

Evaluation of Healthy
Active School Travel
(HAST) initiative
Summative Report

June 2015



Acronyms

Acronym	Term
AT	Active Travel
BCR	Benefit Cost Ratio
BL13	Baseline 2013 Survey
BL14	Baseline 2014 Survey
CBA	Cost Benefit Analysis
DoH (Qld)	Department of Health (Queensland)
FU13	Follow-up 2013 Survey
FU14	Follow-up 2014 Survey
HAST	Healthy Active School Travel
HAST POs	HAST Project Officers
LGA	Local Government Area
MOU	Memorandum of Understanding
NPV	Net Present Value
OE	Outcome Evaluation
PD	Professional Development
RDA	Recommended Daily Activity
STP	School Travel Plan
SSI	Semi-structured interview
TMR	Transport and Main Roads
vkt	Vehicle Kilometre Travelled
W1	Wave 1 Schools
W2	Wave 2 Schools

Definitions

Term	Definition
Active Travel (AT)	A mode of travel for commuter, recreational or utility purposes by physically active means, that is walking, skating, scootering and cycling.
Bike Bus	A bike bus is a group of people who cycle together on a set route following a set timetable.
Walking School Bus	Is a form of student transport for school children who are chaperoned by adults and walk to school, in much the same way a school bus would drive them to school. Like a traditional bus, walking buses have a fixed route with designated stops and pick up times to pick up children.
Active Travel Passports	A card in which teachers stamp each time students use AT. Children collect points for each time they use AT, which go towards receiving rewards.
Golden/Green Boot	The golden or green boot is a competition either within or between schools for achieving certain objectives to encourage AT.
Bling your bike	A competition where children decorate their bikes.
Pedometer challenge	A step-counting competition where children monitor how many steps they have taken over a certain period of time and record how far they could have travelled. This could include competitions such as Dash to the Daintree 10,000 Steps Challenge
RACQ Streets Ahead program	The RACQ's Streets Ahead is a road safety education program for Queensland primary schools. The Streets Ahead program comprises of four age-appropriate presentations covering road safety themes including passenger, pedestrian and bicycle safety, and is delivered as a 'whole school' approach.
Smoothie bike	A bike attached to a blender which is pedal powered and used to make smoothies.
Bike cage	A secure, enclosed bicycle parking area for commuters who travel by bike.
Moderate intensity physical activity	Physical activity which requires a moderate amount of effort and noticeably accelerates the heart rate. Examples include brisk walking, bike riding with friends, skateboarding and dancing.
Vigorous intensity physical activity	Physical activity which requires a large amount of effort and causes rapid breathing and a substantial increase in heart rate (i.e. make you "huff and puff"). Examples include running, fast cycling or playing competitive sports.
Screen Time	Time spent using an electronic device such as a computer, television, or games console.
Community Event	For the purposes of this report when a group of people living in the same area gather together for an event which occurs outside of school hours and outside of school premises.
Councils	Where used in this report councils refers to the City of Gold Coast, Ipswich City Council, Townsville City Council and Cairns Regional Council.

Contents

Chapter	Section	Page
	Executive Summary	5
Chapter 1	Introduction	10
Chapter 2	Data Collection Tools	13
Chapter 3	Overview	20
	Effectiveness	22
	Efficiency	43
	Equity	46
	Appropriateness and Acceptability	53
	Sustainability	59
Chapter 4	Aim	63
	Methodology	63
	Costs	66
	Benefits	67
	Results	71
	Recommendation	72
Chapter 5	Townsville – Belgian Gardens State Primary School	74
	Gold Coast – Tallebudgera State School	77
	Cairns – Edge Hill State School	80
	Ipswich – Collingwood Park State Primary School	84
Chapter 6	Outcome Evaluation	88
	Key Lessons and Next Steps	89
Appendices	Parent Survey 2013	91
	Parent Survey 2014	103
	Teacher Survey	113
	Participating Schools	118
	Focus Group Script	120
	Semi-Structured Interviews	129
	Walkability Index	134
	Key model assumptions	136
	Calculations	140
	Assumptions and Limitations	150

Executive Summary

Executive Summary

Background

This report presents the summative evaluation results for the HAST program, examining the impact across all participating schools from January 2013 until December 2014. This has been undertaken by assessing the impact indicators outlined in the evaluation framework. This report aims to identify the lessons learned through the implementation of the HAST program, and compare the results from wave 1 (W1) and wave 2 (W2) schools to identify the success factors. In addition, a Cost Benefit Analysis (CBA) of the program was undertaken.

Overall findings

The HAST program has successfully delivered on a number of the key objectives established at the onset of the project.

Objective 1: To increase the proportion of children who actively commute to school by walking, cycling and using public transport.

Over the duration of the program, there was an 11.2% increase in children who actively commuted according to the self-reported Hands Up data. This increase was comprised of a mixed uptake of walking, cycling and skateboarding/scootering. Overall, 19.9% of parents reported that their child's use of AT had increased.

Objective 2: To increase the proportion and absolute number of children attending participating schools that meet the recommended physical activity levels for good health.

With the data available, it was not possible to definitively assess change in adherence to recommended daily activity (RDA) levels. However, considering average daily moderate activity increased by 72.8 minutes, it would be reasonable to conclude that the proportion of children meeting RDA levels is likely to have increased.

Objective 3: To improve knowledge and attitudes towards AT within the school community (students, staff and families).

Students, parents and teachers participating in focus groups all displayed a clear understanding of the value of AT and acknowledged that the program had contributed to their knowledge about AT.

Surveys indicated that 95.9% of teachers believed AT was a good idea, and 92.9% believed that HAST activities should be embedded into schools permanently. 73.1% of parents agreed that they had been informed about AT options, and the proportion of students who requested to use AT increased by 6.7% over the duration of the program.

Objective 4: To deliver locally appropriate adaptations of HAST, in partnership with selected local governments, to target schools in their area.

HAST officers and the TMR project team reported that the structure and governance of the HAST program supported a collaborative approach to implementation. The Steering Committee membership comprised representation from Health, Education, and Transport Departments, local council, and the Heart Foundation. This enabled multiple perspectives to be considered in the program design and implementation phases.

A similar approach was taken in local councils with the establishment of Regional Committees. This allowed for a degree of overall consistency but also consideration of local conditions and ownership over the program, with a number of examples of local adaptations at both a council and school level.

Objective 5: To build the skills and knowledge of key council and school personnel to support sustainability of the HAST program beyond funding. To increase commitment to active school transport by the local government.

Overall the project has delivered professional development training to Council Officers and some teachers. Stakeholders have reported that these development opportunities have contributed to their knowledge of how to deliver successful AT programs. In conjunction with this, the regular HAST meetings have enabled sharing of successes between councils. Access to professional development (PD) for teachers was generally reported as challenging due to the need for backfill.

Executive Summary

Key lessons and next steps

The HAST program has provided the opportunity to develop and test the implementation of a program focused on Health and Activity, developed and delivered in partnership across Governments, Departments and Non-Government sector.

Its success is testament to the input, collaboration and joint ownership of the objectives of all parties involved.

There are important lessons from this program which should be noted, and next steps to continue with program success; these include:

- The coordinated approach to the implementation of this program is key to its success. Policy responses should consider the overall impact of programs from a number of perspectives. The HAST program has implications for the areas of Health, Transport and Education. In considering the ongoing nature of this program, continued coordination should be established.
- There are a number of features and components of the program that can be integrated into curriculum, resulting in joined up solutions to achieve multiple outcomes. The use of gamification and competition, both within and across schools, was seen to have the most impact towards driving participation.
- The involvement of councils officers and community was integral to the implementation of the program. Connection with community was a crucial component of success; great levels of success were observed in schools where there was ownership of the program.
- Stemming from community involvement, the program also had the unintended impact of building community connection within schools; between teachers, parents and students; and with the wider community linking with council and business. The school community valued this connection and observed the positive impacts.
- Through the development of the program, there are a number of artefacts which have been developed. These should be documented and shared for ongoing use by councils and schools.

- Consideration should be given to digital-based learning platforms for continued learning of the benefits of active travel and access to professional development for teachers.
- The impact at schools with a lower baseline use of AT is higher; hence, data should be used to identify schools where there is a greater opportunity for influencing change.
- The CBA has shown net positive benefits to the continuation of the program. If program investment is continued to realise these benefits, the impact of the program should continue to be monitored.

Detailed evaluation findings

There was a high proportion of parents who were aware of the program (82.2%) in both W1 and W2 schools, however W2 schools were less willing to consider AT compared to W1 schools.

This was consistent with W2 schools having a higher baseline preference for car usage (50.2% vs 31.6%). The gap in the preferred travel mode between W1 and W2 schools was reduced by the end of the HAST program, with W2 schools preference for car decreasing by 10.7%. Overall, preference for car decreased by 6.9%. The Hands Up data exhibited similar findings, with car use decreasing by 6.9% in W1 schools, and by 14.4% in W2 schools. Use of AT increased by 7.1% in W1 schools. and 20.6% in W2 schools.

65.2% of teachers and 89.4% of parents reported that the program had influenced the activity levels of children.

Self-reported activity levels also show that moderate activity has increased for both weekdays and weekends since the implementation of the HAST program. AT is classified as a moderate activity; increases in reported moderate activity levels are likely to reflect the increased uptake of AT over the program duration.

Executive Summary

Parents and teachers reported being satisfied with the information and support provided as part of the program. At baseline only 21.8% of parents in W1 schools and 29.1% in W2 schools correctly identified the RDA level. Variance from baseline shows this proportion increased in W1 by 5.46% and 0.47% for W2 schools. Specific education may be beneficial in educating parents about the correct RDA levels, which may induce an increase in the percentage of children meeting RDA. Overall, parents, teachers and children were able to identify the benefits associated with AT and were satisfied with the program. There was a high proportion of teachers (37.9%) who neither agreed nor disagreed that the program had increased the skills and knowledge in implementing physical activity in the learning environment. Only Cairns teachers accessed the available PD courses across both years and Townsville in W1; hence, it may be beneficial to ensure teachers access the available PD to augment their skills in the area.

Other key findings

Teachers reported that the HAST program required an extra 25 to 45 minutes per week of their time, which was mostly well accepted. Over the two years, a number of volunteers supported the teachers and HAST POs in the implementation and delivery of the events and activities, however the numbers varied markedly between councils.

The program had a high impact on children living with a disability, with their preference for AT increasing by 9.1%. Their baseline preference was lower than for children without a disability. Comparable activity participation indicates that the events and activities were inclusive of this group of children. This was in contrast to children identifying as Aboriginal or Torres Strait Islanders; they had a higher baseline preference for AT, with lower participation in HAST activities, and minimal impact.

Children who lived further away from school had a lower preference for AT. The greatest change observed was an increase in the use of cycling for all distances from school. While the delivery of the program was broadly consistent across the councils, there were some adaptations at each site to enable engagement and momentum at each school.

92.9% of teachers agreed or strongly agreed that the events and activities should be implemented at their school; however uptake of AT by teachers themselves was minimal (8.2%). 46.8% of parents reported the activities had been tailored to their needs, while 43.2% were undecided, which demonstrates that it would be beneficial to gain a better understanding of what parents would have found appropriate. The Bike Bus was the favourite activity as expressed by children as it allowed students who require supervision to join in and participate.

