

AUCKLAND REGIONAL TRANSPORT AUTHORITY

School Travel Plan Evaluation: 2007 School Year



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Executive Summary

Background

In recent years, student's active travel to and from school has declined substantially, whereas personal car usage is on the increase. TravelWise for Schools was conceived to facilitate active and public transport options to and from Auckland schools, and thereby ease traffic congestion, improve road safety, reduce CO₂ emissions, and encourage physical activity. North Shore City Council was the first council to initiate the TravelWise programme in 2002. The programme became regional under the coordination of the Auckland Regional Transport Authority (ARTA) in partnership with the Auckland Territorial Local Authorities (TLA) and was launched by the Prime Minister in March 2005.



A major part of this programme is the School Travel Plan (STP). The STP takes a collaborative approach to the development of travel strategies tailored to meet the needs of individual schools. This consists of educational and promotional campaigns to promote active transport (e.g. walking, Walking School Bus (WSB), scooter, and/or cycling), building of traffic calming measures, installation of crossings, improvement of roads and footpaths, cycle training for students, and parking restrictions. At each school, development and implementation of the STP initiative is facilitated by an ARTA school travel coordinator and the local council.

The impact of STP implementation in 2007 was evaluated by a detailed assessment of 14 case study schools (Primary, Intermediate and Secondary), and by determining changes in travel mode (e.g. car, walking, public transport) to date in 68 schools (Primary, Intermediate and Secondary). The evaluation detailed in this report was conducted in accordance with the following objectives:

1. Evaluate changes in transport mode resulting from the STP programme.
2. Investigate the reasons why some travel plans appear to deliver greater outputs than others.
3. Recognise the challenges and successes associated with implementing the STP.
4. Examine the prevalence and perceptions of the WSB initiative.

Transport Profile Evaluation

Personal car usage was clearly the most popular mode of transport, with nearly half of the 2007 sample commuting to/from school by car (45.7%). Active transport to and from school was also relatively common: 38.4% of children either walked or cycled to/from school. Public transport usage (bus, train) was less prevalent than walking (12.9%). Variation in transport profiles were observed between school types, with Primary school children most likely to be driven to school and Secondary school children most likely to use public transport.

Participation in the STP programme was associated with a **3.4%** decrease in car usage and a **2.4%** increase in active transport. A smaller increase in public transport use was also observed (1.0%). Overall, two thirds of the participating schools experienced positive changes to the frequency of active and public transport.

Students from low Socio-Economic Status (SES) schools (deciles 1-5) were more likely to walk or cycle and less likely to commute by car when compared to their high SES counterparts (deciles 6-10). Differences in transport modalities between baseline and 2007 also varied by SES; for example, personal car usage decreased by 3.8% in high SES schools and only 1.8% in low SES schools.¹

Schools that have participated in the STP since 2004 showed the greatest improvements in transport profiles in the first year of implementation. Second and third year improvements showed a decrease, suggesting that the benefits of the STP may plateau after three years. It is also probable that the different seasons at which the measurements were taken may have masked an increase in the use of active and public transport.

¹According to the Ministry of Education (2007), "a school's decile indicates the extent to which the school draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students."

Participation in the STP or WSB programmes in 2007 was associated with a reduction in over 4,500 vehicle trips every morning, equivalent to a reduction of 2.4 million in vehicle trips and a reduction in 3.3 million in vehicle kilometres travelled (VKT) each year. The positive effects of the STP on the environment have exceeded target values in all four years since its establishment.

Case Study Evaluation

Case study schools were chosen based on the following criteria: i) school readiness for the winter roll survey, ii) performance compared to baseline, iii) at least one from each TLA, iv) a balance of low and high decile schools, v) inclusion of Intermediate and Secondary schools, vi) school roll, vii) STP implementation stage, and viii) inclusion of cluster schools. Schools identified were asked to participate. Those that agreed comprised the 14 case study schools.

Most of the 14 case study schools enjoyed positive changes in walking and decreases in car use, although some experienced the opposite. Case study schools were analysed according to high and low performance against baseline. Eight high performing schools averaged a 6.6% increase in active/public transport between baseline and 2007, whereas six low performing schools averaged a 5.4% decrease.

Interestingly, parents from low performing schools showed greater awareness of the STP than parents from high performing schools. However, parents from low performing schools were less likely to consider their neighbourhood safe for children to travel without adult supervision. Furthermore, the age at which parents from low performing schools believed was appropriate for independent bus travel was higher than for parents from high performing schools.

Following an in-depth analysis of the interviews with the principals, lead teacher and school travel coordinators, key successes of the STP include: support from parents and children, raised awareness, and infrastructural changes. Common challenges were time, financial constraints and insufficient behaviour change.

Walking School Bus Evaluation

The WSB scheme was first introduced to Auckland in 2000; key stakeholders are parents, supported by school managers, school travel coordinators, injury prevention practitioners, and health promoters. At present, there are

230 WSB routes in 100 Auckland schools. Furthermore, data show that the prevalence of the WSB continues to increase in the Auckland region. While decile 10 schools make up the majority of WSB participants, the greatest proportional increase from 2006 was in the decile 1 schools. This suggests that the WSB is becoming 'normalised' in Auckland school communities.

There is also an increase in the number of WSB routes with male volunteers; from 54% to 63% between 2006 and 2007. Schools enrolled in the STP programme accrued almost one third more registered WSB walkers and over one fifth more registered volunteers than non-STP schools. The 2007 findings also showed that parents perceive the most important benefit of the WSB to be the community and social involvement.

Recommendations

- The STP programme continues to be funded and expanded to maximise its reach in the Auckland region.
- Sub-studies are conducted alongside STP evaluation to determine modal changes in non-STP schools.
- Case study schools should be followed longitudinally to better understand behaviour change motivators.
- Greater emphasis should be placed on parental education in the STP programme.
- Formal launch of the STP should coincide with completion of some infrastructural change.
- The number and frequency of buses for school transport particularly for high schools need to increase.
- Focus should continue on increasing participation in the WSB programme, particularly with regard to encouraging male volunteers and increasing uptake in low and **middle decile primary schools**.
- Monitoring the original 16 schools in the future would help clarify if the gains achieved in the first three years have reached a plateau.
- A more focused investigation is needed to determine the effects of specific infrastructural changes on STP success.
- Future STPs should consider the needs of and impact on both schools and the wider community.
- While contribution from principals, lead teachers and school travel coordinators was valuable, in future evaluations interviews should include the council's perspective.



SECTION I

Introduction

Background

Children's active travel (e.g. walking, cycling) to and from school has declined substantially over the last few decades in many developed countries, including the United States and the United Kingdom. Similar declines have also been observed in New Zealand (Ministry of Transport, 2006), where in the last decade walking trips to school decreased, while travel to school by private car increased. Direct consequences of the increase in car reliance for school-related travel is traffic congestion, especially around schools at start and finish times, poorer air quality, reduced safety, and less active transportation. Car reliance for school-related travel may be a likely contributor to the increase in childhood obesity levels.

The declining rates of active transport have reduced opportunities for students to be physically active. Increased commute distances, limited walking and cycling infrastructure between home and school, higher household automobile ownership, and parental concerns about neighbourhood safety and traffic are purported as reasons for the decreasing levels of school-related active transport (Schlossberg et al. 2006, Ewing et al. 2006). As explained elsewhere, parental perceptions and societal attitudes have the most influence on a child's school-related travel modality (McMillan, 2007).

Internationally, government funding has been redirected to develop and implement strategies to encourage students to walk or cycle to school. The US-based Safe Routes to School program, which is a federal, state, and local government initiative, is an example of this in which traffic enforcement, physical environmental changes around the school site, and

education strategies are implemented within each school. The Safe Routes to School program has been shown to be effective in increasing the number of students who actively commute to school (Boarnet et al. 2005, Staunton et al. 2003).

In New Zealand, TravelWise for Schools is a similar programme designed to reduce traffic congestion, improve road safety, and provide alternative transport options for travelling to and from destinations in Auckland. A major part of this programme is the School Travel Plan (STP). The STP programme takes a collaborative approach between schools, local community, councils, ARTA, and other stakeholders in order to develop travel strategies tailored to meet the needs of individual schools. The STP initiative consists of educational and promotional campaigns to promote active transport (e.g. walking combined with Walking School Bus (WSB) implementation or cycling), safer crossing points, building of traffic calming measures, improvement of roads and footpaths, cycle training for students, and parking restrictions.

North Shore City Council was the first council to pilot the TravelWise for Schools programme in 2002. Launched by the Prime Minister in March 2005, TravelWise for Schools became regional under the coordination of Auckland Regional Transport Authority (ARTA) and the Auckland TLAs. Initially, the programme ran in Primary schools in North Shore City and over the subsequent years in Intermediate and Secondary schools.

TABLE 1. Number of schools recruited to the TravelWise programme each year.

	2003	2004	2005	2006	2007
SCHOOL TYPE					
Primary	4	21	16	20	38
Intermediate	0	2	6	5	4
Secondary	0	3	7	5	8
SCHOOL LOCATION					
Auckland City	0	3	9	10	23
Franklin District	0	0	0	0	0
Manukau City	0	0	1	4	7
North Shore City	2	18	12	4	4
Papakura District	0	1	0	0	4
Rodney District	0	0	1	7	6
Waitakere City	2	4	6	5	6
CUMULATIVE TOTAL	4	30	59	89	139



At the time of writing this report, a total of 139 schools had launched or completed a STP (Table 1). This represents over 90,000 students or approximately 36% of the Auckland region's total school student population of 250,000 students. The programme is intended to reach all schools within the Auckland region by 2014. A unanimous vote at the Walk 21 conference held in Melbourne in 2006 gave ARTA the prestigious International Walk to School (IWALK) award for the TravelWise for Schools programme. The award originated in Sweden and has recognised the programme as world-class.

Previous Evaluations

Results from the 2005 Evaluation Report have shown an overall decline in family car use by 3.8%. Fifteen of the 18 schools reported a decrease in family car use over the STP period (range of total sample: -13 to 4%). Walking (WSB and independent) had shown an increase by 3.6%. Fourteen of the 18 schools reported an increase in walking over the STP period (-5 to 21%). All of the eighteen schools reported an increase in car sharing over the STP period. The percentage change for car pooling ranged from 1% to 5%.

Results from the 2006 Evaluation Report showed a decline in family car use by 3% (range: -26 to 14%) which followed a similar trend established in the 2005 (3.8%). There was an average increase in independent walking by 3% (range: -9 to 42%). This was a better overall change as compared to the 2% achieved in 2005 Report. In both evaluations the results from the case study schools were generally consistent with the trends demonstrated by the larger sample size.

Overall, case study (Primary schools) results from the two previous reports indicated that sustainability of STP depended heavily on ongoing support from parents, organisational skills of lead teacher, and liaison capabilities of the school travel coordinator. Schools had encountered a variety of successes and challenges

depending on individual circumstances. Commonly cited challenges included: (1) length of time between consultation and infrastructural change; (2) lack of parental support; and (3) time support for lead teacher. Commonly cited successes were: (1) incentives (encouraged participation); (2) WSB; and (3) parental support.

Objectives

The overall aim of this Evaluation Report was to assess the impact of STPs on the transport profiles from baseline of all participating schools. The success of STP implementation was evaluated and interpreted from themes arising from a detailed assessment of 14 case study schools (Primary, Intermediate and Secondary). This was achieved by meeting the following objectives:

1. Evaluate transport modality changes resulting from the STP.
2. Investigate the reasons why some travel plans appear to deliver greater outputs than others.
3. Recognise the challenges and successes associated with implementing the STP.
4. Examine the prevalence and perceptions of the WSB initiative.

Methodology

Transport Profile Evaluation

Seventy four schools were invited to participate in the STP survey. Two schools were excluded from final analysis due to incomplete data, two schools had changed physical location, one school had a change in zoning, and another school withdrew as a result of an incident the week prior to the survey. Overall, 52 Primary schools, seven Intermediate, and nine Secondary schools comprised the final sample (68 in



total). School size ranged from 122 to 2,241 students. Schools launched their STP in 2004 (21), 2005 (24) and 2006 (23). The follow-up survey sampled 35,153 students across 68 schools (10,765 Primary, 13,705 Intermediate, 10,683 Secondary students). On reporting aggregate mode percentages, the baseline and follow-up STP values of students' actual travel modes were weighted according to each school's roll as determined by the Ministry of Education in the year the survey was undertaken. At 95% confidence interval, the margin of error on reporting aggregate modes was 0.22%.

Roll surveys were used to ascertain child travel modalities to and from school. The 2007 evaluation surveys were undertaken during the winter season on any day (regardless whether the day was wet or dry) of a particular week. It should be noted that this was in contrast to previous surveys that were collected during the summer months. Teachers within the 68 schools asked the students on a designated day to state their travel mode to school that morning and intended mode from school. A number was recorded from a simple show of hands for each option for children under the age of eight. For older children, data were gathered using individual survey questionnaires. A similar methodology was employed at baseline.

