Rondebosch) in Cape Town. With respect to school trip mode preference, of the 139 children travelling to school by car in that survey, 37% indicated that they would prefer to travel by a NMT mode (28% by bicycle and 9% by walking) (Behrens and Muchaka, 2011).

The 2010 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 (see Muchaka *et al*, 2011). Various stakeholders, including the local councillor, City of Cape Town representatives and school principals, were engaged in the implementation of the trial runs. Preparations also involved a parent meeting at which details of the 'walking bus' concept was introduced, and associated road safety issues for parent volunteers were discussed.

Following the trial runs, 'walking buses' were launched at two trial schools (Oakhurst Girls Primary School and Rondebosch Boys Preparatory School) in March 2011. The demonstration schools and all schools that participated in the 2010 implementation survey are shown in figure 1. The two schools advertised the 'walking bus' initiative in their respective newsletters at the end of the fourth term in 2010. 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. The main characteristics of each of the 'buses' are summarised in table 2.

Table 2 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 |

² 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. Child independent mobility studies were conducted in England in 1970 and England and Germany in 1990. An international collaborative study replicating the UK 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 (see Behrens and Muchaka, 2011)



Figure 1. Locality map of participating Rondebosch schools (implementation survey), and ‘walking bus’ demonstration schools



Figure 2. Rondebosch ‘walking buses’

4. RESEARCH METHOD

To evaluate the impacts and long-term viability of the 'walking buses' demonstrated in Rondebosch, qualitative interviews were conducted with participating parents and children. The original intention was to utilise a mixed quantitative-qualitative method. 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). 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 briefly in terms of method and limitations.

4.1 Evaluation method

The 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 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 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.

The interviews were conducted using an open-ended question schedule which was divided into two sections. The first section listed 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 listed 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'.

4.2 Limitations

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 below would have been different.

5. FINDINGS

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 their respective 'walking bus'; 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.

5.1 Mode use to school

Notwithstanding the small quantitative nature of the sample, the results indicate that 'walking buses' have the potential to generate transport system benefits in terms of influencing mode choice change (see table 3). 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 ..."*

5.2 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 cold and wet 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."*

Table 3 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 |
| | | | Car | Walking | Yes | 4b | Girl | Yes |
| 5 | Male | Consent giver | Car | Car | No | 5 | Boy | Yes |
| 6 | Female | Both | Car | Car | No | Child not available | -- | -- |
| | | | Car | Car | No | Child not available | -- | -- |
| 7 | Female | Both | Walking | Walking | No | 7 | Girl | Yes |
| 8 | Female | Both | Car | Car | Yes | 8a | Boy | Yes |
| | | | Car | Car | Yes | 8b | Boy | No |
| 9 | Male | Both | Car | Walking once a week | Yes | Child not available | -- | -- |
| 10 | Female | Both | Car | Walking once a week | Yes | 10 | Boy | Yes |
| 11 | Male | Both | Car (Lift club) | Walking/cycling once a week and car on other days | Yes (once/twice per week) | 11a | Boy | Yes |
| | | | Car (Lift club) | Walking/cycling once a week and car on other days | Yes (once/twice per week) | 11b | Boy | Yes |
| 12 | Female | Both | Car (Lift club) | Car (Lift club) | No | 12a | Girl | Yes |
| | | | Car (Lift club) | Car (Lift club) | No | 12b | Boy | Yes |
| 13 | Female | Both | Car (Lift club) | Car (Lift club) | Yes | 13 | Boy | Yes |
| 14 | Female | Both | Car | Walking once a week and car on other days | 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

5.3 Impacts of 'walking buses'

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

5.3.1 *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 burn off energy 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).

5.3.2 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 get 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. DISCUSSION AND CONCLUSIONS

The aims of this paper were to assess the impacts of the 'walking bus' initiative in participating Rondebosch schools, and to explore possible improvements in the establishment of 'walking buses' in future initiatives.

With regard to the impacts of the initiative, the 'after' qualitative interviews 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 paper 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. In terms of longevity, the Rondebosch 'walking buses' were short lived (less than 6 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 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. 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.

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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