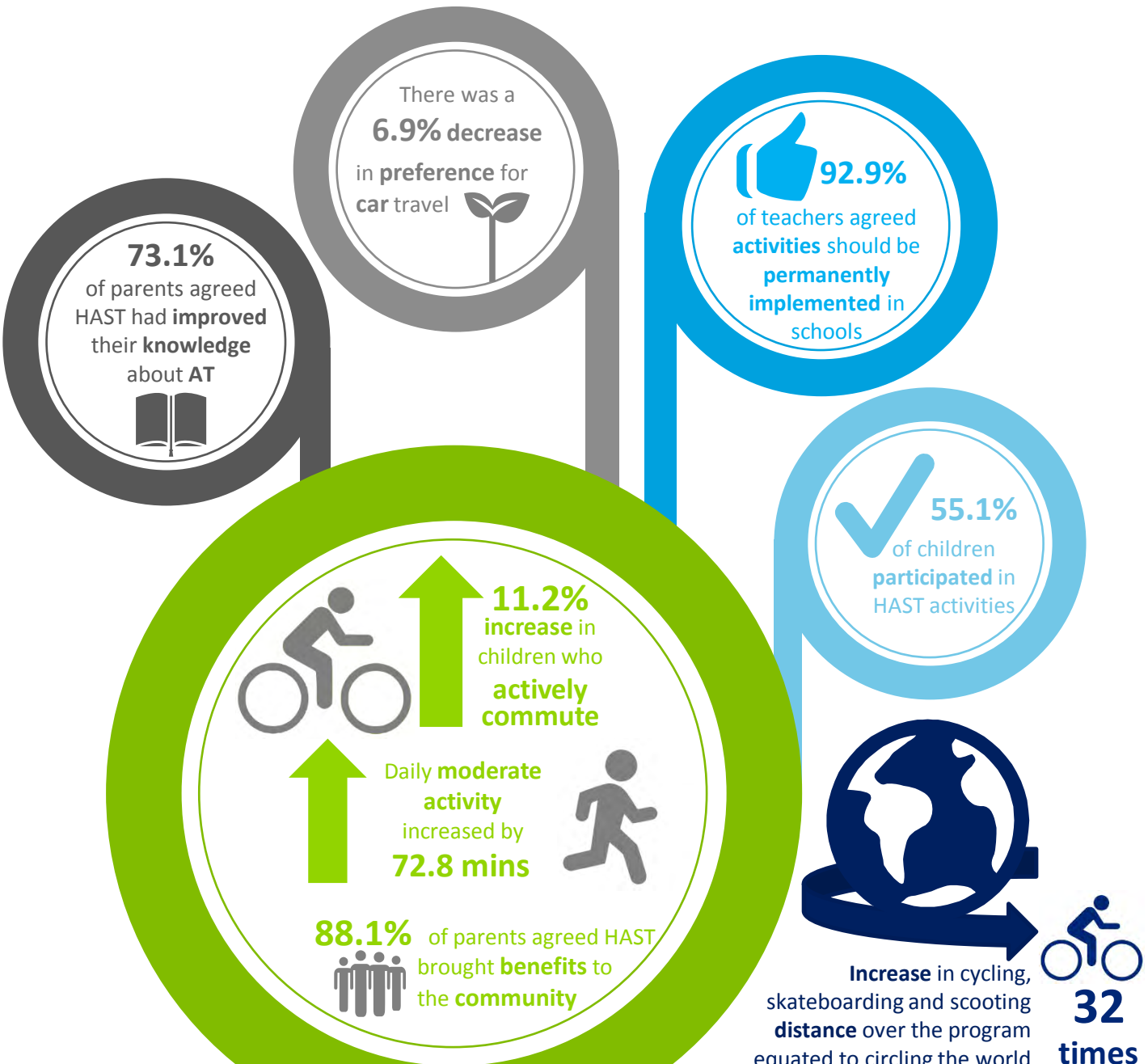
CBA findings

The costs and benefits associated with the delivery of the HAST program were evaluated over a 10-year period. The results indicate that under the developed assumptions the costs of the program are less than the benefits generated. The CBA was built on the assumption that post implementation, the costs associated with the program management and oversight from TMR are no longer incurred. The program management costs of the program have been included for the first two years of the program, while the operational costs continue to the end of the evaluation period. Under these assumptions, the CBA returned a BCR of 1.44, with the program generating an NPV value of \$3.3 million over the evaluation timeframe.

The results of the CBA were tested against three sensitivities; discount rates, health benefits and bike maintenance costs. Under each of these sensitivities, the BCR remains higher than one indicating the results are still positive under less favourable conditions.

Through the CBA, it was identified that the benefits and costs associated with car travel are well documented and established. AT costs and benefits are, however, less developed. Addressing the gap in the AT knowledge will ensure consistency and robustness in the evaluation of AT initiatives in the future. It was also identified that the number of kilometres travelled and the mode used was self-reported, potentially giving rise to recall bias and variation in the ability to estimate distance, impacting on the robustness of the data.

Infographic Summary



Cost Benefit Analysis

1,188,749 km reduction in distance travelled by car over the program

216 cars off the road each day

1,293,412 km increase in distance travelled by **bicycle, scooter and skateboard** over the program

Benefit-Cost Ratio = **1.44**
Net Present Value = **\$3.3M**

Chapter 1

Introduction

Introduction

Aims of this project

The Department of Transport and Main Roads (TMR) engaged Deloitte in January 2013 to evaluate the HAST initiative from a health and transport perspective. The program was initially funded through the National Partnership Agreement on Preventative Health and supported by the Department of Transport and Main Roads in partnership with the Department of Health and local councils. Since July 2014 the program has been funded by the Queensland Government.

HAST Program

The HAST initiative is aimed at improving children's health by encouraging AT by walking, cycling, public transport or other non-motorised modes, specifically to and from school.

The HAST program's mandate is to:

- Assist four councils and selected primary schools to develop and implement a School Travel Plan (STP) that aims to improve children's health by encouraging AT to and from school. HAST will initially deliver to 20 schools across the four regions expanding to 38 schools in 2014.
- Provide funding, tools and resources to councils and schools to support AT to and from school, with an aim to incorporate or increase regular incidental physical activity into the daily routines of children.
- Expand the program to the school community, including family and teachers, through tailored community events that inform and raise awareness and appreciation of the benefits of AT towards overall good health.
- Improve accessibility by identifying and funding minor infrastructure improvements such as bike racks, safety signs and road lines.
- Link and be consistent with emerging Department of Education and Training priorities, including Smart Moves and the Australian Health and Physical Education curriculum.

The HAST initiative is aimed at improving children's health by encouraging Active Travel

Program Objectives

The objectives of the HAST initiative are:

Objective 1: To increase the proportion of children who actively commute to school by walking, cycling and using public transport.

Objective 2: To increase the proportion and absolute number of children attending participating schools that meet the recommended physical activity levels for good health.

Objective 3: To improve knowledge and attitudes towards AT within the school community (students, staff and families).

Objective 4: To deliver locally appropriate adaptations of HAST, in partnership with selected local governments, to target schools in their area.

Objective 5: To build the skills and knowledge of key council and school personnel to support sustainability of the HAST program beyond funding. To increase commitment to active school transport by the local government.

Introduction

Project Stage

This project is currently in stage 5. All surveys, interviews and focus groups have been conducted for the purpose of the evaluation and this report consolidates the findings from the outcome evaluation across both years of the program and both waves of schools. As part of the report a CBA is included, which contains a summary of the costs and benefits of the program. The CBA will ascertain whether the benefits of the program outweigh the costs and hence if the program benefits society.

The diagram below outlines the timeline for the project.

Evaluation Stages

Stage 1	<ul style="list-style-type: none"> Project Plan containing Risk Management Strategy and Stakeholder Engagement Strategy
Stage 2	<ul style="list-style-type: none"> Evaluation framework and implementation plan
Stage 3	<ul style="list-style-type: none"> Baseline report 2013
Stage 4	<ul style="list-style-type: none"> 2013 Annual report 2014 Annual report
Stage 5	<ul style="list-style-type: none"> Summative report including four case studies and CBA

Purpose of this document

The purpose of the Summative report is to present the overall impact of the program at the end of two years of implementation. Of particular interest is to identify any trends across the two waves of schools and develop an understanding of the sustainability of impact over time. The report also presents the findings from the CBA, including sensitivity analysis.

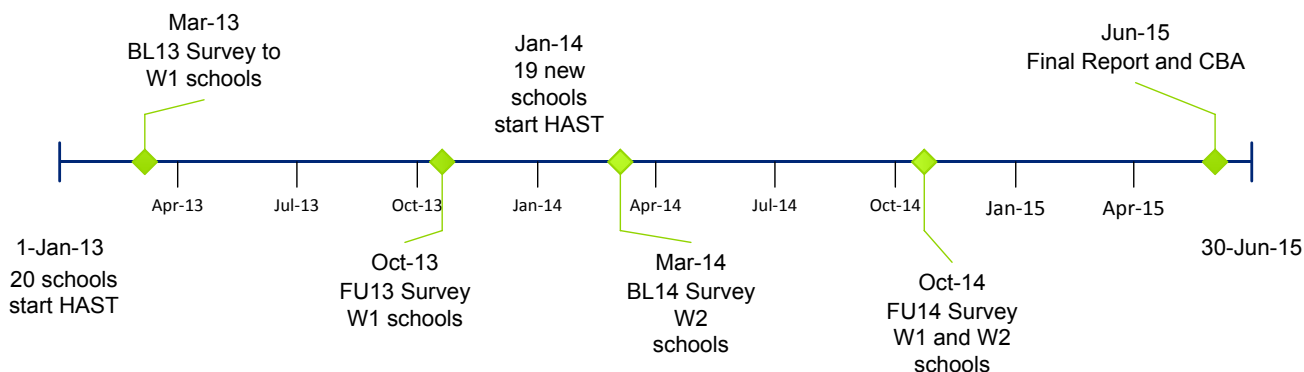
Report Structure

The report is structured as follows:

- Chapter 1: Overview
- Chapter 2: Methodology
- Chapter 3: Outcome Evaluation
- Chapter 4: Cost Benefit Analysis
- Chapter 5: Case Studies
- Chapter 6: Conclusions
- Appendices

Information regarding councils is outlined within each of the above sections where relevant.

Project Timeline



Chapter 2

Methodology

Methodology

Data collection tools

Overview

Surveys, semi-structured interview (SSI) scripts and focus group scripts were designed by the evaluation team to address both the process and outcome evaluation questions, and enable measurement of the performance indicators.

Surveys

Two surveys were designed and used to gather data from stakeholders; this included a Parent Survey and Teacher Survey. Parent surveys were administered to gather baseline and follow up results for the W1 and W2 schools. The total number of respondents who participated in the surveys are as follows:

- Baseline Parent Survey 2013 (BL13) (W1) – 884 respondents
- Follow-up Parent Survey 2013 (FU13) (W1) – 242 respondents
- Baseline Parent Survey 2014 (BL14) (W2) – 1,295 respondents
- Follow-up Parent Survey 2014 (FU14) (W1 and W2) – 1,480 respondents
- Teacher Survey 2013 (W1) – 227 respondents
- Teacher Survey 2014 (W2) – 275 respondents

Teacher surveys were collected in October/November of each implementation year.