Case Study Evaluation

Fourteen contributing (Edendale, Glamorgan, Glenfield, Helensville, Henderson North, Oteha Valley Road and Pomaria), Intermediate (Henderson Intermediate, Kowhai Intermediate), full Primary (St Joseph's and St Mary's), and Secondary schools (Liston College, St Dominic's and Waitakere College) were selected from the Auckland region as case study schools for the 2007 evaluation. Case study schools were chosen based on the following criteria: i) school readiness for the winter roll survey, ii) performance change from baseline, iii) TLA representation, iv) a balance of low and high decile schools, v) inclusion of Intermediate and Secondary schools, vi) school roll representation, vi) STP implementation stage, and vii) belonging to a cluster

school. Schools identified were asked to participate. Those that agreed comprised the 14 case study schools.

Principals, lead teachers, and school travel coordinators participated in semi-structured interviews to evaluate the success of the STP initiative in each of the 14 schools. The interviews served to explore differences between individual STP experiences/outcomes and programme expectations. While quantitative measures indicate in a literal sense whether STP outcome objectives were being met, the qualitative interviews identified pragmatic perceptions of the impact of the programme. The semi-structured interviews provided a forum to allow a relaxed setting where participants could be candid. Key themes were drawn and programme recommendations were made based on the common themes.

Cross-sectional data from surveys collected during the evaluation were also analysed and compared to baseline results for the 14 case study schools. Parent questionnaires were distributed to all students within the selected schools. The surveys were paper-based and questions pertained to parents' perceptions and attitudes towards their children's travel to school. Specifically their attitudes towards the age at which a child should use active transport, neighbourhood safety, STP awareness, and perception of knowing others in the neighbourhood are reported.

Walking School Bus Evaluation

Two hundred and thirty Walking School Bus (WSB) routes were operating at the time of this evaluation at 100 schools in the Auckland region. The 2007 survey yielded responses from the coordinators of 160 routes (77% response rate) operating at 75 Primary schools across the Auckland region. Thirty-one of the routes were established in 2007 and could not have been included in previous surveys. The lower number of new routes highlights the relatively established nature of WSBs in the region.

A short self-completion questionnaire was distributed to WSB parent coordinators at all schools known to be operating or trialling WSB routes. The questionnaire was mailed to parent coordinators in October 2007, and requested information relating to the operation of their WSB route over the last school year. Each route for which a questionnaire was returned completed received a \$200 contribution from ARTA towards ongoing WSB operating costs. Information provided by respondents was then entered into a database and analysed by ARTA in collaboration with University of Auckland and AUT.





SECTION II

Transport Profile Evaluation

2007 Transport Profiles

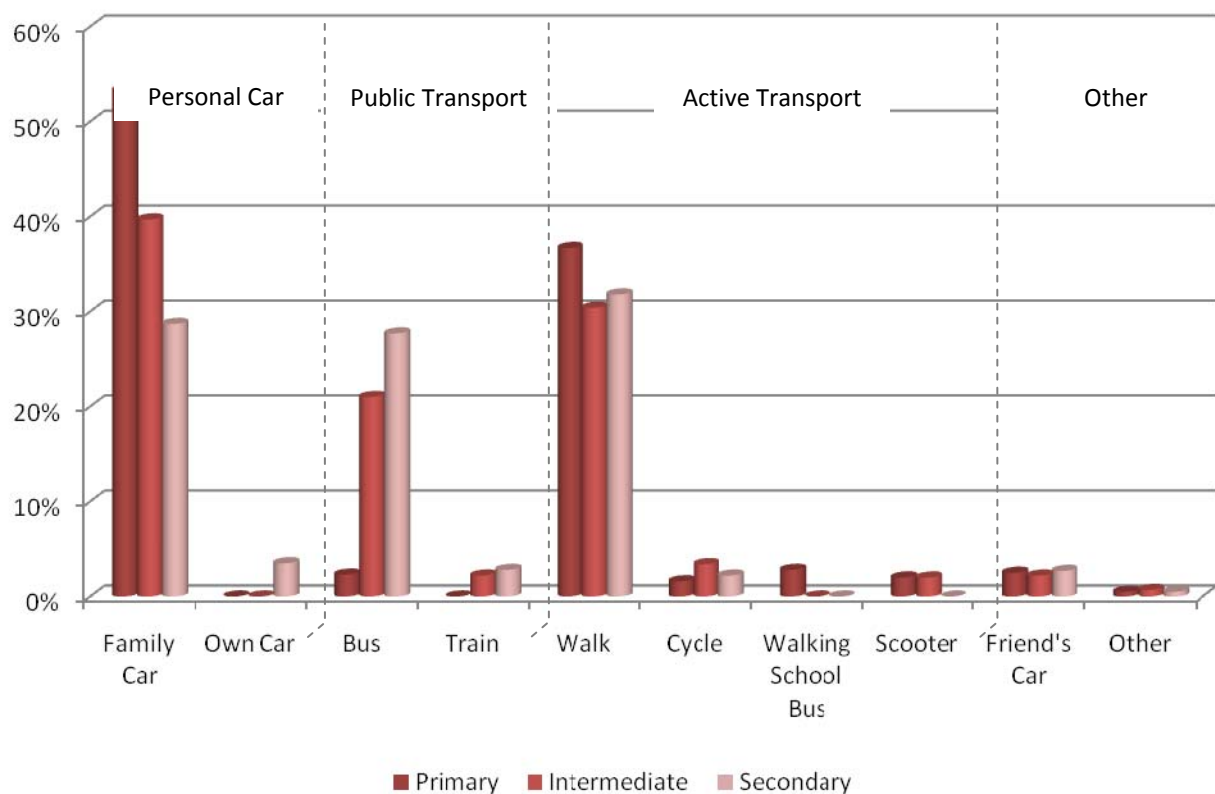
The descriptive data collected in the 2007 travel surveys enabled the most common means of travelling to and from school to be identified. After weighting by school size, car usage was clearly the most popular mode of transport, with nearly half of the 2007 sample commuting to/from school by car (48.4%). Active transport to and from school was also relatively common: 38.3% of students either walked or cycled to/from school. Public transport usage (bus, train) was less prevalent than walking in participating students (12.8%).

It is also important to understand how travel choices differ by school type. Changes in environmental and social influences as students' progress from Primary through to Secondary school can have a significant impact on the travel profiles. The data presented in Figure 1 demonstrate that the proportion of students engaging in each transport mode is often dependent on their school level. For example, the family car is used to travel to and from school in 53.3% of Primary-aged students, but only 39.7% and 28.7% of Intermediate- and Secondary-aged students (respectively). This decrease in car usage with age can be predominantly explained by the rise in bus usage as students reach



Intermediate and Secondary level. Whereas only 2.3% of Primary-aged students travel to/from school by bus, nearly one in every three Secondary school students use this public transport service (27.7%). Walking is another popular choice that remains relatively consistent across school types. The remaining travel modes (own car, train, cycle, walking school bus, scooter, friend's car, other) were infrequently used to commute to/from school in the 2007 sample. 'Friend's Car' was included in the 'Other' category, as a mode shift to active or public transport will not result in a reduction in actual car usage (the 'friend' will still drive to/from school).

FIGURE 1. Current profile of transport modes to/from school in the 68 schools with a STP.



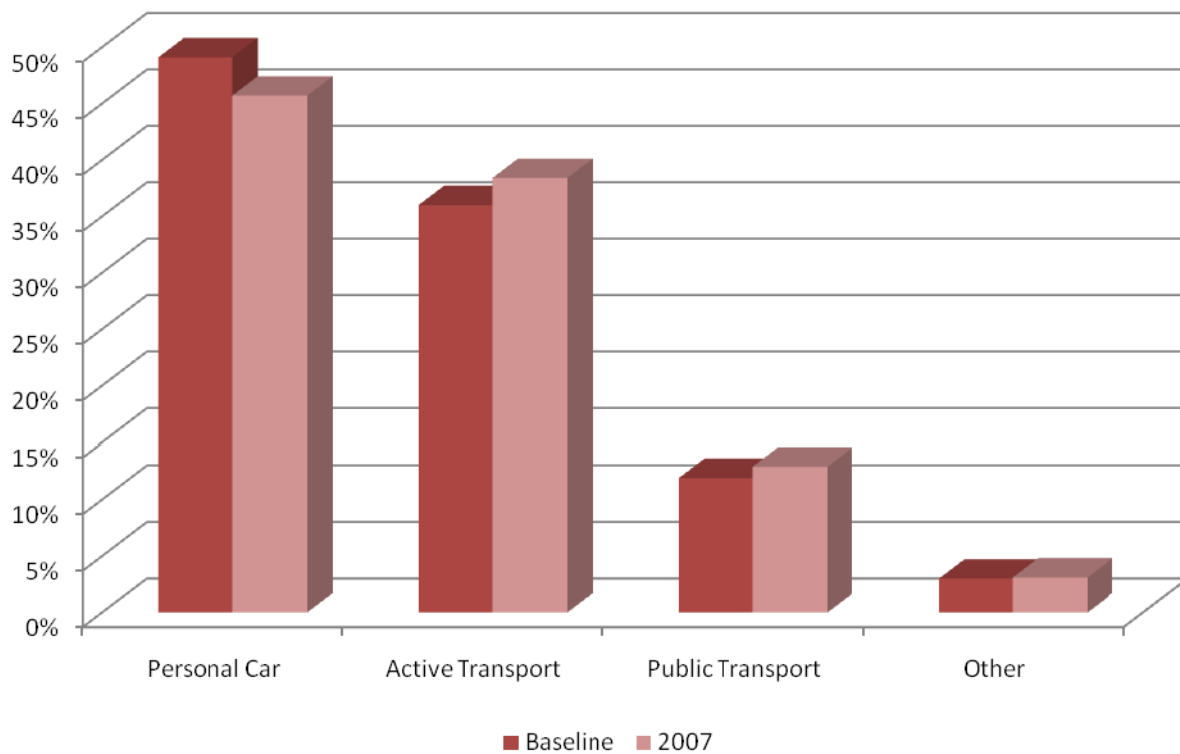


FIGURE 2. Change in the frequency of travel modes between baseline and 2007.

Effects of STP on Transport Profiles

To investigate the effect of STP implementation on travel modes to and from school, the percentage of students engaging in personal car usage (family and own car), active transport (walk, cycle, WSB and scooter), and public transport at baseline and in 2007 was compared after weighting by school size (Fig. 2). Participation in the STP was associated with a 3.4% decrease in personal car usage, and a 2.4% increase in active transport. A smaller increase in public transport utilisation was also observed (1.0%). This suggests that a STP has contributed to an improvement in the transport profiles of participating schools.

Non-weighted percentage changes in active and public transport usage for each of the 68 participating schools are presented in Figures 3 and 4 (next two pages). Overall, 48 (66.7%) schools experienced increases in active and public transport between baseline and 2007, while 24 (33.3%) showed negative changes. Percentage differences ranged from +14.9% to -15.6%, with a mean change across all schools of +2.4%. It should be noted, however, that one school had a change in zoning (+), one school had a stranger danger issue (‡), and two schools had a physical location change (§). Other schools may have experienced issues that affected active and public transport that may not have been recognised by the schools.



FIGURE 3. Non-weighted percentage changes in active and public transport usage for participating schools.