The response rate of all surveys is detailed on the following pages. The surveys are included in Appendix A, B and C and the schools who participated in the survey are included in Appendix D.

Parent baseline surveys

A number of methods were used to collect the baseline survey. Parents of participating schools were sent an electronic link to the survey, while HAST POs and Deloitte staff also used paper surveys to collect data at the schools.

The BL13 survey had an 8.8% response rate, while the BL14 achieved 4.9%. The FU13 survey received the lowest response rate of the surveys (2.0%), in comparison, the FU14 survey achieved a 5.6% response rate.

The distribution by grade of the respondents for the baseline surveys have similar trends (Figure 1 and 2), where the percentage decreases from prep to grade 7.

Figure 1: W1 (BL13) – Grade and gender profile (BL13)

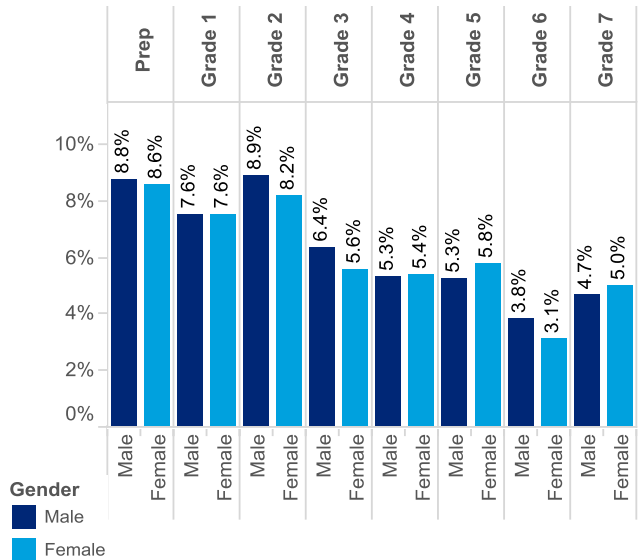
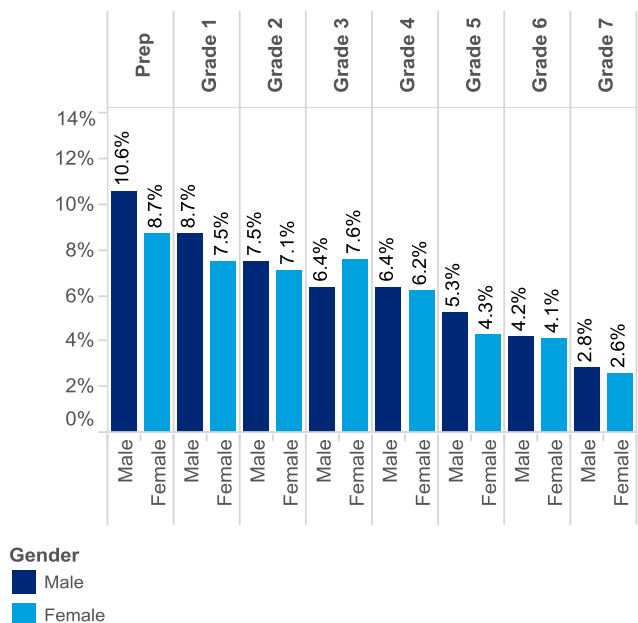


Figure 2: W2 (BL14) – Grade and gender profile (BL14)



Source: Parent Survey

Methodology

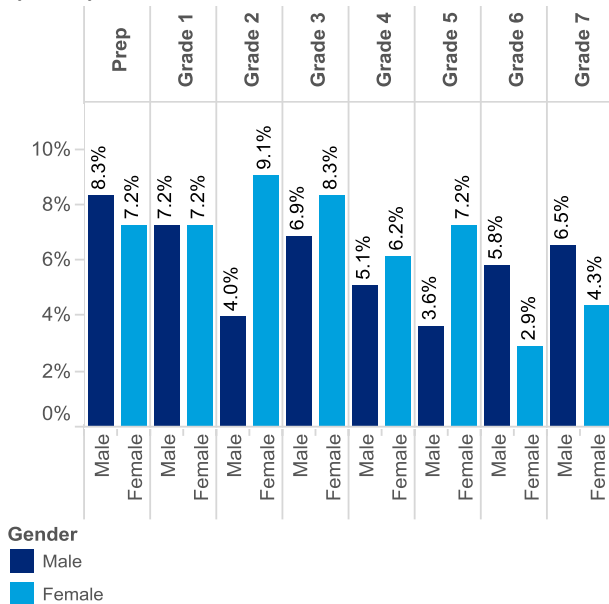
Data collection tools

Parent follow-up survey

A number of methods were used to collect the parent follow-up survey. Parents who had completed the baseline surveys and provided an email address were sent an electronic link to the survey along with reminders. Paper surveys were also distributed to participating schools and collected by HAST POs. Collection of responses occurred in October/November of both 2013 and 2014 and contains responses from parents who may not have responded in the baseline.

The response rate for the 2013 follow-up survey was 2.0% with 242 respondents. The distribution is outlined in Figure 3.

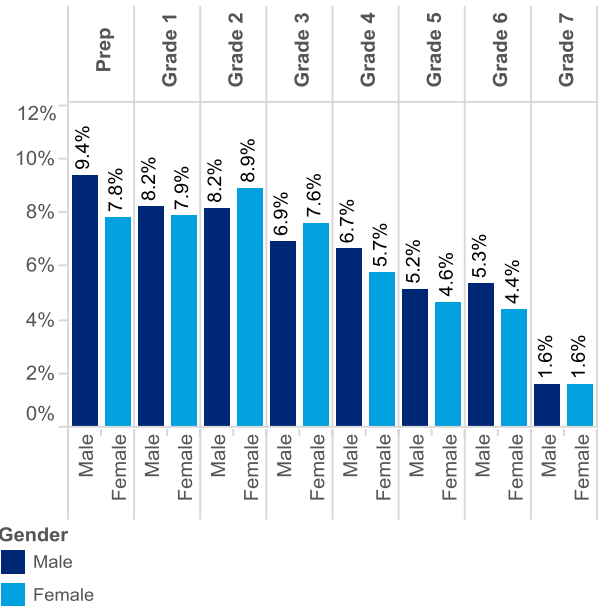
Figure 3: W1 (FU13) – Grade and Gender Profile (FU13)



Source: Parent Survey

The follow-up survey at the end of 2014 achieved a response rate of 5.6% across W1 and W2 schools (4.4% and 6.1% respectively).

Figure 4: W1 and W2 (FU14) – Grade and Gender Profile (FU14)



Source: Parent Survey

It is recognised that the parent surveys may be prone to selection bias as the surveys were voluntary, and recall bias as they rely on self-reporting.

Consequently a mixed methods approach has been taken to data collection in order to strengthen the evaluation.

As a general trend, all of the surveys undertaken were slightly more weighted towards the younger grades. This similarity across the surveys improves the comparability of the information.

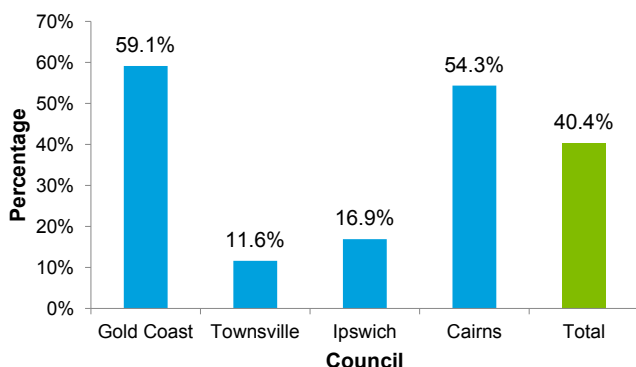
Methodology

Data collection tools

Teacher survey

The teacher survey was available either electronically or in paper format. The response rate of teachers by council is detailed in Figure 5. Overall, 40.4% of teachers from participating schools responded to the survey. The high response rate is indicative that the results are likely to be representative of the teacher population.

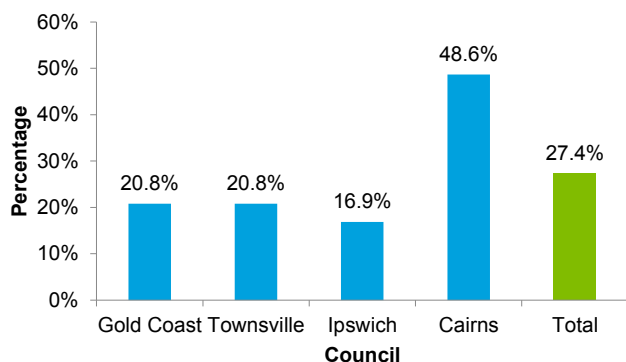
Figure 5: Teacher response rate (2013) (W1)



Source: Teacher Survey

Similarly, Figure 6 shows the response rate for the teacher survey by council for 2014. Of the participating schools in 2014 overall a 27.4% response rate was achieved and results are considered to be representative of the population.

Figure 6: Teacher response rate (2014) (W1 &W2)



Source: Teacher Survey

HAST Officer Toolkit

HAST POs were also required to report on travel behaviour, activities, events and professional development (PD) occurring in their council each term using the HAST Officer toolkit which included:

- Activity and Event Forms,
- Professional Development Forms for teachers and HAST POs, and
- Hands-up Survey.

Each collection tool is described below.

Activity and Event Forms

Activity and event forms were required to be completed pre and post each event/activity that occurred in schools. This has been used to inform the process and outcome evaluation.

Professional development forms for teachers and HAST Project Officers

Teachers and HAST POs were required to complete a form following completion of PD. Data collected included how PD met the overall program objectives, and the benefits reported by HAST POs and teachers facilitating the PD.

Hands Up survey

Twice a month all classes in participating schools were asked to complete a Hands Up survey which asked children how they travelled to and from school. This data has been triangulated with the parent survey data to give a more accurate picture of children's travel behaviour over the course of the year.

Methodology

Data collection tools

Semi-structured interview scripts

Semi-structured interviews were conducted in Term 4 (October/November) in 2013 and 2014 with all HAST Project Officers, council representatives, the TMR project team, the DoH (Qld) and school representatives. Interviews followed a pre-determined structure and set of questions, but also allowed new issues to be explored as they arose. Interview sessions are outlined in Table 2.1 and scripts are included in Appendix I.

Focus groups

As part of the case studies 12 focus groups in total were undertaken at four of the participating schools. This included focus groups separately with:

- Teachers,
- Parents; and
- Students.

Each of these is further described below.

Teacher focus groups

The focus group with teachers was made up of those who taught a range of ages from Prep to Grade seven. Overall 22 teachers in 2013 and 11 teachers in 2014 participated; sessions ran for 45 minutes each and covered four main topics. This included how the HAST program was implemented; the types of AT activities that could help increase walking/bicycling and safety; the impacts the program had on the community; and what can be done to enhance the sustainability of the program.

Parent focus groups

Overall, 11 parents in 2013 and 7 in 2014 participated; sessions ran for one hour each and covered four main topics including how children get to and from school; barriers that adults might face in walking or biking their children to school; the types of changes that would help children to walk or bike safely to school; and the types of AT activities that could help increase walking/biking and safety.