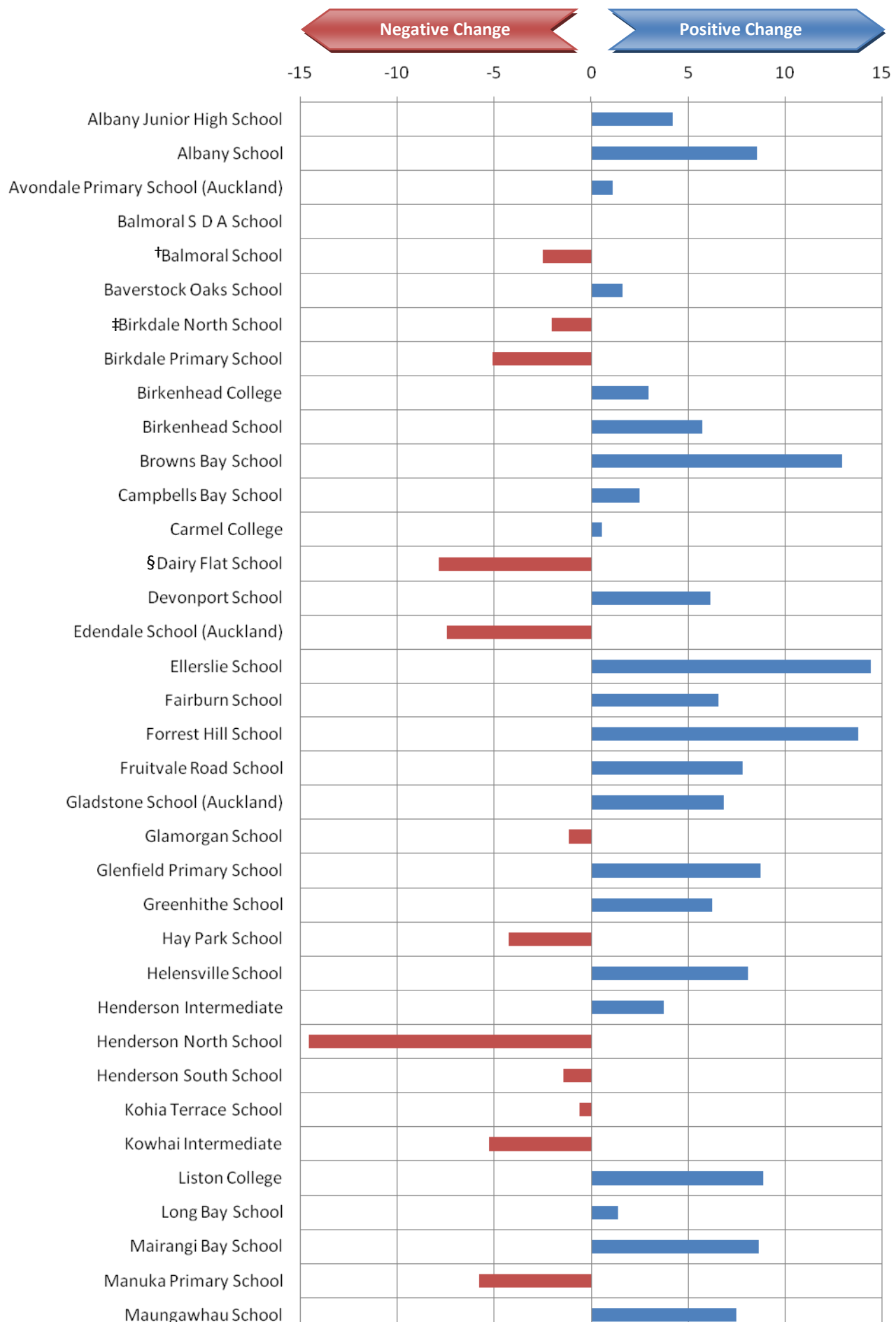
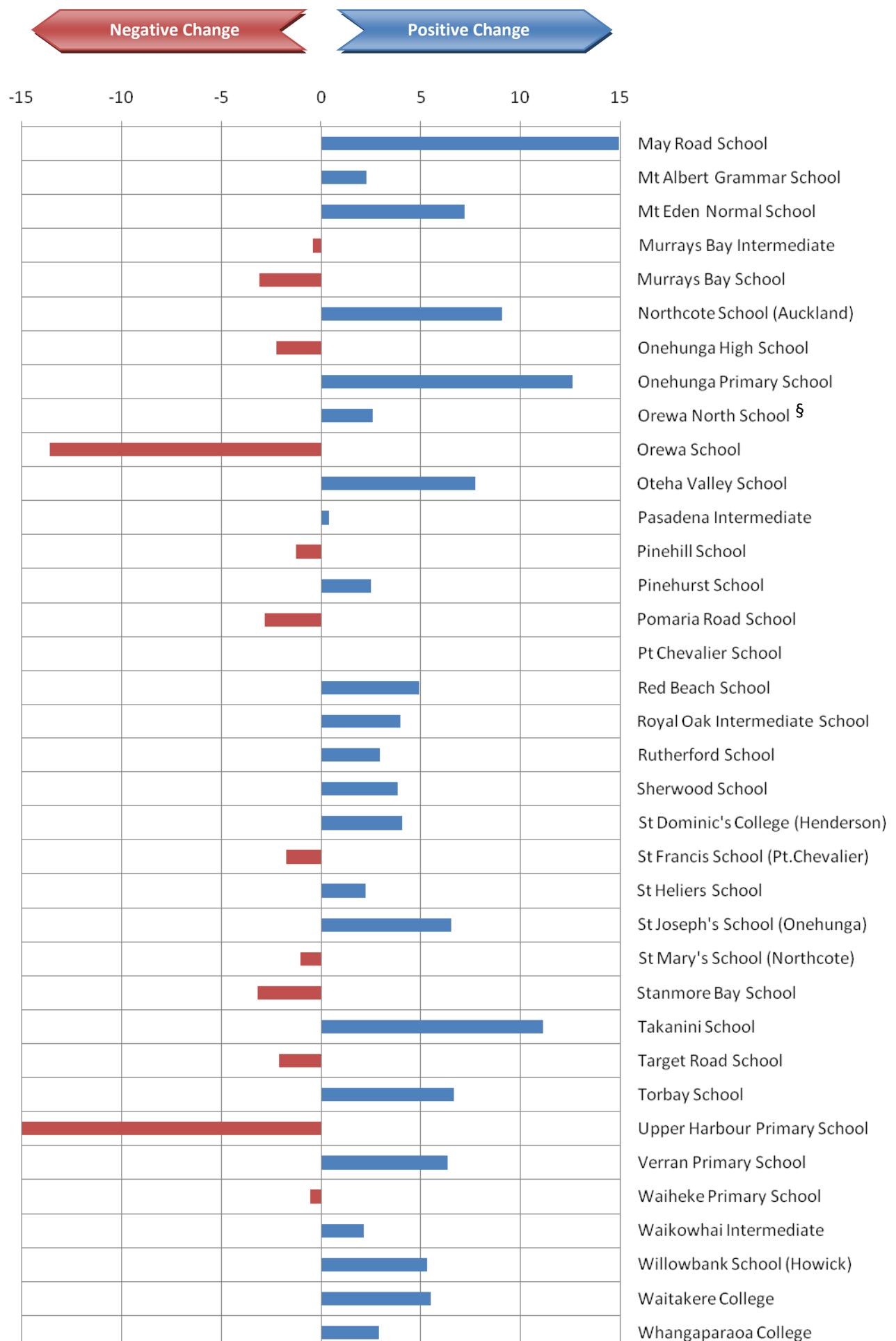


FIGURE 4. Non-weighted percentage changes in active and public transport usage for participating schools (cont).



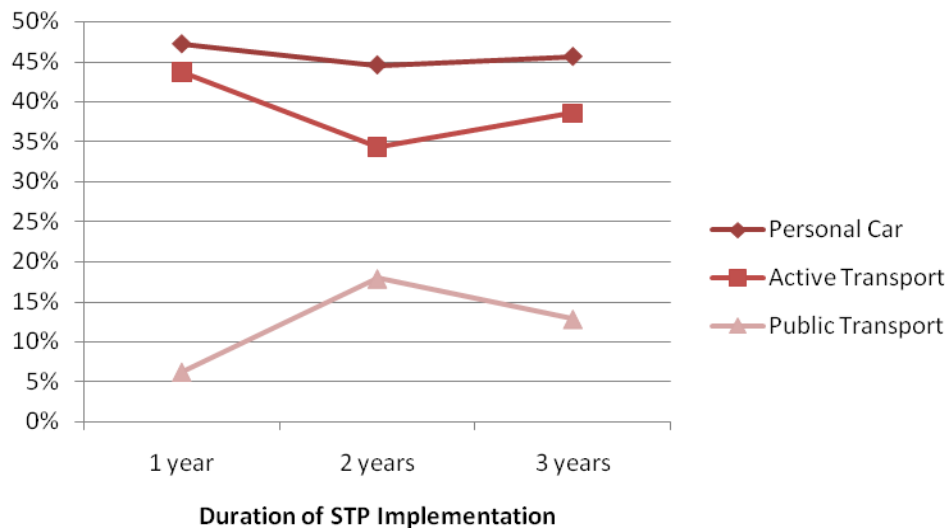


FIGURE 5. Frequency of travel modes in 2007 grouped by the duration of STP implementation.

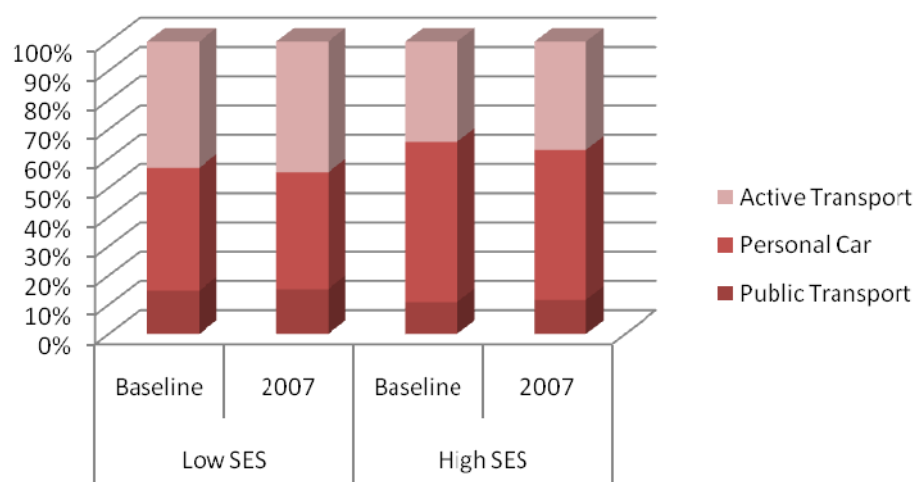
The time between baseline and follow-up STP measurements varies among the schools. For example, 33.8% of schools currently participating in the TravelWise programme were recruited in 2004, while 35.3% and 30.9% were recruited in 2005 and 2006 (respectively). This means that the 2007 dataset includes schools that have been involved with STP, regardless of whether schools were proactive in implementing the STP, for one, two, or three years. It is reasonable to expect that schools involved in TravelWise for three years may receive more benefits than those that have recently introduced a STP. Figure 5 shows the frequency of car usage, active transport, and public transport in 2007 weighted by school size and grouped according to the duration of STP implementation. Interestingly, there appears to be a limited relationship between the choice of transport modes and the length of participation. The only

noticeable trend was the greater frequency of public transport in schools recruited in 2004 and 2005 when compared with schools recruited in 2006.

Although Figure 5 shows few associations between STP duration and transport profile in the 2007 dataset, it is important to determine if the change from baseline to follow-up STP is dependent on the length of implementation. Our results show that schools that have participated for one or two years average a 3.0% increase in active and public transport. This rises to 4.0% in schools with a STP for 3 years. These patterns suggest that the maximum benefits of the STP programme may require three years of implementation. Whether or not subsequent years would result in further improvements requires further investigation.

Socioeconomic status (SES) is another factor that may

FIGURE 6. Change in transport profile between baseline and 2007 grouped by socioeconomic status.



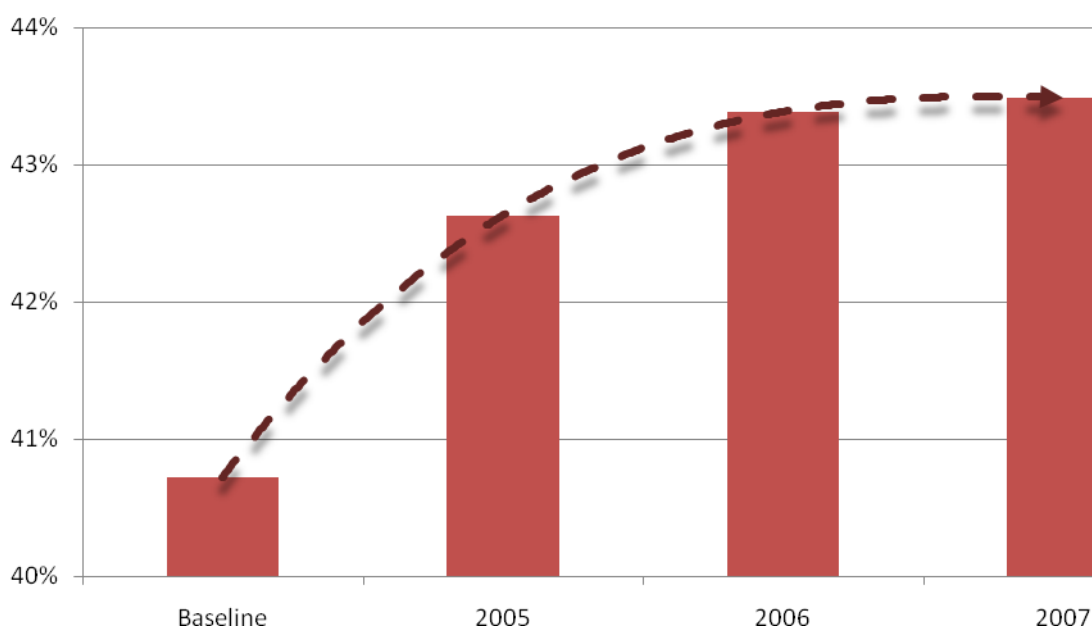
influence the outcomes related to STP implementation. Socioeconomic status is a measure of an individual's place within a social group based on various factors, including income and education. Figure 6 shows the changes in transport profiles between the baseline and 2007 surveys when grouped according to SES. It is clear that students from low SES schools (deciles 1-5) are more likely to walk or cycle and less likely to commute by car when compared to their high SES counterparts (deciles 6-10). According to the Ministry of Education (2007), "a school's decile indicates the extent to which the school draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students."