Table 2.1: Stakeholder interviews

Stakeholder	Organisation/s
Council Representatives	Ipswich City Council City of Gold Coast Cairns Regional Council Townsville City Council
HAST Project Officers	Ipswich City Council City of Gold Coast Cairns Regional Council Townsville City Council
A/Principal Project Advisor	Department of Transport and Main Roads
A/Senior Project Advisor	Department of Transport and Main Roads
Senior Health Promotion Officer	Queensland Health
School champions/representatives	Collingwood Park State School Edge Hill State School

Child focus groups

The focus group with children was made up of representatives from a range of ages from Prep to Grade seven. Overall 28 children in 2013 and 14 children in 2014 participated; sessions ran for 30 minutes each and covered topics such as how children travelled to and from school; what activities they had participated in and enjoyed; and enablers and barriers to using AT.

Feedback from these sessions were used in the process and outcome indicator framework to identify what did and did not work in the program, and triangulate with the responses obtained from the surveys.

Methodology

Data collection tools

It should be noted that participation in the parent, teacher, and child focus groups was voluntary and therefore may be prone to selection bias. Details of the structure and questions for the case study focus groups are included in Appendix J.

Research approval

Research approval for the evaluation was provided by the Department of Education in order to conduct the research in Queensland Schools. Approval was also obtained from the Catholic systemic schools in the Diocese of Brisbane, Cairns and Townsville.

Chapter 3

Outcome

Evaluation

Evaluation findings

Outcome evaluation

Overview

The analysis is a summative evaluation of HAST participating schools from January 2013 to December 2014. The purpose is to report on the overall impact of the HAST program.

A mixed methods approach has been employed in order to contribute to a broader understanding of the research questions. Consequently, a range of data sources have been drawn on and analysed in order to answer the outcome evaluation questions. The consolidation of findings includes mapping each of the indicators and data sources to the evaluation domains and research questions.

Each data source was initially analysed independently and themes identified. In some instances we relied on one data source to answer a particular research question.

Factors also taken into consideration when analysing findings included the quality of data. These complexities are further explored in the subsequent pages. Key findings are highlighted in Table 3.1.

Overview

Table 3.1: Summary of key findings

Domains	Key Findings
Effectiveness	<ul style="list-style-type: none">82.2% of parents reported being aware of the program at FU14, and 32.6% reported that their use of AT had increased since the beginning of the yearW2 schools were less willing to consider AT at baseline than the W1 schools, which was consistent with the fact that W2 schools had a higher proportion of car users than W1 schools and a higher average distance from school82.1% of children requested to use AT for W1 schools, while only 59.8% had requested to use AT in W2 schools at baselineOverall, there was a 6.9% decrease in preference for car, which appears to be driven by a decrease of 10.7% in W2 schoolsCycling had the most consistent increases of the AT modes, increasing by 6.5% and 7.5% for W1 and W2 respectivelyThe National Walk Safely to School Day and Park and Walk or Ride to School were the most successful strategies for increasing ATSelf-reported mode of travel showed a 6.9% decrease in the use of car for W1 schools, and a decrease of 14.4% for W2 schools; AT increased by 7.1% and 20.6% respectively65.2% of teachers and 89.4% of parents reported that the program had influenced the activity level of childrenModerate activity levels have increased since the implementation of HAST across both weekdays and weekendsParents and teachers were satisfied with the information and the level of support provided as part of the program; in some instances, increased education for parents on the RDA may be beneficial

The purpose of the summative evaluation is to assess the overall impact of the HAST program

Evaluation findings

Outcome evaluation

Overview

Table 3.1: Summary of key findings continued

Domains	Key Findings
Effectiveness (continued)	<ul style="list-style-type: none"> Parents and teachers reported the benefits of AT as building the relationship between parents and students and increasing the community cohesion. Children reported having fun and improving their understanding of road safety as the main benefits Overall, there was a high proportion (95.9%) of teachers who agreed or strongly agreed that AT is a good idea and 76.0% agreed that the program had provided them with new information regarding AT to school 37.9% of teachers neither agreed or disagreed that the program had provided them with the skills and knowledge in implementing physical activity in the learning environment School newsletter and verbal messages via children appear to be the most cost-effective method of communication, meaning that promotional material may be kept at a minimum and redistributed to the incentive/reward program, identified as a key strategy in the uptake of AT Time constraints and distance from school were raised by teachers and parents as barriers to AT, while motivating factors included incentives and rewards and regular activities
Efficiency	<ul style="list-style-type: none"> Teachers reported spending between 24 and 45 minutes per week on HAST program activities Volunteer contribution came mostly from parents and the number of volunteer contribution varied greatly between W1 and W2 schools There were some synergies identified with programs that shared goals and values with HAST across councils
Equity	<ul style="list-style-type: none"> Children living with a disability reported a lower baseline preference for AT, however a 9.1% increase in AT and comparable participation rate suggest activities were appropriate for these children Children identifying as Aboriginal or Torres Strait Islander had a higher baseline preference for AT, however the impact of the HAST program appeared to be minimal for this group Children living further away from school had a lower baseline preference for AT and at follow-up, cycling was the AT mode with the greatest observed change
Appropriateness and Acceptability	<ul style="list-style-type: none"> Where the activities were designed to contribute to more than just the HAST objectives, these were more widely accepted by the school community 92.9% of teachers agreed that the events and activities should be implemented at their school
Sustainability	<ul style="list-style-type: none"> School champions played a key role in the implementation of the program at each school. Delivery was also reliant on the existing knowledge and skills of the HAST POs The high turnover of teachers presents a key barrier to implementing the program as 'business as usual', and councils encouraged schools to have more than one person per school ensuring delivery

Impact analysis

OE 1 How effectively has the HAST program delivered on its intended objectives?

The HAST program has resulted in an increase in the proportion of children who requested to use AT and a decrease in the use of cars as the main mode of transport

Transport

32.6% of parents reported observing an increase in their child's use of AT and 82.2% reported being aware of the program, demonstrating the reach of the program. At baseline, W1 and W2 schools had differential levels of willingness to undertake AT and children who had requested to use AT. At baseline the reported preferred mode of travel to and from school was car (50.2%) for W2, while it was much lower for W1 schools (31.6%). At the end of the program, this had decreased to 39.5% for W2 and increased to 32.8% for W1 schools.

76.5% of parents agreed that the program had influenced their children's mode of travel to and from school. The similar trends in reported change in AT use for W1 and W2, indicates that similar results were achieved with less dedicated time from HAST POs at each school.

The self-reported mode of transport data shows that the use of AT has increased in the morning by 3.5% for W1, and by 17.4% for W2. AT increased in the afternoon by 10.8% for W1 and 23.8% for W2.

Self-reported mode of transport also indicated that the use of cars has decreased in the morning by 4.1% for W1, and by 11.8% for W2. In the afternoon, car use decreased by 9.8% in W1 and 16.9% in W2. W2 schools had a higher baseline car use, which may explain the larger decrease. By the end of the second year of the program, Hands Up data for both W1 and W2 schools shows similar proportions of car use.

Health

Parents and teachers reported they believed the children's activity levels had increased as a result of the program. This was observed in the activity data collected, where the moderate level of activity had

increased across both years of the program for all students exposed to the program. Vigorous activity increased for W1 in 2014, while decreasing for W2.

There was an increase of 5.5% in W1 parents who correctly identified the RDA level for children. The increase is much smaller for W2, however, 29.1% correctly identified RDA at BL compared to 21.8% in W1 schools. At FU14, the proportions of parents correctly identifying RDA for W1 and W2 were similar. Having a consistent program delivery method seems to have enabled both waves of school to converge towards similar levels of understanding and activity.

Education

There were high levels of agreement amongst parents and teachers that the program had improved their awareness, knowledge and attitudes towards AT, with proportion varying between 73.1% and 95.9%. There is an opportunity, however, to improve materials and access to PD for teachers as identified by the lack of agreement from teachers that the program had increased their skills in implementing physical activity in the learning environment. Cairns was the only school accessing the teacher PD across both years of the program, while Townsville had one instance in W1.

Feedback from the teacher focus groups reported the benefits of AT as enabling the building of relationships with parents and children, increasing awareness of children on how they travel to and from school, and providing a pathway for developing the required infrastructure. For children and parents, cited benefits were improving fitness, the community feel, and knowledge of road safety. The program has also helped increase the knowledge of AT modes and the benefits that are associated with it.

Impact analysis

OE 2 What is the impact of HAST strategies on the factors known to mediate or moderate active travel to school?

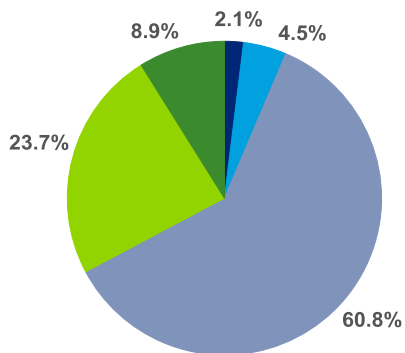
While 82.2% of parents were aware of the HAST program in both waves, parents in W1 schools were more willing to consider AT as a mode of travel than W2 parents

TRANSPORT

Parent reported change in AT use since baseline

Figure 7 shows that 32.6% of W1 and W2 schools at FU14 reported that their use of AT had increased over the course of the year.

Figure 7: W1 and W2 (FU14) – Parent reported change in AT use since the beginning of the year



Use of AT change since baseline

- Decreased a great extent
- Decreased a little
- No change
- Increased a little
- Increased a great extent

Source: Parent Survey

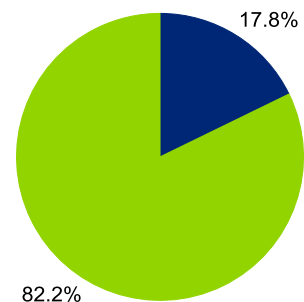
The majority of respondents (60.8%) at FU14, noted no change in their use of AT since the beginning of the year. W2 schools had a similar pattern of reported change with 61.7% reporting no change compared with 59.9% in W1 schools. HAST PO resources were spread across more schools in 2014 with the addition of W2. This shows that the levels of reported change are able to be sustained with less dedicated time from HAST POs.

82.2% of parents were aware of the program and 32.6% reported their use of AT had increased

Parental awareness of the HAST program

At the end of the program, 82.2% of the parents reported being aware of the HAST program as shown in Figure 8. The awareness reflects the reach that was achieved by the council and schools. Gold Coast had the highest proportion of parental awareness (96.0%), while Townsville had the lowest (68.8%). Ipswich and Cairns had 79.8% and 83.0% of parents respectively reporting awareness of the program.

Figure 8: W1 and W2 (FU14) - Parent awareness of the HAST program



Aware of HAST program

- No
- Yes

Source: Parent Survey

Impact analysis

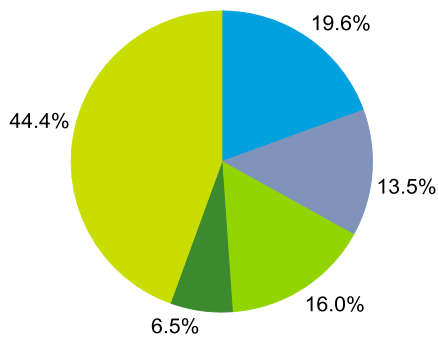
OE 2 What is the impact of HAST strategies on the factors known to mediate or moderate active travel to school?

TRANSPORT

Proportion of parents willing to test new travel mode

In W1 schools at baseline (BL13) 44.4% of parents reported their children already used AT, and an additional 36.0% were willing to consider AT (Figure 9). The proportion of parents not willing to consider AT at baseline was 19.6%.

Figure 9: W1 (BL13) – Parental willingness to consider AT



Willingness to consider AT

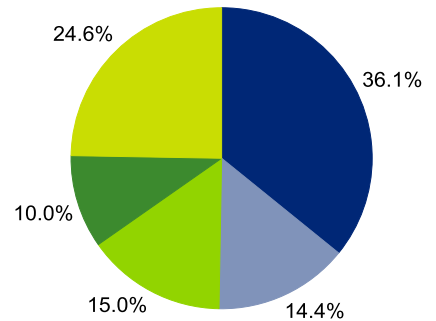
- Not at all willing to consider
- Not willing to consider
- Moderately willing to consider
- Willing to consider
- Very willing to consider
- We already use active travel such as walking and cycling

Source: Parent Survey

In comparison, W2 schools exhibited a different attitude towards AT at baseline (Figure 10). W2 schools had 24.6% of parents who reported their children already used AT, while 36.1% were not at all willing to consider AT. 39.4% of parents were willing to consider AT in W2, compared to 36.0% in W1.

W1 and W2 schools therefore appear to have a different baseline in terms of both the usage of AT and the willingness to consider it as a mode of travel to and from school (Figure 9 and 10).

Figure 10: W2 (BL14) – Parental willingness to consider AT



Willingness to consider AT

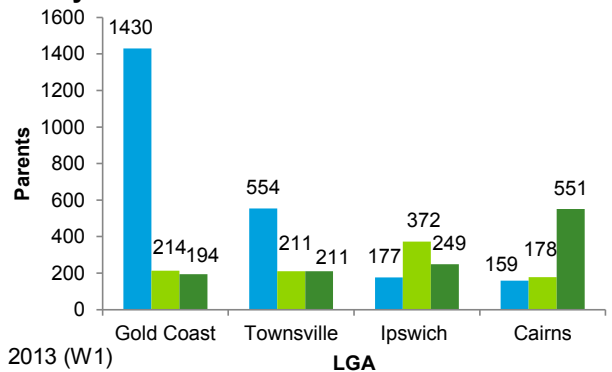
- Not at all willing to consider
- Not willing to consider
- Moderately willing to consider
- Willing to consider
- Very willing to consider
- We already use active travel such as walking and cycling

Source: Parent Survey

Parent participation

Parent participation appeared to fluctuate across the two years of the program; participation in 2014 did not increase, as would be expected from the addition of W2 schools.

Figure 11: W1 and W2 – Number of parents participating in HAST activities over the two years by council



- 2013 (W1)
- 2014 (W1)
- 2014 (W2)

Source: Event and activity data

Impact analysis

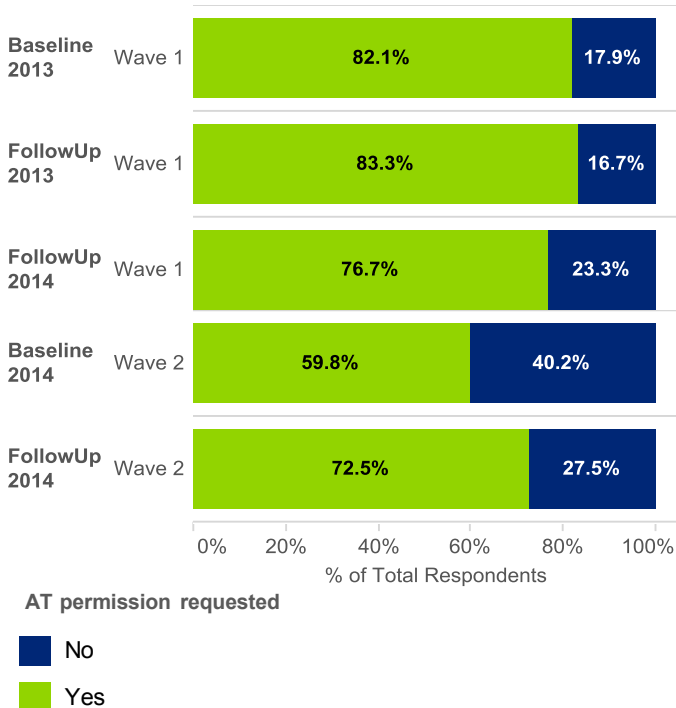
OE 2 What is the impact of HAST strategies on the factors known to mediate or moderate active travel to school?

TRANSPORT

Number of students willing to test new travel mode

Figure 12 shows the percentage of children who had requested to use AT at each survey instance. Results for the W1 schools show that there was a small decrease in the percentage of children who had requested to use AT in the second year of implementation.

Figure 12: W1 (BL13, FU13, FU14) and W2 (BL14, FU14) - Proportion of children who requested to use AT over the program



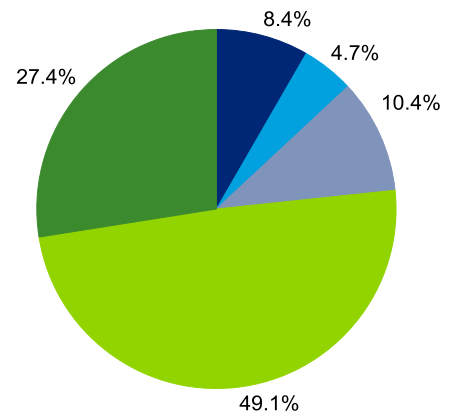
Source: Parent Survey

In comparison, W2 schools had a low baseline proportion of children requesting to use AT. This is consistent with results from Figure 10, showing a much smaller proportion of W2 parents who reported their children already use AT. At FU14, the proportion of W2 children requesting to use AT had increased by 12.7%.

The percentage of children requesting to use AT was higher at baseline for W1 than W2 schools

At FU14, the majority of parents (76.5%) reported that the HAST program had influenced their child's mode of travel to and from school (Figure 13). This supports the increase in the percentage of children requesting to use AT shown in Figure 12.

Figure 13: W1 and W2 (FU14) - Parent reported program influence on children's mode of travel



Program influenced children's mode of travel to school

- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

Source: Parent Survey

Impact analysis

OE 2 *What is the impact of HAST strategies on the factors known to mediate or moderate active travel to school?*

TRANSPORT

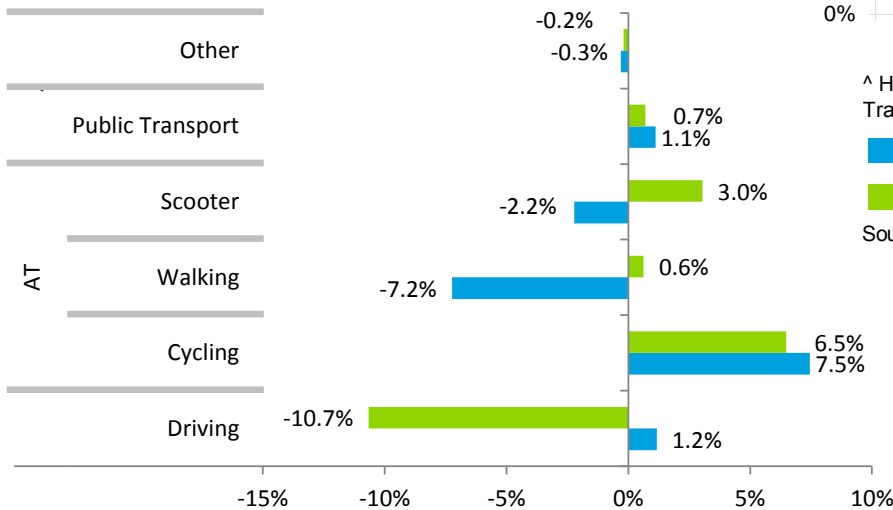
Number of students willing to test new travel mode (morning)

Over two years of program exposure, W1 schools exhibited a 1.2% increase in preference for driving, preference for cycling increased by 7.5%, walking decreased by 7.2%, scooter decreased by 2.2% and public transport increased by 1.1% (Figure 14).

In comparison, after one year of exposure, W2 schools had a large decrease in the proportion of children preferring car as their travel mode (10.7%).

Figure 15 shows that W2 schools had a much higher baseline preference for car compared to the other travel modes, which may explain why the large decrease in preference for driving was observed.

Figure 14: W1 (BL13, FU14) and W2 (BL14, FU14) – Child’s change in preferred travel mode – morning

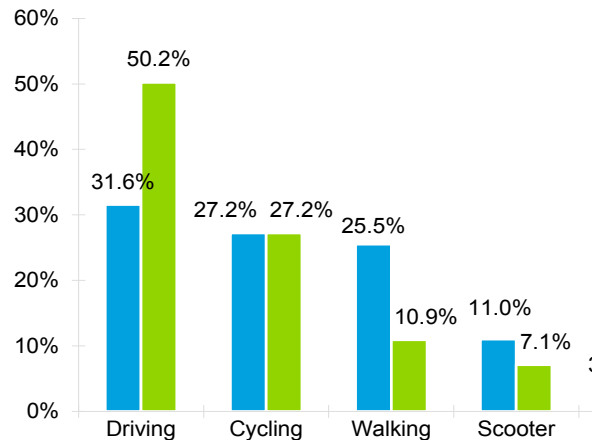


■ W1
■ W2

Source: Parent Survey

Preference for car travel decreased by 10.7% for W2 schools

Figure 15: W1 (BL13) and W2 (BL14) – Child’s baseline preferred travel mode (proportion)^ – morning



^ Highest proportions reported; excludes Public Transport and 'Other'

■ W1
■ W2

Source: Parent Survey

Impact analysis

OE 3 What are the most important HAST strategies in increasing active travel to school among inactive children?

Parents and teachers reported that the National Walk Safely to School Day and Park and Walk or Ride to School were the most successful strategies at increasing AT

TRANSPORT

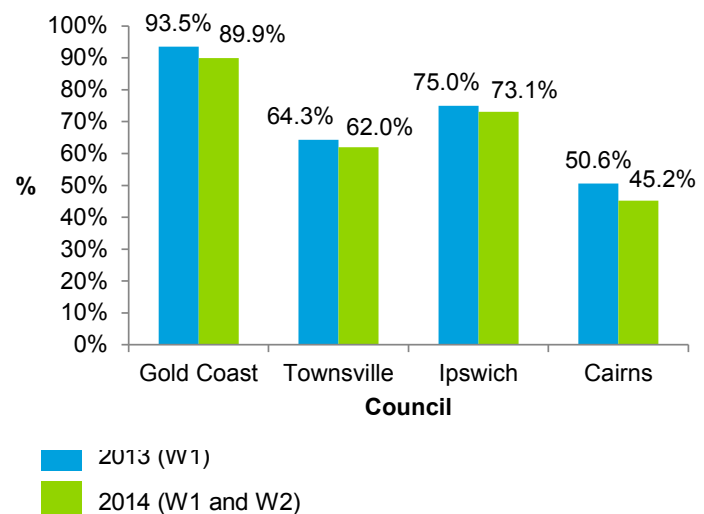
Parent reported HAST strategies which have assisted in increasing AT

Over the course of the two years of the program, parents identified the activities/events which they perceived to have been most successful in encouraging AT. The National Walk Safely to School Day and Park and Walk or Ride to School were ranked the highest overall. Active Travel Passports and the Healthy Breakfasts, often delivered in tandem with the above activities, were also reported as playing a part in increasing AT. Across the different councils, there was some variability in the top strategy reported by parents. In Cairns the Bike Bus was most successful for both years of the program. In Ipswich, the Healthy Breakfast and Walk to School Days were reported as being most successful. In Townsville, both the Ride and Walk to School Days were reported as increasing AT among inactive school children. In the Gold Coast, the Travel Passports and the Park, Walk or Ride to School were seen to increase AT.