In addition, the difference in transport modalities between baseline and 2007 vary by SES. Personal car usage decreased by 3.8% in the high SES schools but only 1.8% in the low SES schools. This is not surprising as the already low prevalence in car use in low SES schools means that there is less capacity to change. A difference was also observed for active transport, with a 2.5% increase in high SES schools exceeding the 1.8% increase in low SES schools. The already higher prevalence of active transport in low SES schools is most likely the reason. Nevertheless, the overall effects of the STP programme on transport profiles are positive in both SES groups.

Longitudinal Analyses

The associations between the duration of STP implementation to baseline and follow-up changes in transport profile across the whole sample were examined. In this sub-section, only the non-weighted data from the 16 schools enrolled since 2004 were assessed. This provides a longitudinal description of the year-to-year changes in transport profiles that accompany STP implementation. The percentage of students that engaged in active or public transport is presented for each year of the TravelWise programme (Fig. 7). While a positive change was observed for each successive year, the magnitude of the change gradually decreased. The biggest difference occurred between baseline (2004) and 2005 (+1.9%), with the smallest difference between 2006 and 2007 (+0.1%). These findings suggest that the improvements associated with the STP plateau after approximately two to three years of implementation. This is counterintuitive, as public health interventions of this nature generally require several years to achieve maximum impact. It is possible that the key outcomes of the STP are achieved at an early stage, and that further benefits require the allocation of additional time and resources. There may also be confounding factors that mask an increase in active and public transport. For example, the 2006 measurements were taken in the summer months, whereas the 2007 measurements were taken in winter. In any case, monitoring the original 16 schools in the future would help clarify if the gains achieved in the first three years have reached a plateau.

FIGURE 7. Longitudinal changes in active and public transport engagement.*



*It should be noted that the 2007 survey was held in winter while earlier surveys were held in summer.

	Number of Students	Morning Vehicle Trips ^a Reduced	Annual Vehicle Trips Reduced	Annual VKT Reduction	CO ₂ Equivalent (tonnes)
STP Schools	65,252 ^b	3,113	1,785,603	2,563,373	846
Non-STP Schools with WSB	1,863	1,390 ^c	604,435	725,322	239
TOTALS	67,115	4,503	2,390,038	3,288,695	1,085

^a Trip is defined as one-way to school; ^b total number of schools by 07 survey; ^c calculated based on predicted values from previous report including proportion of WSB passengers displaced from vehicle trips, average trips avoided per day, and proportion of clear days.

TABLE 2. Environmental impact of the STP and WSB programmes.

Environmental Effects of STP

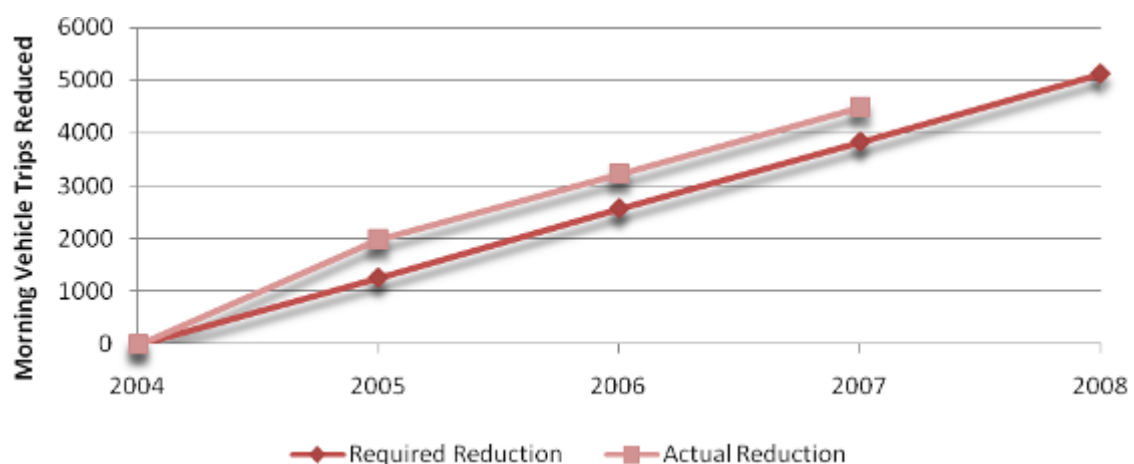
To place the previous findings into a wider context, the environmental impact of the STP-related changes in travel profiles was estimated. Schools that were not part of the STP but had a WSB operating were also included in the analysis. Table 2 shows that STP/WSB implementation resulted in over 4,500 fewer vehicle trips each morning; equivalent to an annual reduction of nearly 2.4 million trips. Based on an average trip length of 1 km for Primary school students and 3 km for Intermediate and Secondary school students, this represents a 3.3 million reduction in vehicle kilometres travelled (VKT). As a consequence of STP and WSB, it is estimated that over 1,000 tonnes of CO₂ was prevented from release into the environment. For more information on the specific calculations refer to Sridat Kota (Data Analyst, ARTA).

One of the key requirements of the STP is to achieve a series of targets that correspond to a linear decrease in the number of morning trips in the Auckland region. This target equated to a 1,260 reduction in 2005, rising to a 3,840 reduction in 2007. Figure 8 shows that for each year of implementation, the number of morning trips reduced by the STP has exceeded the required threshold.

Key Points

1. In 2007, the most common mode of transport to/from school was by personal car (45.7%), followed by active transport (38.4%), and by public transport (12.9%).
2. STP implementation was associated with a 3.4% decrease in personal car usage (family and own car), a 2.4% increase in active transport (walk, cycle, WSB and scooter), and a 1.0% increase in public transport (bus and train).
3. Two-thirds of schools with a STP experienced positive changes to active/public transport.
4. The benefits of STP implementation appear to plateau after two years, although this may be due to seasonal variation between surveys.
5. The STP and WSB programmes reduce the number of vehicle trips by over 4,500 every morning.

FIGURE 8. Comparison of the required and actual reduction in morning vehicle trips associated with STP.





SECTION III

Case Study Evaluation

Transport Profiles

A key aspect of this evaluation was to determine the reasons why some travel plans appear to deliver greater outputs than others. An understanding of the factors that contribute to successful implementation of the STP will assist in future delivery of the programme. Case study schools were chosen based on the following criteria: i) school readiness for the winter roll survey, ii) performance change from baseline (differences in effectiveness), iii) TLA representation (at least one from each TLA) iv) deciles 1-6 representation (at least one school) v) inclusion of Intermediate and Secondary schools (at least two Intermediate and one Secondary), vi) school roll (at least three schools over 500 students), vi) STP implementation stage (must have launched STP), and vii) inclusion of cluster schools. Schools identified were asked to participate. Those that agreed comprised the 14 case study schools. For the purposes of this first analysis schools were split into “high” and “low” performing in comparison to baseline to determine behaviour change. It is important to note that this classification does not reflect the proportion of students using the different modes (e.g. walking). Schools deemed ‘high performing’ showed **increases** in active transport and decreases in car use between baseline and 2007, while ‘low performing’ STP schools were those that had shown substantial increases in car use with small changes in active modes.

Figure 9 compares the percentage changes in the prevalence of active and public transport (mainly school bus) between baseline and 2007 in high and low performing schools. The eight high performing schools averaged a 6.6% increase in active and public transport, whereas the six low performing schools averaged a 5.4% decrease from baseline levels.

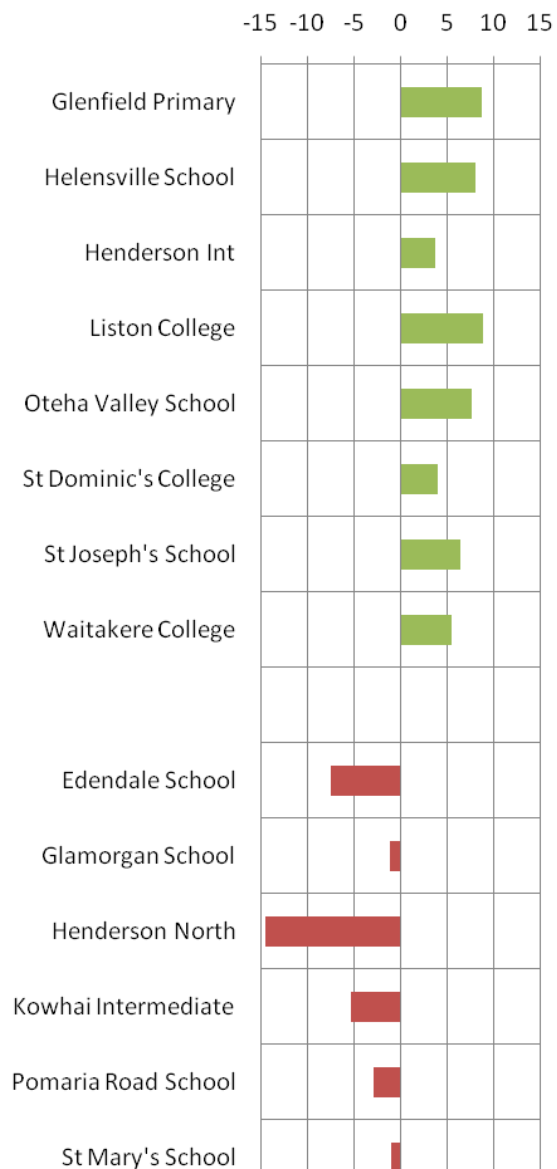
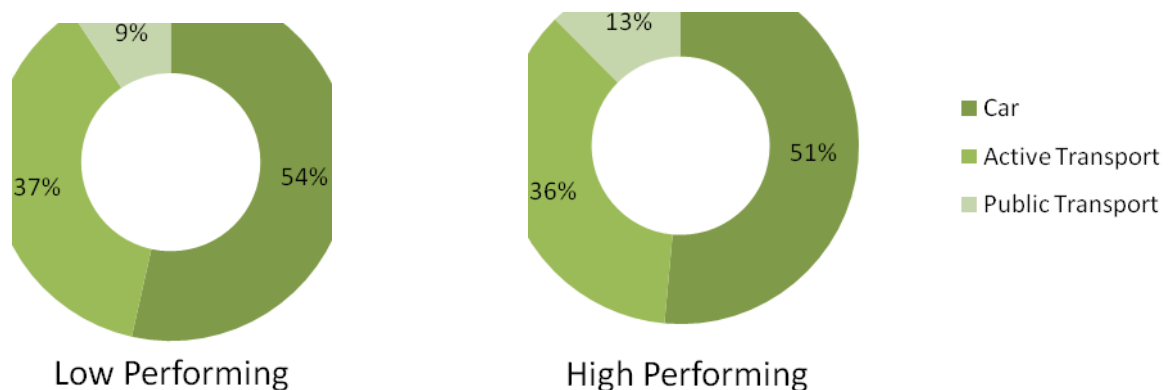


FIGURE 9. Percentage change in active and public transport for high (top) and low (bottom) performing schools.

FIGURE 10. Comparison of 2007 travel modes by high and low STP performance.



In 2007, high performing schools reported substantially higher rates of public transport when compared to low performing schools (Fig. 10). This could be due to the type of schools comprising the high performing group; three of the schools were colleges, two of which are Catholic schools with a wide catchment area. Low performing schools reported higher levels of car use for school travel purposes when compared to high performing schools. This finding agrees with the results from the larger study that car usage decreases with age as students move from Primary to Secondary school. Engagement in independent walking was high in most schools with a mean difference of 4.5% between high (55.9-16.6%) and low performing schools (51.8-11.9%).

Parental Perceptions

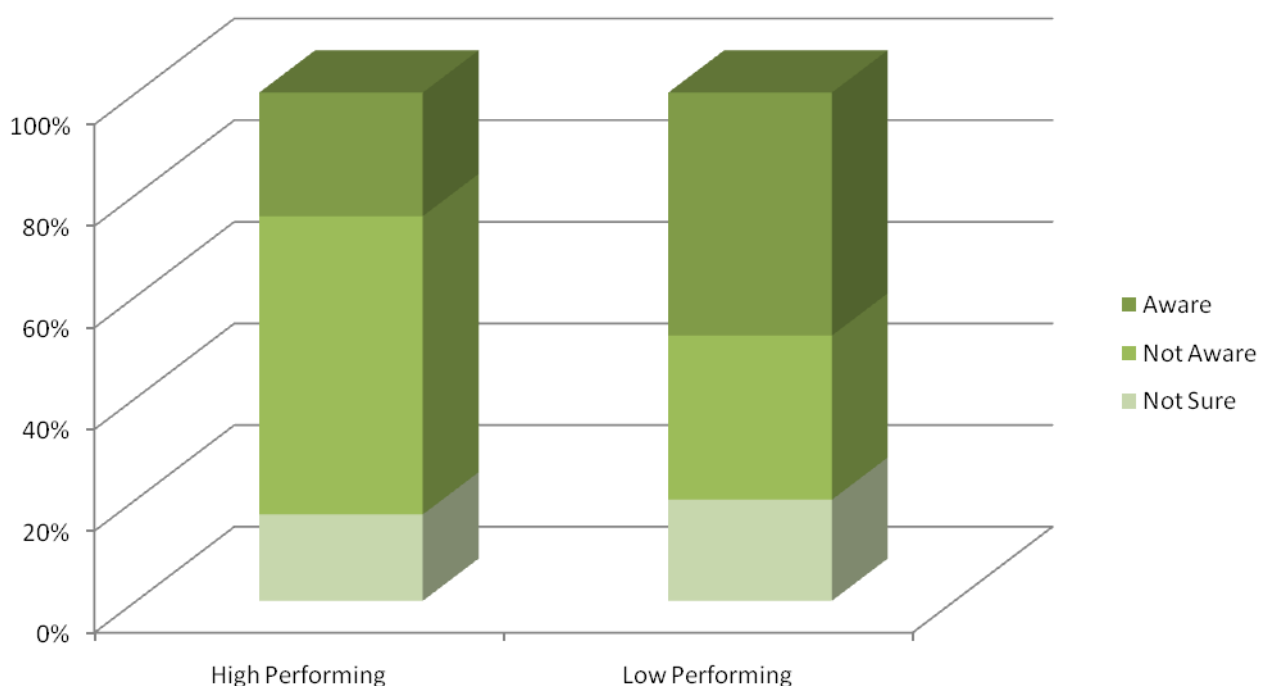
It is clear that the outcomes of the STP can differ substantially between schools. Determining the underlying reasons for this difference is critical for developing an appropriate strategy to increase active and public transport usage in low performing schools.

The first step in this process was to assess the parental awareness of the STP in the case study schools. Figure 11 shows the responses from parents when asked if they were aware that their children's school had a STP. Interestingly, awareness of the STP was considerably higher in parents with children in low performing

schools when compared with parents of children in high performing schools. This was an unexpected result; it is reasonable to assume that schools that show evidence of utilising the STP would have a high level of awareness within the parent population. The differences in transport profiles between high and low performing schools must be due to factors other than differences in awareness. Awareness coupled with parental support may explain the difference. The degree of communication between parents and schools may also explain the difference. It is possible that the extent of communication between school and parents differs for a college (lower) in comparison to a Primary (higher) school. In the high-performing school grouping three of the schools were colleges, hence the lower awareness. Nevertheless, in high performing schools, raising parental awareness of the STP was a priority for facilitating further improvements to transport profiles.

Table 3 summarises the responses of parents to two statements associated with social cohesion as a result of the STP: neighbourhood safety and community networks. Parents from high performing schools were 8% more likely to disagree that their neighbourhood was safe for children to walk or cycle independently when compared to low performing schools. This statement seems counterintuitive, and it is highly possible that the question was interpreted by parents as "safety of children while playing on the street".

FIGURE 11. Parental awareness of STP in high and low performing schools.



	It is safe for children to walk or cycle in our neighbourhood without an adult present during the daytime		Our family knows other people in our neighbourhood quite well	
	High Performing	Low Performing	High Performing	Low Performing
Strongly agree	3.9%	3.6%	7.9%	11.4%
Agree	25.8%	24.1%	32.7%	33.8%
Neither	12.9%	20.3%	21.7%	19.0%
Disagree	34.3%	25.8%	24.4%	19.6%
Strongly disagree	17.6%	18.1%	8.3%	7.7%
Don't know	5.6%	8.0%	5.1%	8.4%

TABLE 3. Parental perceptions of neighbourhood safety and community networks.

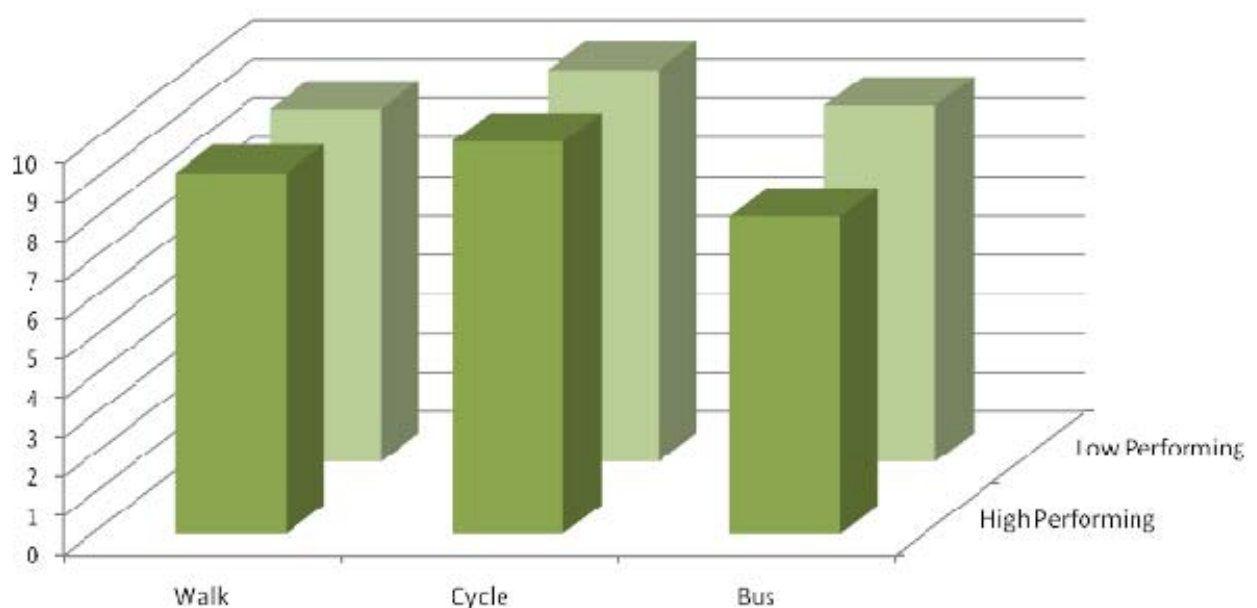
Even so, reducing the real and perceived threat to the safety of children when walking or cycling without an adult should remain as a key objective of the STP.

Parents were also asked to rate their family's familiarity with others in their community. The responses listed in Table 3 reveal that those in high performing schools were less likely to know other people in their neighbourhood when compared with low performing schools. Parents from high performing schools were 5.4% more likely to disagree and strongly disagree with the statement in question when compared to low performing schools. Overall, 45.2% of parents from low

performing Primary schools perceived they knew other families well within their neighbourhood.

Finally, parental age preference at which children can safely walk, cycle, or bus independently to and from school were determined in the case study schools (Fig. 12). The appropriate age for children to walk or cycle to/from school was similar for parents from low and high performing schools. However, parents from high performing schools were prepared to allow their children to commute independently by bus at a younger age. This observation may also explain the observed differences in public transport profiles between the two school groups.

FIGURE 12. Parental perceptions of the appropriate age for independent travel in children.





School Staff Perceptions

Principals, lead teachers, and school travel coordinators from the fourteen case study schools participated in semi-structured interviews to determine the characteristics that make a STP school successful in achieving its objectives. This qualitative analysis provides a knowledge base for the future delivery of the STP. For the first analysis responses were categorised into 11 themes: (1) STP objectives, (2) interactions with other programmes, (3) environmental changes, (4) behavioural changes, (5) weather, (6) successes, (7) challenges, (8) support, (9) process and management, (10) improvements, and (11) general comments. It was not the intent of this evaluation to comment on individual school on specific circumstances but to draw on the emerging themes as listed above.

STP Objectives

Principals, lead teachers, and school travel coordinators at all schools regarded safety as the main objective of the STP. Other objectives mentioned were traffic reduction, widening footpaths, improving pedestrian access, initiating a walking school bus, activity and fitness, sustainability of transport, finding better routes, education, and future thinking. The general perception was that the objectives outlined in the STP reflected the needs of the schools.

Interactions with Other Programmes

The most common programmes at schools were *Road Sense*, and *Health Promoting Schools*. *Road Sense* complemented the STP as it increased road safety and awareness in children and their parents. The programme included “short and sharp” lessons with many great resources that teachers could easily incorporate into their teaching, and helped to maintain focus about safety around cars and roads. The *Health Promoting Schools* initiative supplemented STP by

providing “the big picture”. Other programmes included *Cycle Ways*, *Rubbish Free School*, *Sweets Free School*, *Enviro School*, *Safer Routes*, *Stepping Out*, and *10,000 Step Challenge*. These programmes enhanced awareness of health issues in students and teachers. In addition, *Push Play* initiative, *Keeping Ourselves Safe*, and *Beat the Feet* were also implemented in some schools. Upon reflection it was highlighted that all of these programmes fit “nicely” with each other and STP.

Environmental Changes

Minor to medium environmental changes, as planned by STP, were a common factor in most schools. The nature of the changes extended to traffic lights, school zone and flashing speed signs, widening footpaths, construction of chicanes and kea crossings, and moving or realigning of pedestrian crossings.

The overall priority of all schools was towards reduction of traffic speed, vehicle numbers and inappropriate parking behaviour of parents at school gates. This was achieved through traffic calming measures, improved road marking, pedestrian focused traffic light phasing, safer bus stop locations, and better parking options to drop-off/pick-up children. Timing of engineering changes seemed to be an issue for many schools. Despite that having a STP had legitimised school requests to the councils.

“...But, now there is a totally different approach with this. It’s just fantastic, the engineers came out and spoke to me, they asked me, they came back with a plan which incorporated all of the things that we were concerned about...”

It was not the purpose of this report however, to determine which specific infrastructural changes mattered for a successful STP. A more focused investigation is needed to determine the effects of specific infrastructural changes on STP success.

Behavioural Changes

While most schools perceived more walking, less cars on the roads, and an increase in public transport (train) use by students, some perceived little changes to transport attitudes and behaviours amongst students and the community. Schools that were unable to produce successful outcomes with a STP shared the perception that there was awareness but not necessarily major behaviour change. Parents seemed more aware and willing but their behaviour fluctuated. One of the issues identified for schools with lower outcomes was communication, as for many parents English was their second language.

Intermediate schools faced the challenge of having to continuously educate and promote the STP as the student body changes every two years. In general, changes in behaviours and attitudes were observed but every year Intermediate schools felt they had to recreate the culture.

It was observed that perceptions of behaviour change were less likely in schools where significant environmental changes were not introduced. However, certain infrastructural changes improved one aspect of the community but were detrimental to another. The construction of *Park and Ride* next to a school encouraged parents to drive their children to school before taking the park and ride option for work. Allowing residential homes to become businesses has compromised the construction of drop off zones for the schools. Also, the introduction of pay and display at a nearby hospital forced people to park on the side roads by the school and had contributed to traffic congestion.

Minor infrastructural changes such as Kea crossings (pedestrian crossing that is only used during certain times) were seen as temporary solutions to a much bigger problem with few prepared to take responsibility for the ramifications. For example, while a Kea crossing was a good idea the difficulty was that students may not use it and instead cross 50m down the road. The teachers are then expected to police a Kea crossing which in the bigger picture does not solve the larger issues schools are facing. Another example was the planning to have drop off zones whilst at the same time council approved a business for 11 midwives to occupy a house close to the school with customers coming and going regularly.

In addition, working parents with younger and older children chose to enrol their children in cluster schools for primarily convenience reasons. Dropping off and picking up children on their way to/from work had consequences on the transport issues for the other schools in the cluster. It is recommended that future STPs take into consideration the bigger environment and consider the impact of infrastructural changes on the wider community.

Weather

A common theme emerging from schools was the effect of weather on active transport modes. It was observed that during the winter months there was a decline in walking/cycling with a concurrent increase in car use. Schools that showed successful outcomes seemed to cope better with changes in weather. For example, in

one school the lead teacher prepared hot Milo for children cycling to school.

"There is definitely a seasonal difference, I mean one bus even shut down for a term in the winter as it was just too cold, too wet, and we get the wind. I think this will definitely be reflected in the surveys."

Successes

A wide range of successes were identified by the high performing schools. Some examples include:

- Parental support and engagement: Parental commitment particularly with the WSB and bringing parents together to discuss and share ideas.
- Parent/child awareness: Newsletters provided the means for increasing awareness in parents and children.
- Quicker response from the council: Council's speed of response maintained enthusiasm and drive for the schools.
- Complimentary items: Free items such as rain jackets were happily received by the students.
- Lunches: Beautiful food at the ARTA lunch meetings was a motivator for principals and lead teachers to attend.
- Action: Seeing infrastructural changes taking place.
- Overall achieving a safer environment around schools.

"ARTA brought in a big display which was full of the parents' ideas. They used coloured dots, red dots, green dots; ...this was great as you could see all of the parents getting together and discussing the plan and thinking about ideas..."