Teacher reported strategies which have assisted in increasing AT

Teachers were also asked about the strategies they believed had assisted in increasing AT over the course of the program. The outstanding strategy from teacher feedback was the use of competitions and incentive/prizes as a core contributor to the increase in AT.

Figure 16: W1 (FU13, FU14) and W2 (FU14) – Teacher participation rates over the two years of the program



Source: Teacher Survey

In 2013, teachers reported the integration of the HAST program into the curriculum as having a great impact on increasing AT, while in 2014 teachers emphasised the need for appropriate AT infrastructure to ensure sustained increases in students commuting actively.

Figure 16 shows that teacher participation rates had decreased slightly in the second year of the program.

Impact analysis

OE 4 What is the baseline level of overall physical activity among children and how does this change as a result of HAST?

Self-reported travel mode data showed an overall increase in AT of 11.2%; the observed increase in W1 schools was 7.1%, and 20.6% in W2 schools.

HEALTH

Experimental individual behaviour

Figures 17A and 17B show the self reported mode of transportation to (morning) and from (afternoon) school respectively; overall, AT increased by 11.2% over the course of the program.

The two graphs show similar trends in the methods of transportation in the morning and the afternoon.

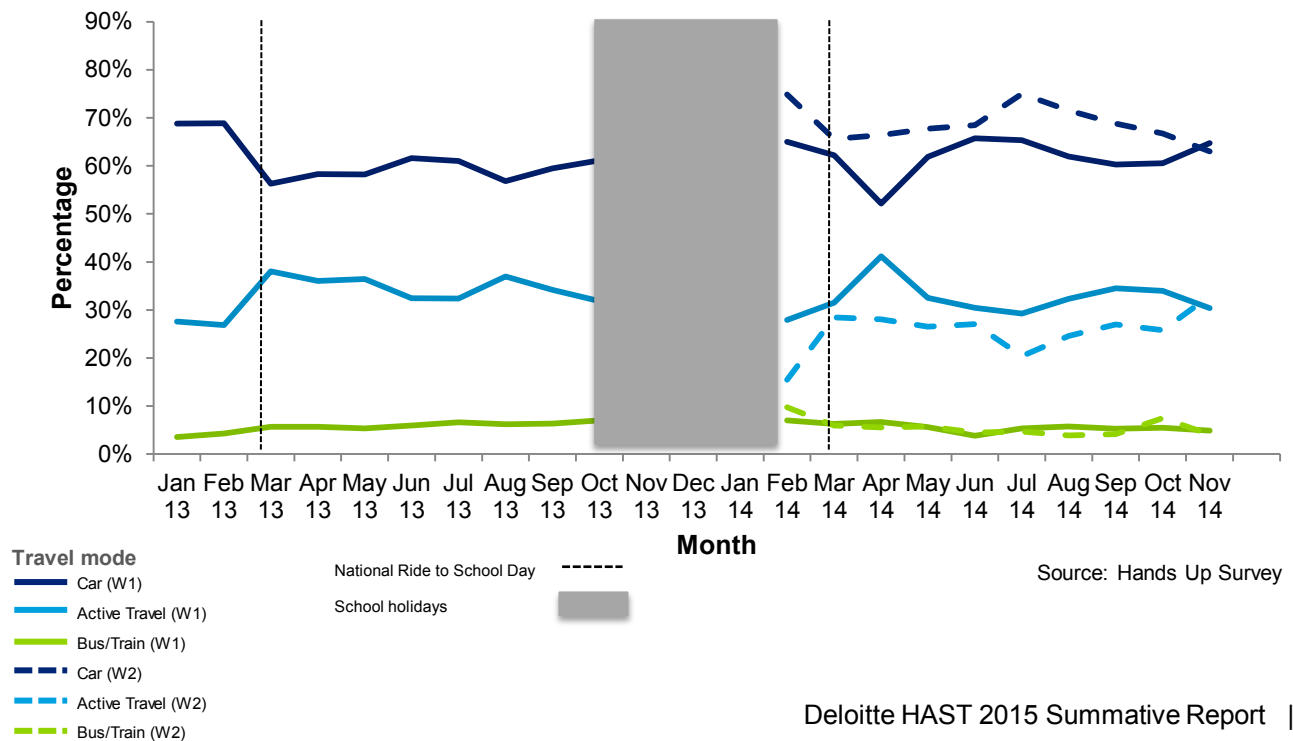
Figure 17A outlines the morning results for 2013 and 2014 by W1 and W2. W2 has a higher proportion of children using a car compared to W1, which is consistent with the preferred travel modes at baseline and follow-up shown in Figure 14 and 15.

Car use is seen to decrease for W2 towards similar levels as W1 schools by the end of 2014.

Over the course of the program, across both morning and afternoon, AT increased by 7.1% in W1 schools, and 20.6% in W2. Use of AT in the morning increased by 3.5% in W1 schools, and 17.4% in W2 schools. Use of car in the morning decreased by 4.1% for W1 schools, and 11.8% in W2 schools.

Figure 17B shows more pronounced results for transportation mode in the afternoon. Use of AT increased by 10.8% in W1 schools, and by 23.8% in W2 schools over the course of the program. Car use decreased by 9.8% in W1 schools, and by 16.9% in W2 schools over the same period.

Figure 17A: Mode of transportation – morning



Source: Hands Up Survey

Impact analysis

OE 4 What is the baseline level of overall physical activity among children and how does this change as a result of HAST?

HEALTH

Figure 17B: Mode of transportation – afternoon

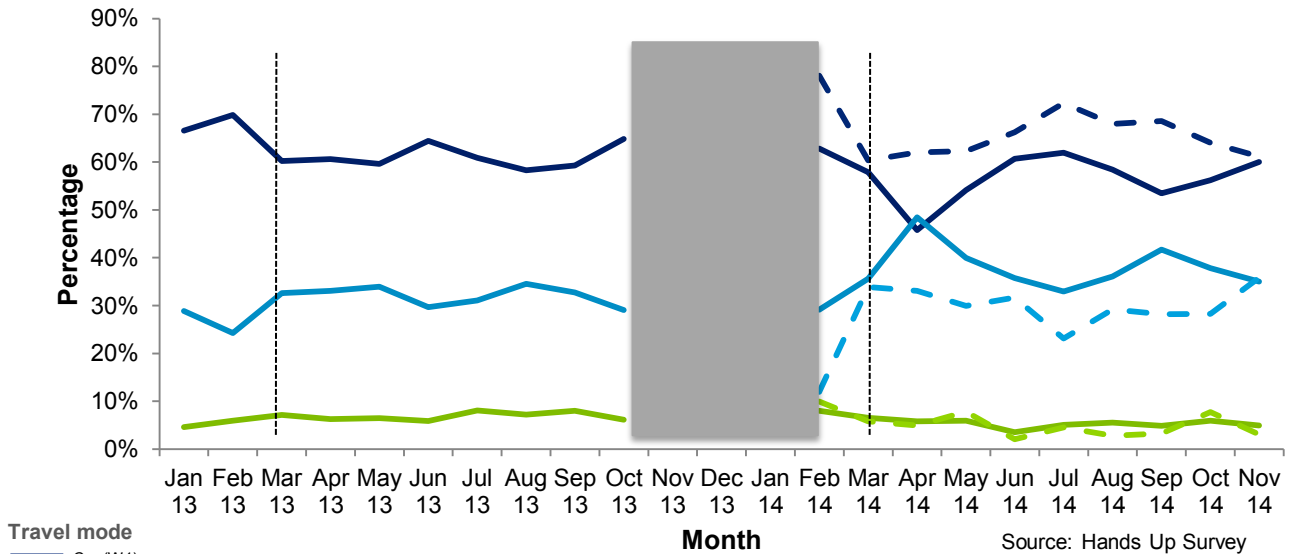
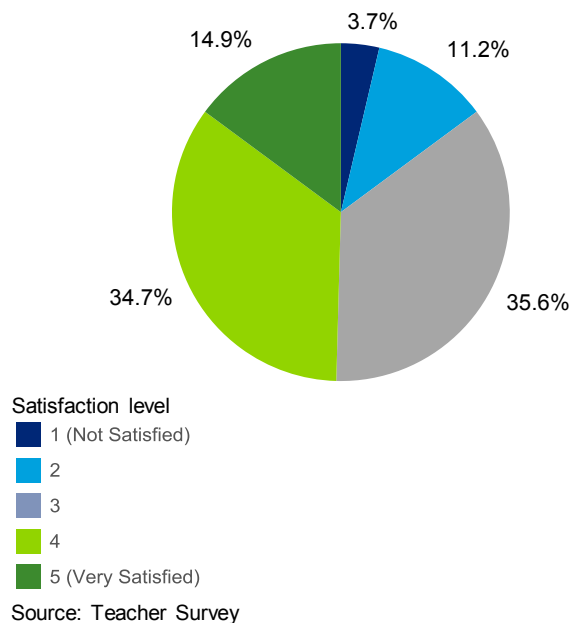


Figure 18: W1 and W2 (FU14) – Teacher satisfaction with the level of uptake

Results from both the morning and afternoon Hands Up data shows there is an association between when events were more frequent and the proportion of children using AT. In April 2014, AT for W1 had overtaken car as the main travel mode.

Satisfaction with level of uptake

Overall, 49.6% of teachers reported being satisfied or very satisfied with the level of uptake in the program. Another 35.6% were neither satisfied nor unsatisfied as shown in Figure 18.



Impact analysis

OE 4 What is the baseline level of overall physical activity among children and how does this change as a result of HAST?

HEALTH

Factors that mediate successful outcomes

Qualitative feedback from teachers about factors that mediate successful outcome were collated and presented in a word cloud (Figure 19). The larger the word, the higher the frequency with which it was used in the feedback received.

Teachers identified that the competitions and prizes are an important factor in achieving successful outcomes. Other key factors identified include teachers, parents and promotion. Parent survey data indicated that 55.1% of children participated in HAST program activities.

Figure 19: W1 and W2 - Reported factors that mediate successful outcomes

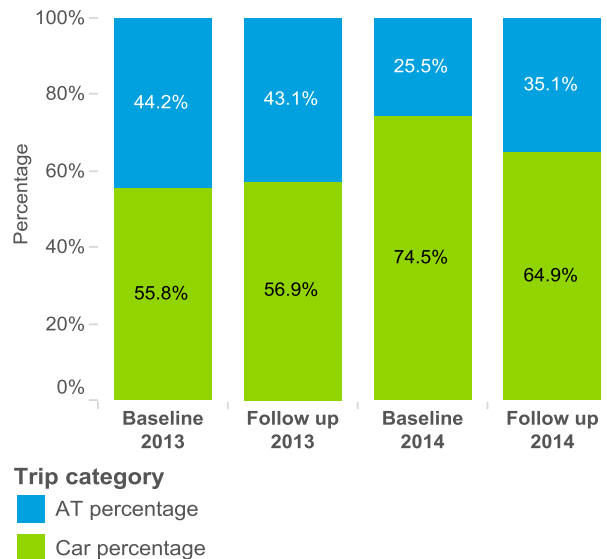


Source: Teacher Survey

Percentage of trips to school

The proportion of parents driving their children to school increased slightly (1.1%) in 2013 (W1). In comparison, the proportion of car use decreased by 9.6% in 2014. The proportion of car use was higher at baseline in 2014 compared to 2013, which is consistent with the Hands Up data collected as shown in Figure 17A and Figure 17B.