"With the WSB promotions and fantastic parent support this has been so successful; the school has been blown away by the parent support."

Even though some schools did not experience positive outcomes with STP, they enjoyed success in:

- Walking School Bus: Great support from parents, communication with different schools and provision of gear.
- Increase in awareness of senior management: Report on the STP to the board on a monthly basis and provision with safety reports and regular traffic updates raised awareness in staff.
- Health Promoting Schools: The way programmes within the schools complement STP has aided in building a big picture for schools.
- Students taking control of the promotion of the STP: Students' involvement in

promotion groups, meetings, and taking the ownership of promoting messages.

- School travel coordinators: School travel coordinators were great in assisting schools with the travel plans.
- Parent and children education: Surveys increased awareness in parents about their driving habits.
- Speed trailer: The speed trailer encouraged people to slow down and think.
- Infrastructural changes: Introduction of school zone (speed zone) to reduce traffic, installing traffic lights, widening the paths was encouraging for schools.
- Safety: Students arriving to school safe knowing the risks that exist around schools.

"...getting the WSBs up and running and having the parent's commit their time to it, you know when they are already busy..."

"...a real sense of companionship amongst the cyclists, mainly the boys, they saw themselves as sort of a team..."

Challenges

Schools that had positive outcomes as a result of their STP have faced challenges such as:

- Parents not changing their behaviour at the same rate even though they were aware of the need to change.
- Investing vast effort, time, and money into launch without any infrastructural changes taking place.
- Funding for infrastructure and time for engineering changes to occur.
- Council not always thinking things through and having options that solved some problems but not others.

Schools that did not experience positive outcomes with STP faced a similar set of challenges:

"Challenges, it's just the environment out there, it's hopeless..."

- Location of School: To make significant improvements in reducing traffic and increasing safety, it was thought that schools had to move from their current location as the physical layout of the streets necessitated change.

"It actually needs major engineering, major involvement of councils and bus companies and everybody else, and I don't

know that there is the money or the commitment to do that. But, in small projects certainly...."

- Behavioural change: There was strong sentiment towards the inability to meaningfully change adults' behaviour, e.g. parents not adhering to the rules.

"...two minute drop off in this little road but, that has created embarrassment as well, because not all parents want to drop their kids, especially the little 5 year olds, they want to walk in, check they are ok, but then they get out and there is an \$80 fine with the parking ticket, kids have actually left the school to go to a different school where they haven't got these issues of dropping kids off, that's an interesting little sideline..."

- Change of contacts: Frequent change of lead teacher and travel coordinator resulted in breakdown of communication and progress.
- Walking School Bus: While in some schools WSB was successful in others there was difficulty in initiating and maintaining the WSB.

Support

Schools were supported by the community at the initial stages of the STP. The school travel coordinators' leadership, personality, and commitment were an inspiration to the schools. Selected individuals within council seemed to be very supportive especially those with an engineering background. The involvement of schools in Henderson as a cluster was beneficial.

Low performing schools reported satisfaction with ARTA, the school travel coordinators, and neighbouring schools. Schools overall had a positive experience with the councils especially when the representative was committed to making a change. Support was received from ARTA, council, and community, but not necessarily from local businesses.

Process and Management



Overall schools found the process to be "fine", but some thought it was "overpowering". It was recognised that ARTA was supportive, provided plenty of ideas and suggestions for the programme, school travel coordinators were flexible and happy with great communication skills and were always willing to help. ARTA had managed the programme well.

Improvements

While most top performing schools described the STP programme as "wonderful", they have commented on a few areas that the STP programme needed to improve:

- Time it took for the infrastructural changes to occur.
- Insufficient student involvement at meetings.
- Giving authority to principals to close roads/redirect traffic.
- More subsidies for bus fares.

From the school travel coordinators' perspective, a calendar with pre-planned events, appointment of new members to a working party and development of TravelWise website for the schools were suggested as possible improvements.

"...to allow us to buy a cell phone for the WSB which can be used as the port of contact"

For low performing schools suggestions for improvement took a different theme:

- Providing all students with quality wet weather ponchos.
- Continued contact with school travel coordinator.
- Making STPs compulsory for all schools.

- Reducing the time for infrastructural changes.

School travel coordinators suggested that for these schools finding a better way to communicate with parents of different

backgrounds was key to improving the programme.

General Comments

All schools stated that they would highly recommend the STP programme to other schools. The issues that would need to be highlighted are: duration of the programme, need for parental support and network, identification of a manageable problem, clear vision, time frames and workload of the lead teacher, needs analysis of the environment and feasibility of infrastructural change.

It is important to note that while the contribution from principals, lead teacher and school travel coordinators was valuable, in future evaluations should include the council's perspective.

Primary Schools

It is also important to draw on emerging themes from the different perspectives of each school level. For the

second analysis comments were grouped according to school type and dominant themes were identified. The strongest themes emerging from the interviews of Primary school staff were volume of traffic and the challenging environment around the schools.

Volume of Traffic

While the STP objectives reflected the needs of the Primary schools and several initiatives have been implemented with small engineering changes (parking bays, gates) it was perceived that there was high volume of traffic at school gates. Principals agreed that parent education should be the Primary focus of STP as parents often revert to unsafe behaviours such as making u-turns on busy roads, stopping cars on crossings, parking cars close to crossings, and ignoring school rules with regards to safe travel practices. Principals also agreed that children know and obey road safety rules and often they have to remind their parents to follow the rules.

"...children know exactly what they have to do...I have seen the children say to their parents, no we aren't meant to be crossing there..."

Challenging Environment

Schools have found their environment very challenging especially the ones that were built decades ago. Schools were built in areas where cars were not the main mode of transportation and houses were scarce. Allowing new businesses to open in close proximity to the school with an already identified traffic problem, infill housing and subdividing nearby areas for townhouses contradicted the objectives of the STP. Also, being located near a major road was also challenging for schools as large vehicles pass at close proximity to school gates which causes parents and teachers to fear for safety of the children.

"And also the issue of having large vehicles driving through.... one lifted up 6 cars and this was in playtime....imagine if we had children there or parents walking down our footpath it was a tragedy waiting to happen, so that was a real wake-up call."

Principals believed that the STP is effective for small projects (e.g. moving crossings, safer walkways and parking bays), but that the magnitude of the engineering change needed to make the environment around schools safe required major financial support and commitment by the councils. "Seeing the bigger picture" emerged as a strong theme.

Cycling

Primary schools do not seem to encourage cycling generally due to the perception that roads are not safe for cycling. Some schools have a policy for cycling, only allowing older children to cycle to school.

Factors That Mattered

Police presence at random times has been an effective way to deal with difficult parents. Schools felt supported and relieved when Police were there to assist. Teacher presence was another factor that helped to promote the STP. Staff provided the visibility needed to remind parents and community of the STP programme. On duty teachers patrolled roads beyond the immediate school roads to ensure that children were safe when crossing. The bright vests and flags enhanced their visibility.

"The parents are really smart, as soon as we don't go out to check out what they are doing they automatically disobey the rules. It often helps when there is police presence, but that isn't very often, the parents don't argue with the police, but when one parent tries to stop another parent from doing something it just doesn't work."

A dedicated lead teacher and a school travel coordinator have been identified as vital to the success of the STP. In fact, schools wanted to have ongoing support from the school travel coordinators beyond the first year. Engineering changes that have been very successful for the schools were: the instalment of traffic lights, school speed zone and widening footpaths. The first two changes had encouraged a visible reduction in speed of traffic and the latter had improved safety for children who walked to school. Support from council for the STP mattered to many schools. Some council members (e.g. John McLay) have been inspirational for the schools and were very useful especially if they had a background in engineering and many contacts. Parental awareness, support and engagement played a major role in the success of the STP. In instances where parents were not interested in engaging with the schools' STP initiatives those schools have not enjoyed positive results with regards to establishing WSB. Having a WSB was described as a "godsend" for those schools with parental support.

Recommendations

STP focus should shift to parent and community education on travel safety. Principals were concerned with community that was not directly connected to the schools (e.g. not having children who attend the school). On some roads (e.g. Pomaria Rd) drivers speed made it dangerous for children to use crossings. Flyers or mail drops with statistics on traffic safety (e.g. number of children travelling to school in that

community or distance of school from their neighbourhoods) to raise awareness were suggested as ways to communicate with community.

"I think the parents are absolutely diabolical, they all think that the rules are for everybody else, and on a wet day it can get even funnier, but it is about 10% of parents who disobey the rules and it ruins it for everyone else, it also causes the parents who are following the rules to get really angry."

Ongoing support to schools from school travel coordinators beyond the first year needs to be considered for the sustainability of the programme. Time release for lead teachers to increase willingness to take on the role was also recommended. On a lighter note principals felt that dramatically increasing the price of petrol will force people to walk more or take the bus. According to principals, schools in challenging environments may need to consider making the surrounding area careless by closing off roads, making the road a one way street or decreasing the speed limit further. Below a quote from a school that enjoyed success by enforcing a one way street:

"They drive up, they pick up their kid and drive out the drop-off zone, so it is one way traffic, and what was really excellent... people who went back down out Medallion Drive, all the cars coming round wouldn't let them out [laughs]..."

Future planning needs to take into consideration the bigger picture as engineering changes may be suitable for one area but have a different impact on another area. For example multiple traffic lights on a major road (e.g. Lincoln Rd), caused trucks to use residential streets to avoid the lights to speed their journey. It was recommended that a Hotline to the Council was introduced for effective communication between council and individual schools. Also, money allocated for WSB should be used to purchase a cellular phone in case of emergencies.

Finally, it was identified that the STP needed to have long term goals and objectives that lead to an ideal situation for the school in providing a safe environment. That way schools, parents, children and wider community would engage and invest in the time needed for long term outcomes.

Intermediate Schools

As students progress from Primary to Intermediate school car use reduces and other modes of transport are considered. A strong theme that emerged from Intermediate schools was promotion of cycling. Both

schools had the highest prevalence of cycling in the group of case study schools examined.

Cycling

"We took count for some time, and I think the highest number of cyclists one week could have been about 45, which is quite good..."

Since implementation of STP, a large increase in children cycling to school has been observed. It was also perceived that both boys and girls engaged in cycling. Children were involved in the "Safe Routes" programme and worked together to identify safe routes to school. In one school, two of the students won prizes from Waitakere City Council for "googling" their way to school and finding the safest routes. Developing these safer routes put parents at ease. At this age children are taught to be independent and there is less reliance on parents to transport their children to school. Weekly dedicated time in assemblies encouraging cycling and other active modes of transport aided the uptake of cycling in Intermediate school children.

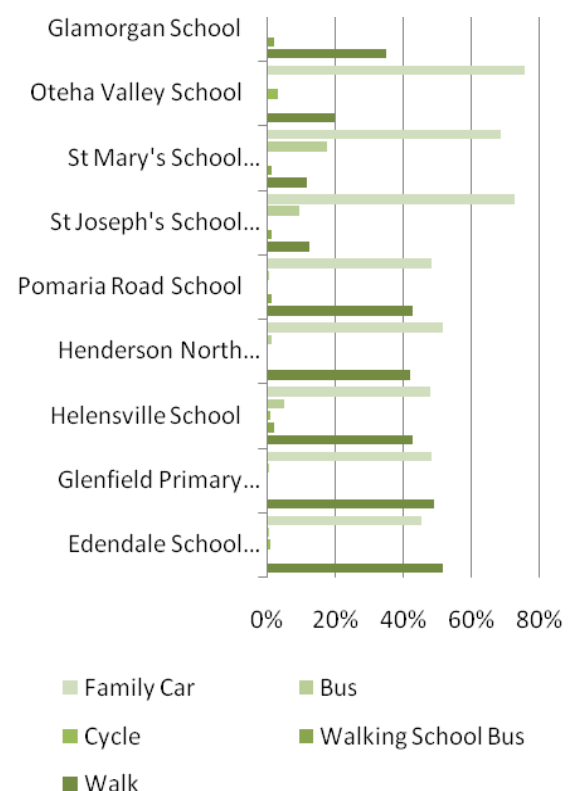


FIGURE 13. Travel profiles of the case study Primary Schools.

Constant reminders in newsletters and statistics on proportion of children cycling to school raised awareness level for parents and children. Winter

affected the number of children cycling to school and schools encouraged participation by implementing “special” initiatives such as offering hot drinks. Other special initiatives to encourage participation included breakfast run to North Shore City Council (where 25 children and lead teacher cycled to the council, had breakfast there and cycled back to school), sweets, stickers and certificates.

“Two boys won \$500 in a cycling competition for all Intermediate schools.”

Factors that Mattered

The school travel coordinators were paramount to the success of the programme. The coordinators made the process easy, offered great ideas and provided the “impossible”. Clear vision with a good support network, focussing on one goal and having a lead teacher to drive the programme were seen as factors that mattered for the success of the STP programme for these schools.

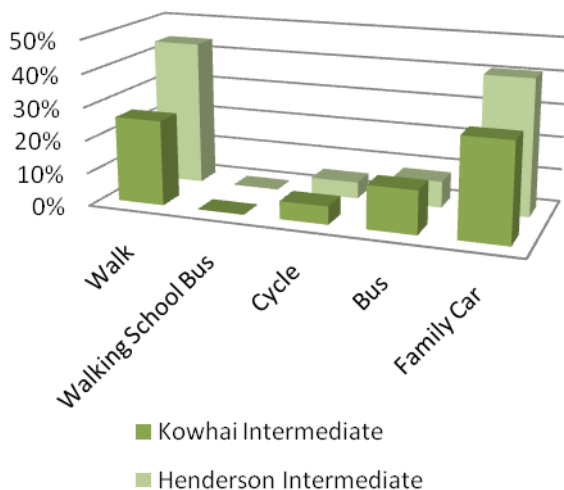


FIGURE 14. Travel profiles of the case study Intermediate Schools.

Recommendations

While children attending Intermediate schools are taught to be independent and not rely on parents to transport them to school, parental education was also a strong recommendation from Intermediate schools. Some parents have difficulty with changing their travel behaviour and often drop their children to school on their way to work even though the children can use active or public transport. Both schools were located in areas where most modes of transport were available (train, bus, cycle). It was also recommended that cycling education is part of all studies such as science and social studies so that it becomes a mindset and a way of life. Students attending and being involved in meetings for

planning and implementation of the STP programme was seen as important to foster independence and give students a voice.

Secondary Schools (Colleges)

As students progress from Primary through to Secondary school the type of transport mode changes. The theme that emerged strongly from Secondary school principal/teacher interviews was bus use.

Public Transport (Bus Usage)

Bus use seems to replace car use in Secondary school students. It has been observed that even though 7-8 buses come into the schools to collect students the buses are packed with students and students have to stand. Schools are looking into increasing the number and frequency of buses instead of focusing on reducing car use.

Cycling

There has been a steady but slow progress in encouraging students to cycle. The main issue that principals see is that cycleways are existing roads but simply renamed as cycleways. According to the principals/teachers, parents are not convinced that the cycleways are safe for their children. There is also a general opinion that it is more convenient to ride in a car.

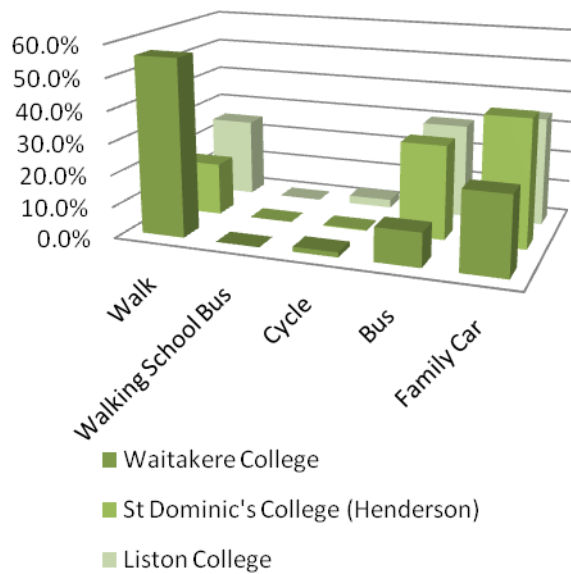
Infrastructural Changes

Timing of engineering changes to be initiated or completed has been a major issue for these schools. Seeing actual engineering changes taking place was important to principals/teachers as they felt that their meetings did not eventuate to anything concrete.

Big Picture

Schools have identified that getting students out of cars will require a better passenger transport system. Suggestions to build a bus terminal for all schools in the cluster area were received with enthusiasm but it was thought that the council was not prepared to commit seriously to such a project. While small engineering changes were good short-term solutions, the principals thought that it was not addressing the bigger issues. There was a sense of disappointment, frustration and helplessness as principals do not have authority or power to find a solution. It has been recognised that the situation may get worse before it gets better as the schools are located in a challenging environment where the streets are narrow and visibility is poor.

FIGURE 15. Travel profiles of the case study Secondary Schools.



Factors that Mattered

The school travel coordinator's leadership, hard work and expertise were an inspiration to the schools. Enforcement officers made a difference in parent travel behaviour as it was observed that fewer parents parked across driveways, close to the crossing or yellow lines.

Recommendations

Key Points

1. High performing schools had lower car usage and higher rates of public transport than low performing schools
2. Parents from low performing schools showed a higher awareness than parents from high performing schools, but were also more likely to deem their neighbourhood unsafe.
3. Key factors for a successful STP included support from parents and children, raised awareness, quick response from council, visible infrastructural changes, and the commitment, support and enthusiasm of travel coordinators.
4. Common challenges of the STP were time and financial constraints and lack of behaviour change.

The main objective of these schools was to get students out of cars and into buses. For this to be achieved the

principals recommended that the number and frequency of buses needed to increase, the bus terminal idea needed to be brought back to the table for discussion, the bus trip becomes a quicker trip, each student should have a seat on the bus and all main stakeholders such as Councils, Ministry of Education, ARTA and Land Transport NZ should be included in the discussions. In the meantime, the suggestion of one-way streets had received favour with principals who were prepared to support such a change. At the same time they understood the issues, surrounding such a change, for the local community. It was highly recommended that engineering changes should have a realistic time limit for objectives to be achieved. Principals agreed that it was important to take a holistic view of the issues surrounding schools and to ensure that the objectives set were manageable.

STP Duration

Schools that were involved in the STP programme longest agreed that parental and student education is important for a successful STP. Having completed engineering changes also added to the success of the programme. Parent support of the WSB or having parents solely responsible for driving it was of paramount importance to the overall outcome. All schools agreed that the programme had raised awareness but parent behaviour had changed very little. In the future, schools recommend that travel safety is a community problem and not just a school problem and a holistic perspective is employed for future success. These observations substantiate findings from previous sections and suggest that further improvements to the programme may require bigger financial commitment and increased involvement from the key stakeholders.

Conclusion

Primary school children depend on their parents for transportation and general decision making about their daily life. Therefore, it is important for this group of children to have their parents educated first. Challenging environments may not be easy to change short term; therefore rigorous parental and community education must become a priority for the STP programme. Flyers and mail drops have been suggested as means to communicate certain messages.

As children move from Primary to Intermediate school they are encouraged to be more independent and transport themselves to school. Intermediate schools encourage the use of cycling with special initiatives and

dedicated lead teachers. Parental education is also a priority for the STP for these schools.

For Secondary schools the main objective is to get children out of cars and into buses. For this to be achieved it requires the increase in the volume and frequency of buses and the main players (Councils, ARTA Land Transport NZ and Ministry of Education) to be involved.

From the above analyses it is evident that as children progress from Primary through to Secondary school the travel mode changes: Primary school children often rely on their parents to drive them to school, Intermediate school students are taught to be more independent and cycling replaces car travel, and finally at Secondary school bus use replaces car travel and cycling.



SECTION IV

Walking School Bus Evaluation

Background

Walking and cycling have recently been granted increased attention in New Zealand after decades of near-exclusive focus on vehicular travel as the dominant mode. As part of this trend, the sight of students walking to school to and from school has re-emerged as a common occurrence in Auckland, an urban region otherwise associated with high levels of traffic congestion and largely regarded as unfriendly to pedestrians. The key to this return to walking as a chosen form of mobility for many has been the walking school bus (WSB), first introduced to Auckland in 2000. While WSB stakeholders (e.g., parents, school managers, school travel coordinators, injury prevention practitioners, and health promoters), differ in their priorities, a consensus on the effectiveness of this intervention has emerged. The WSB is clearly working at a number of levels as families are participating. The success of walking school buses in Auckland has continued to be aided by the vigorous efforts of road safety coordinators who liaise between schools and their communities of parents.

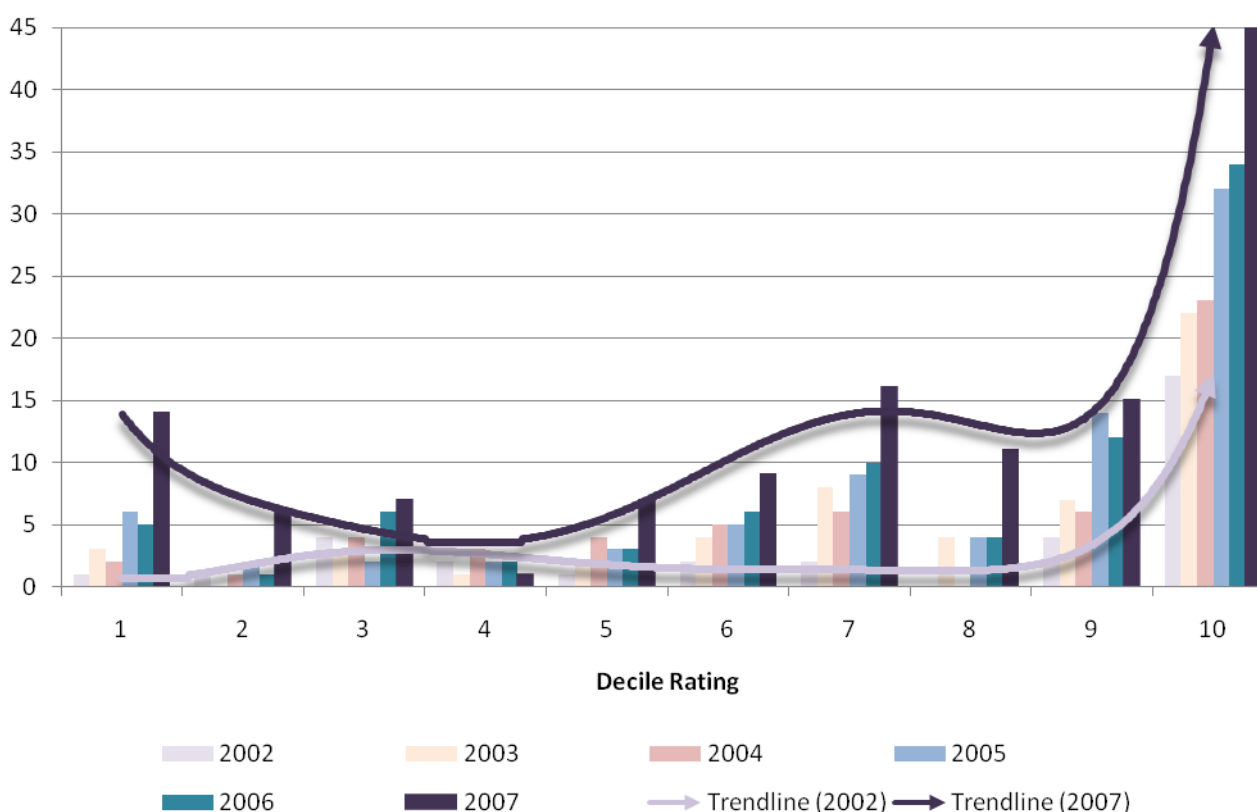
This section of the report offers highlights from an analysis of WSB activity in the Auckland region in 2007. The analysis draws on a self-completion survey of WSB

coordinators undertaken by ARTA in late 2007. Earlier assessments in Auckland have shown WSBs to offer perceived benefits in the areas of sociability, safety, and physical exercise, as well as traffic reduction. They have also been seen as a desirable alternative to car travel by child participants. The following subsections build on these observations to highlight more recent key findings suggesting two trends: first, an affirming indication that WSBs are continuing to become embedded and 'normalised' within Auckland school communities; and second, promising new developments in terms of: penetration into poorer communities; gender participation; and relationship with STP programme as it evolves and matures becomes embedded in the suite of transport options across the region.

Sociodemographic Trends

Previous reports over the last five years have indicated an enduring uneven distribution of WSB initiatives across the socio-economic landscape of the Auckland urban area, with a particular concentration within the high decile school communities. This trend continues to be apparent in 2007 data (Fig. 13). However, there is evidence that the challenge of encouraging and supporting the initiative in lower decile school communities has been taken up.

FIGURE 13. Temporal trends in the number of schools operating a Walking School Bus.





The trend lines depicted in Figure 13 provide an indication of the change in WSB prevalence between 2002 and 2007: the larger the gap between lines, the greater the improvement. While the majority of WSBs remain in Decile 10 school communities (n=45), the number of Decile 1 schools participating has increased considerably over the past year. Indeed, the greatest proportionate increase in WSBs in the Auckland region in the 2006-07 year was within the Decile 1 category. Until this year, there had been no clear shift away from the pattern of very limited uptake among low-to-mid decile schools. Over the last year, the engagement of school communities in deciles 5-8 is clearly a success. The preceding observations indicate that the WSB programme is continuing to expand in the Auckland region, and suggest that the intervention has become normalised across many school communities. It is particularly noteworthy that while the decile-based 'gradient' in uptake remains evident, modest but significant increases in participation by schools within the lower deciles have been achieved over the last year.