Figure 20: Percentage of trips to school by survey



Source: Parent Survey

W2 schools had both a higher baseline of car usage and a lower willingness to consider AT to and from school. At FU14, the use of car had decreased towards the level exhibited by the W1 schools.

Impact analysis

OE 5 Does HAST increase the overall physical activity levels of children?

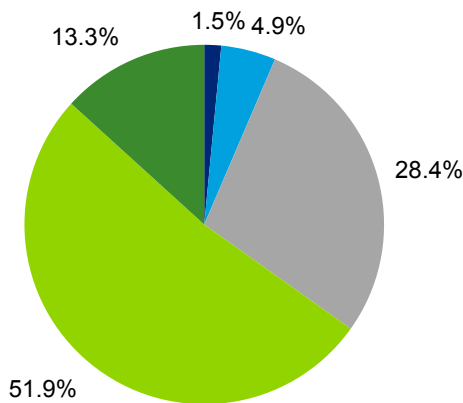
65.2% of teachers and 89.4% of parents reported that the program had influenced the activity levels of children. Moderate activity levels have increased since the implementation of HAST across both weekdays and weekends

HEALTH

Teacher reported increase in activity levels

As shown in Figure 21, 65.2% of W1 and W2 teachers agreed that the program had influenced children’s activity levels, 28.4% of teachers neither agreed nor disagreed. This is consistent with the self-reported increase in AT modes by students.

Figure 21: W1 and W2 (FU14) – Teacher reported program influence on children’s activity levels



Program has influenced children’s activity levels

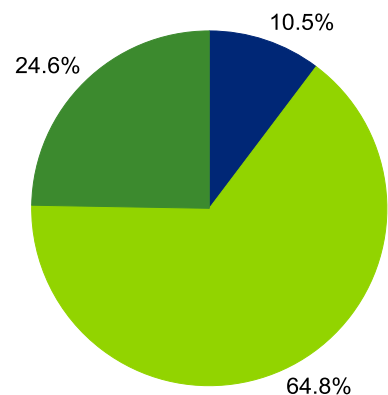
- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

Source: Teacher Survey

Parent reported increase in activity levels

As shown in Figure 22, 89.4% of parents overall agreed or strongly agreed that the program had influenced their child/children’s activity levels. Cairns (89.1%), Gold Coast (89.0%), Ipswich (94.9%) and Townsville (88.9%) all had similar levels of agreement demonstrating that the program had been adaptable and appropriate to the different regions where it was implemented. It also supports results from teachers and Hands Up data on the impact of the program on the children’s activity levels.

Figure 22: W1 and W2 (FU14) – Parent reported program influence on children’s activity levels



Program has influenced children’s activity levels

- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

Source: Parent Survey

OE 5 Does HAST increase the overall physical activity levels of children?

HEALTH

Reported all activity levels of children including AT

Overall, there was an increase in the physical activity levels of children across both waves and years of the program.

The Recommended Daily Activity (RDA) level for children aged 5-12 years is 60 minutes at moderate to vigorous intensity[^]. In 2013, W1 schools had an increase in the levels of moderate activity on weekdays and weekends. Screen time decreased on weekdays, while increasing on the weekend. Vigorous activity, however, decreased on weekdays and on weekends.

In W1 schools, moderate activity increased further in 2014, demonstrating a sustained impact on the second year of program exposure. Vigorous activity also increased on weekdays and weekends in 2014 for W1 schools.

Moderate activity levels in W2 schools increased for both weekdays and weekends.

In 2014 vigorous activity for W2 schools decreased, while increasing for W1 schools in their second year of the program. AT is classified as moderate intensity activity; increases in weekday moderate activity across both waves and years of the program are likely to be a result of increased uptake of AT.

Table 3.2: Change in child average activity per day since baseline for W1 and W2 schools

		2013			2014		
Schools		Vigorous (mins)	Moderate (mins)	Screen Time (mins)	Vigorous (mins)**	Moderate (mins)**	Screen Time (mins)**
Wave 1*	Weekday	-1.6	17.2	-3.2	18.9	73.0	-13.6
	Weekend	-3.4	17.8	26.1	78.3	105.6	97.6
Wave 2	Weekday				-19.6	68.6	26.7
	Weekend				13.4	2.1	9.2

Source: Parent Survey

* Note: Survey question changed from the 2013 to the 2014 surveys.

** Note: W1 2014 uses follow-up 2013 as a baseline for calculating the difference.

[^] The Department of Health and Ageing (DoHA). 2013. *Physical Activity Guidelines*. accessed: <http://www.health.gov.au/>

Impact analysis

OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

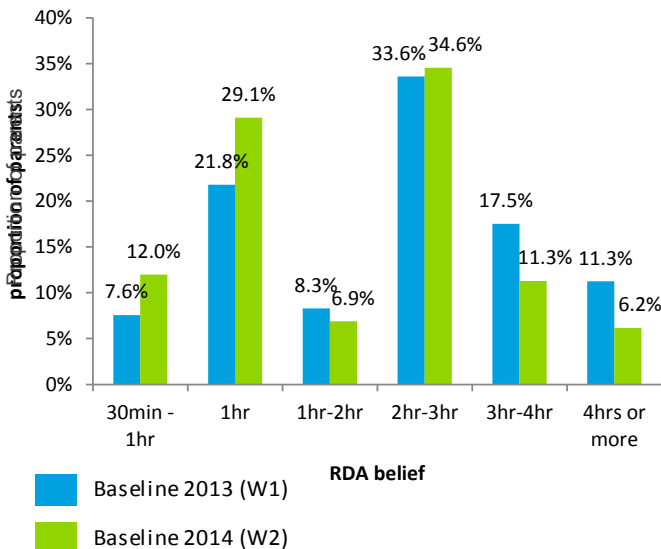
Parents and teachers were overall satisfied with the information and the level of support provided as part of the program; in some instances increased education for parents on the RDA may be beneficial

EDUCATION

Reported attitude/perception regarding AT by parents

As shown in Figure 23, W1 and W2 had different baseline levels of understanding of the RDA levels for children. A higher proportion of parents in W2 correctly identified the RDA level at baseline compared to W1. The difference in baseline understanding accounts for the much smaller increase in the variance with the FU14, seen in Figure 24.

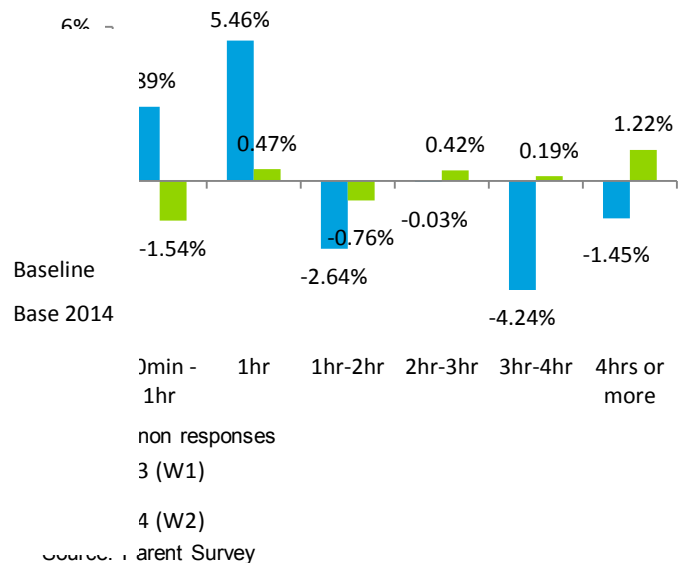
Figure 23: W1 (BL13) and W2 (BL14) – Parental beliefs on recommended daily activity levels at baseline



Source: Parent Survey

Figure 24 shows that there was an increase in the proportion of parents correctly identifying RDA for both the W1 and W2 schools. At baseline, the W1 and W2 schools had a large proportion of parents who believed that the RDA levels for children was 2-3 hours. This proportion was largely unchanged despite exposure to the program - RDA specific education material may be beneficial in educating parents about the correct RDA levels for their children, and may induce an increase in the percentage of children meeting RDA.

Figure 24: W1 (BL13, FU14) and W2 (BL14, FU14) – Parental beliefs on recommended daily activity levels; variance from baseline^A



Impact analysis

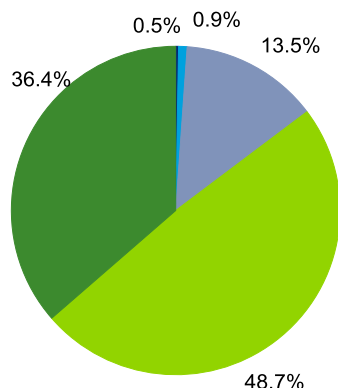
OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

EDUCATION

The majority of parents believed their school encouraged or strongly encouraged AT (Figure 25). Cairns (86.6%) and the Gold Coast (95.2%) had high levels of reported encouragement, while Ipswich and Townsville had a higher proportion of parents who believed the school neither encouraged or discouraged AT (19.4% and 22.1% respectively).

Figure 25: W1 and W2 (FU14) – Parental belief of school AT encouragement



Level of encouragement

- Strongly discourage
- Discourage
- Neither encourage or discourage
- Encourage
- Strongly encourage

Source: Parent Survey

Reported attitude/perception regarding AT and awareness of benefits of AT by children

During the child focus groups undertaken for both W1 and W2 schools, the children demonstrated an understanding of AT, the benefits of physical activity, and identified enablers and barriers.

Children reported the benefits of AT to include:

- Having fun and improving fitness,
- Reducing pollution,
- Opportunity for social interaction,
- Saving parents time,
- Reducing the amount spent on petrol; and
- Improving their understanding of road safety.

Parents and teachers also highlighted children had an increased awareness of how they travelled to and from school and the potential impacts associated with it.

Reported awareness of benefits of AT by parents

During the parent focus groups, awareness of a broad range of benefits of AT were reported, including:

- Increased productivity due to the potential for parents to save time in the longer term,
- Promoting exercise,
- Creating a community feel,
- Reducing congestion and the impact on the environment,
- Increasing socialisation for children,
- Reinforcing behaviour and building the capacity and independence of students,
- Creating and fostering a resilient community,
- Minimising isolation,
- Building relationships between parents and students,
- Making the school attractive for new parents; and
- Improving school enrolment.

Parents feedback about an increase in the community feel as a result of the program was echoed by teachers.