TABLE 4. Average number of WSB walkers and volunteers in STP and non-STP schools.

	Registered Walkers	Registered Volunteers
STP	46.8	19.4
Non-STP	32.2	14.9
Difference (%)	31.2	23.2

A second noteworthy trend centres on the increasing participation of men in the WSB scheme. Whereas in 2006, only 12% of parent volunteers were reported to be men, and that most routes (54%) had no male volunteers, a discernable shift was reported in the more recent data. At 204, the 2007 count of male volunteers represented 15% of the total. In absolute terms this figure, as well as the upwards trend, is modest. However, this participation was reported as spread over 63% of all routes thus ensuring that there is an increasing presence of male role models. There was also a decrease in attributing the levels of male participation to the constraints of male employment and, by default, reduced participation in their children's lives. This apparent 'softening' of parental stereotyping is promising and helps to encourage the participation of both children and parents across the genders.

The 2007 data also highlights the importance of the relationship between WSBs and the STP programme in school communities. WSBs have their origins as an initiative that was independent of the broader and more recently-established STP programme. However, the latter's holistic approach to engaging school communities in re-thinking the question of getting to and from school is clearly creating a context in which WSBs are thriving. As Table 4 shows, in 2007 schools associated with the STP programme accrued almost one third more registered walkers and over one fifth more registered volunteers than schools that did not participate in the STP programme. This difference is likely due to the supportive context for WSBs generated by the STP philosophy. While this suggests that the

Community/social	2 nd	3 rd	1 st	1 st
Exercise	1 st	1 st	2 nd	2 nd
Friends/company for children	--	--	--	3 rd
Safety	--	--	--	4 th
Fewer cars	4 th	2 nd	3 rd	5 th
Injury prevention	3 rd	4 th	4 th	--
Convenience	7 th	5 th	5 th	6 th
Learn road safety	--	6 th	=6 th	--
Fun	6 th	--	=6 th	--
Experience local environment	--	7 th	--	--
Timely school arrival	5 th	--	--	7 th

TABLE 5. Parental rankings of the WSB benefits between 2004 and 2007.

Key Points

1. The prevalence of WSB initiatives is increasing in the Auckland region.
2. The greatest proportional increase between 2006 and 2007 was observed in decile 1 schools.
3. The number of WSB routes with male volunteers increased from 54% in 2006 to 63% in 2007.
4. Parents perceived the most important benefit of the WSB to be community and social involvement.

supportive, it does not preclude the establishment and success of WSBs in schools independent of the STP programme.

The 'exercise' and 'community and social' aspects of the WSB are consistently perceived by parents as the top-ranked benefits of participation (Table 5). Interestingly, reducing traffic congestion fell to 5th on the ranking list, behind both safety and friends/company for children. The emergence of community involvement as the top-ranked benefit in 2006 and 2007 may represent a maturing of the WSB initiative into something symbolically and practically owned by the community. Indeed, it speaks to the holistic benefits of walking itself that an intervention initially developed to ease traffic congestion and then to promote physical exercise is now regarded first and foremost as an expression of, and contributor to, community cohesion.

synergies between the interventions are mutually





SECTION V

Recommendations



Summary

Transport Profile Evaluation

The STP programme is a comprehensive initiative designed to promote active transport modes, bus and train use for school related travel. In terms of these major goals, most schools that implemented a STP showed reduced car use and increased walking. As with previous evaluations, it should be noted that without data from control schools the impact of influences outside the STP initiative cannot be documented. For example, it is highly likely that the STP programme is having a greater influence in decreasing car use than the reported values as national trends show an increase in car use by about 3% per year. It is also important to recognise that when comparing results from previous years (even though change scores were weighted), variation in the incidence of the various travel modes is expected from year to year, as the survey respondents at follow-up are not necessarily the same as those participating at baseline.

The results presented in this report show a clear improvement in use of sustainable travel with STP implementation. Personal car usage between baseline and 2007 decreased by 3.4% while active transport increased by 2.4%. Schools in the programme more than a year seem to indicate a continued improvement in the use of sustainable transport. Furthermore, two thirds of the schools achieved positive changes to active and public transport participation. These findings demonstrate that the STP has achieved its broad goals of increasing sustainable travel modes and reducing car reliance for school-related travel.

Different types of schools demonstrate diverse travel behaviours, with more senior schools showing higher levels of independent travel modes, such as public transport. Low decile schools were more likely to use

decile schools. Furthermore, STP-related decreases in car reliance were greater in high SES schools than in low SES schools. Longitudinal trends show that school-related walking and public transport increases substantially in the first year of STP implementation but begins to plateau after the second year. However, this may be due to seasonal variation in transport patterns: the 2007 survey was conducted in winter while the previous surveys took place during the summer months.

Case Study Evaluation

Fourteen schools were selected to participate in the case study evaluation. Results from the interviews of principals, teachers, and school travel coordinators provided insight into the challenges and successes schools faced and the reasons why some schools performed better than others. There was a wide range of successful aspects of the STP initiative, including parental support and engagement, raised awareness, complimentary items, school travel coordinators, improved safety, and infrastructural changes. Challenges included increased time and financial constraints, little behaviour change, challenging location of schools, and delays in infrastructure change.

Primary school children depend on their parents for transportation and general decision making about their daily life. Therefore, it is important for this group of students to have their parents educated first and ensure that parents engage with the school. Flyers and mail drops have been suggested as means to communicate certain messages. As children move from Primary to Intermediate school they are encouraged to be more independent and transport themselves to school. Intermediate schools encouraged the use of cycling with special initiatives and dedicated lead teachers. Parental education was also put forward as a priority for the STP for these schools. For Secondary schools the main objective was to get students out of cars and into buses. For this to be achieved requires an increase in volume

and frequency of buses and the main stakeholders (councils, ARTA Land Transport NZ and Ministry of Education) to be involved.

From the analyses, it is evident that as students progress from Primary through to Secondary school the type of mode changes; Primary school children rely primarily on their parents to drive them to school, at Intermediate school students are taught to be more independent and other modes replace car travel, and finally at Secondary school bus use replaces car travel and cycling.

Walking School Bus Evaluation

Results showed that the WSB programme has become increasingly normalised across many Auckland school communities. The 'gradient' in uptake remains evident across school deciles with the vast majority of WSBs based in decile 10 school communities. However, modest but significant increases in participation by schools within the lower deciles have been achieved over the last year. Furthermore, an increase in male volunteers promises more sustainable support within households across the school communities. To this end, the most important benefit of the WSB perceived by parents is the community and social involvement.

Factors That Mattered

School Travel Plan

1. Parental awareness, commitment, support and engagement.
2. Quick response from council and councillor commitment.
3. Seeing infrastructural change taking place.
4. Commitment, support and enthusiasm of school travel coordinators.

Primary Schools

1. Police and teacher presence at random times has been an effective way to deal with difficult parents.
2. A dedicated lead teacher and a school travel plan coordinator are vital to the success of the STP.
3. Engineering changes that have been very successful for the schools were the instalment of traffic lights, school zones and widening footpaths.
4. Support from council.
5. Parental awareness, support and engagement.
6. WSB with parental support.

Intermediate Schools

1. The school travel coordinators. The coordinators made the process easy, offered great ideas and provided the "impossible".
2. Focusing on one goal.

3. A dedicated lead teacher to drive the programme.

Secondary Schools

1. The school travel coordinator's leadership, hard work and expertise were an inspiration to the schools.
2. Enforcement officers made a difference in parent travel behaviour.

Lessons Learnt From Previous Evaluations

Recommendations from the Auckland Regional Transport Authority School Travel Plan Evaluation 2006 & 2007 are in blue. Progress to date is outlined in normal text.

- **Greater parental education component:** strong connection with parents when appropriate has been achieved through various family events. Recommendation is carried forward as ongoing.
- **Incentives to parents, staff and Board of Trustees:** A robust programme of grants and incentives has been put in place. No further action is planned.
- **Offering public transport subsidies or other incentives to staff members:** Occasionally, subsidies have been trialled as a catalyst to improve patronage. Recommendation is carried forward as ongoing.
- **WSBs require more resources to be initiated and/or sustained. Responsibility for conducting WSB should be clearly identified in the STP:** a regional walking school bus coordinator has been employed to enable an equitable distribution of resources across the region; TLA resources complement these. Also, an incentive programme is in place for all WSB volunteers. Additional funding has been approved from the Ministry of Health to extend support for WSB in low decile schools. Recommendation is carried forward as ongoing.
- **Time frames of implementing hard environmental measures should be transparent and realistic:** Significant progress has been made, aligning the school travel planning process with TLA timeframes and school year with TLA's financial year. Expectations on the delivery dates of hard infrastructure are more transparent and delivered within acceptable timing after the launch of the plan. Recommendation is carried forward as ongoing.
- **STP evaluation processes should be conducted at the beginning or the middle of each academic year:** Meeting

has been set up to discuss future process. Recommendation is carried forward as ongoing.

- The road environment around schools still presents risks for children and further improvements may be needed, even around “completed” schools: Recommendation is carried forward as ongoing.
- New School Travel Plans should consider undertaking a hands-up type survey of students early in the process: Surveys are now scheduled to occur at the initiation of the process and twice a year, winter and summer. Recommendation is carried forward as ongoing.
- Record date of the survey in a form that allows the weather on that date to be cross correlated with the mode results: New surveys include the gathering of this information and other metadata stored with raw data in ARTA’s data archive. Recommendation achieved, no further action required.
- Future actual mode surveys should examine and record the actual sample size and sources for any accidental biases: Recommendation is carried forward as ongoing. New surveys include the gathering of this information and other metadata stored with raw data in ARTA’s data archive. Recommendation achieved, no further action required.
- A control group of non STP schools should be established and regularly surveyed to determine underlying trends: Yet to be actioned. Recommendation is carried forward and to be considered by the evaluation review panel.



Lessons Learnt From WSB Evaluation

- Growth of low decile schools initiating WSB routes. It is anticipated that this trend will continue as a dedicated facilitator implements the low decile Strategic and Action Plan.
- There is also progress in getting more of a gender balance amongst the WSB volunteers. Currently volunteers are predominantly female. In 2008 there is a Father’s Day Campaign organised with one of the WSB sponsors. The intended outcome of this campaign is more fathers involved as WSB volunteers.
- The growth pattern within the WSB programme is changing each year as the programme matures. In the 2007 calendar year, 36 new WSB routes were established.

General Recommendations

- The STP programme continues to be funded and expanded to maximise its reach in the Auckland region.
- Sub-studies are conducted alongside STP evaluation to determine modal changes in non-STP schools, contribution of active transport to physical activity levels in students, and effect of STP programme on overall health.
- Case study schools should be followed longitudinally to better understand behaviour change motivators.
- Formal launch of the STP should coincide with completion of some infrastructural change.
- Focused research is required to determine the best way of translating parental awareness and support into positive behaviour change.
- Maximum benefits of the STP programme may require three years of implementation. Further investigation is required to determine whether or not subsequent years would result in further improvements.
- Monitoring the original 16 schools in the future would help clarify if the gains achieved in the first three years have reached a plateau.
- A more focused investigation is needed to determine the effects of specific infrastructural changes on STP success.

- Future STPs should consider the needs of and impact on both the schools and the wider community.
- While contributions from principals, lead teachers and school travel coordinators were valuable, in future evaluations interviews should include the council's perspective.
- Future evaluations should also include perspectives from various stakeholders e.g. Board of Trustees, parents, students and Ministry of Education.
- Surveys should be conducted at the same time of the year e.g. autumn or summer.
- Significance of changes should align to economic costs.
- Ongoing support to schools from school travel coordinators beyond the first year needs to be considered for the sustainability of the programme.
- Additional time release for lead teachers to increase willingness in staff to take on the role was also recommended.
- STP needed to have long term goals and objectives that lead to an ideal situation for the school in providing a safe environment.
- Flyers or mail drops with statistics on traffic safety (e.g. number of children travelling to school in that community, or the distance to school from their neighbourhoods) to raise awareness were suggested as ways to communicate with community.
- According to principals, schools in challenging environments may need to consider making the surrounding area careless by closing off roads, making the road a one way street or decreasing the speed limit.
- Future planning needs to take into consideration the bigger picture as engineering changes may be suitable for one area but have a different impact on another area.
- Council hotlines are introduced for effective communication between council and individual schools.

Intermediate Schools

- Sustainable transport education should be introduced into coursework (such as science and social studies) so that it becomes a mindset and a way of life.
- Students attend meetings for planning and implementation of the STP programme.

Secondary Schools

- The number and frequency of buses for school transport need to increase.
- Emphasis should be placed on increasing student involvement in transport initiatives.
- The bus terminal idea for the Henderson cluster schools that participated in the case study needs to be brought back to the table for discussion.

Primary Schools

- Focus should be on increasing participation in the WSB programme, particularly with regard to encouraging male volunteers and increasing uptake in low and **middle decile primary schools**.
- STP focus should shift to parent and community education on travel safety.



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