Impact analysis

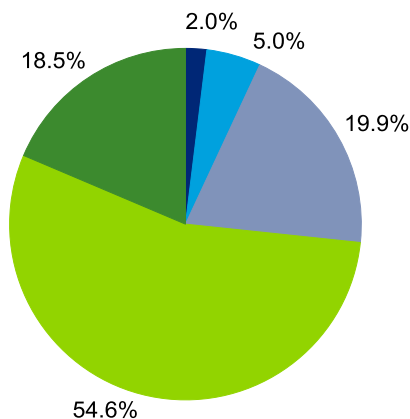
OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

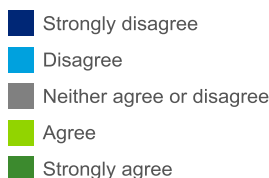
EDUCATION

Overall, 73.1% of parents either agreed or strongly agreed that they had been informed about AT options. Parents at the Gold Coast had the highest proportion (81.1%), while Townsville had the lowest proportion (64.9%). Parents in W1 had a higher rate of agreement (74.0%) compared to W2 parents (72.4%) about their exposure to education on AT travel options.

Figure 26: W1 and W2 (FU14) – Parental reported exposure to education about AT options



Respondent informed on AT options



Source: Parent Survey

Reported awareness of benefits of AT by teachers

In 2014, feedback was received about the improvement in infrastructure, facilitated by HAST and required to incentivise AT. The teacher focus groups identified a number of common themes in both years of the program, with the following benefits of HAST reported by teachers:

- Building relationships with parents and children,
- Increasing community cohesion,
- Increased road safety and capacity of children to travel independently to school,
- Increase in children's awareness of how they travel to school,
- Calmer streets and improved behaviour of children outside school; and
- Subsidising the need for infrastructure changes which are required.

As previously mentioned, parents and teachers reported that the interaction between teachers and parents had increased as a result of the program. This was an unintended impact of the program and viewed as a benefit in creating increased connectivity across the school community. This was confirmed by parents, with 88.1% believing the HAST program brought benefits to the community.

Impact analysis

OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

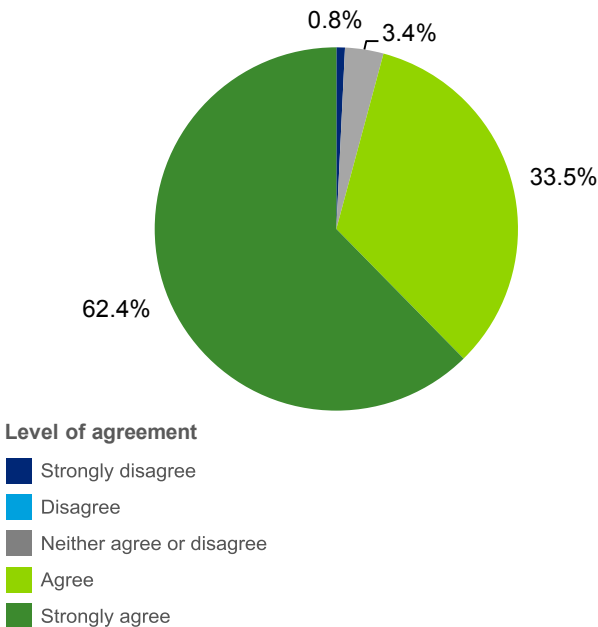
OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

EDUCATION

Reported attitude/perception regarding AT by teachers

Overall 95.9% of teachers agreed or strongly agreed that AT was a good idea as shown in Figure 27. Of the four councils, teachers in Townsville reported the lowest level of agreement (80.0%). The three other councils reported similar levels of agreement with 98.5% agreeing or strongly agreeing at the Gold Coast, 97.5% in Cairns, and 92.3% in Ipswich.

Figure 27: W1 and W2 (FU14) – Teacher reported agreement that AT is a good idea

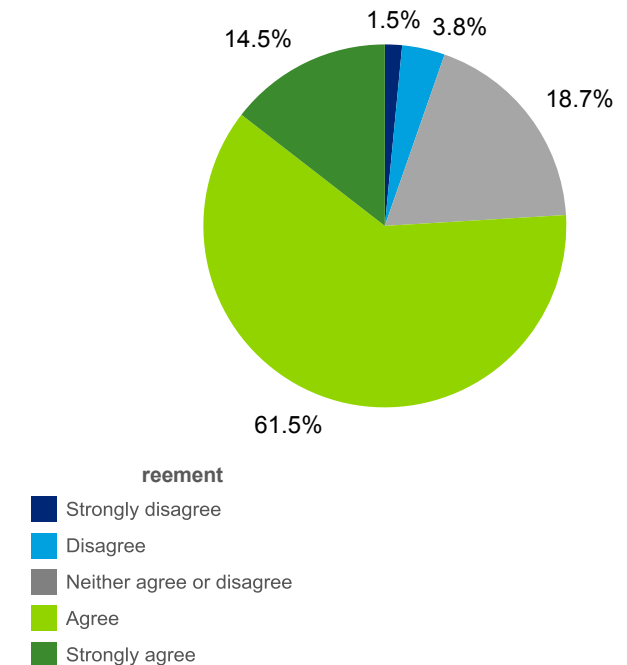


Source: Teacher Survey

The high level of satisfaction expressed by the teachers show an increase in the positive attitude towards AT.

Overall 76.0% of teachers agreed that the program had provided them with new information regarding AT as shown in Figure 28. The Gold Coast had the highest percentage of teachers agreeing that the program provided new information (82.6%), followed by Cairns (77.2%), Townsville (62.0%), and Ipswich (61.5%).

Figure 28: W1 and W2 (FU14) – Teacher level of agreement the program had provided them with new information regarding AT to school



Source: Teacher Survey

Teachers and parents both reported high levels of satisfaction with the information provided regarding AT options, indicating the program delivered on its intent of increasing awareness and knowledge of AT to and from school.

Impact analysis

OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

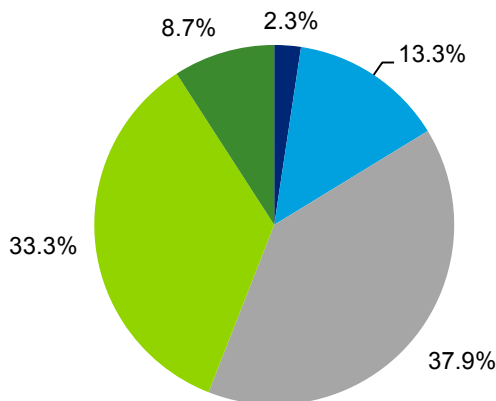
OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

EDUCATION

Reported awareness of benefits of AT by teachers

Overall, 42.0% of teachers either agreed or strongly agreed that the information provided through the program had increased their skill levels in implementing physical activity in the learning environment. The high proportion of teachers (37.9%) that neither agreed nor disagreed, may be a reflection of suboptimal uptake of PD in some councils and presents an opportunity to develop additional materials to support the teachers in developing their skills and knowledge in this area.

Figure 29: W1 and W2 (FU14) – Teacher reported increase in skills in implementing physical activity in the learning environment



Teacher had increased their skills implementing physical activity

- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

Source: Teacher Survey

The word cloud (Figure 30) illustrates keywords in response to benefits to the school of the program as reported by teachers. The most frequent answers appear in the largest font and include the words active, school, students and community.

Figure 30: W1 and W2 – Teacher reported benefits of HAST to the schools



er Survey

eme across both years of the teacher n increase in the community feel as a HAST program. The activities and said to bring the students together and yone's health and fitness. This ease in school community social impact nance effectiveness and sustainability n in the future.

Impact analysis

OE 6 Has the HAST program improved awareness, knowledge and attitudes towards active travel within the school community?

OE 7 Has awareness, knowledge and attitudes (e.g. towards school traffic congestion, cost, health benefits) changed over time?

EDUCATION

Table 3.3 highlights the most commonly used methods of communication for both years of implementation of the program reported by council and parents. Commonly recognised methods of communication by parents were consistent in 2013 and 2014. From a council perspective, the top three remained the same across both years of the program.

There is consistency between what the parents and councils recognised as the most effective method of communication. This is in contrast to the promotional material, which parents only ranked 6th. The most cost effective methods of communication appears to be the newsletter and children. Focusing on the newsletter and ensuring that the children are aware of the program could be a way to transfer money for promotional materials to the incentives and rewards program, which was identified as being effective.

Table 3.3: The seven most commonly used methods of communication by council, and identified methods by parents over the two years of the program

	Council		Parents	
	2013	2014	2013	2014
1	Assembly/Parade	Newsletter	Newsletter	Newsletter
2	Newsletter	Assembly/Parade	Children	Children
3	In class	Class notes	Assembly/Parade	Assembly/Parade
4	Flyers/Posters	Flyer	School website	School Website
5	National kit	Other	Letter	Letter
6	Letter	Class Teacher	Promotional material	Promotional material
7	Other	Children	Internet	Internet

Source: Parent Survey

OE 8 What are the motivating factors and barriers to active school travel?

Time constraints and the distance from school were raised by teachers and parents as barriers to AT, while motivating factors included incentives and rewards, contribution to community spirit, and regular activities

Reports of the motivating factors and barriers to AT by teachers

Through the teacher surveys, teachers were able to express their views on what they believed were the motivating factors and barriers to AT.

Teachers reported the following as key motivating factors:

- Incentives and rewards,
- Parental involvement,
- Safe routes and dedicated bike paths,
- Reminders and encouragement to participate,
- Organiser enthusiasm,
- Access to working bicycles,
- Community support; and
- Competition between classes.

Reported barriers that reduced the effectiveness of the HAST program included:

- Bike bus safety concerns,
- Distance from school,
- Weather,
- Time and effort required; and
- A lack of awareness regarding events/activities.

Barriers to implementation reported through the focus groups with teachers included before and after school conflicts, the ability to fit the program into the school calendar, and the time commitment from those involved. In the existing schools it was reported that without a dedicated school champion the program would not be able to continue.

Feedback from teachers and HAST POs indicated there were further opportunities to integrate activities into the curriculum, if they were well designed.

Reports of the motivating factors and barriers to AT by parents

Through the parent focus group a number of motivating factors and barriers were identified.

Motivating factors included:

- A champion within the school,
- Community spirit,
- Consistency of activities each term,
- Competition with other schools,
- Parents owning a working bike,
- Supervision for children; and
- The ability and age of the child.

Consistency in awareness and participation levels across the two years of the program demonstrates the need for structured and consistent delivery.

Identified barriers included:

- Unsafe pathways and crossings,
- Work commitments,
- Fast moving traffic,
- Safety concerns,
- Before and after school activities,
- Time constraints,
- Parents being unaware of the program,
- Before and after school activities,
- Distance from school; and
- The weather.

Parent feedback indicated that the main barriers to AT included time commitment and safety issues.

OE 8 What are the motivating factors and barriers to active school travel?

Reported motivating factors and barriers to AT by children

Feedback from the focus groups was consistent with the findings from the qualitative questions in the surveys.

Motivating factors/enablers to AT reported by children included:

- Supervision at crossings,
- Encouragement and rewards,
- Regular activities,
- Infrastructure,
- Activities at school,
- Distance from school; and
- Bike ownership.

Children reported the following barriers to AT, including:

- Parents working in the morning,
- Distance from school,
- Parental permission,
- If parents were too busy,
- Safety concerns,
- The weather,
- Siblings who did not want to or could not commute actively,
- Bike Bus being too far from home,
- Lack of notice of events,
- Friend who could not commute actively; and
- Morning or afternoon activities.

Parents and children reported a number of common enablers and barriers to AT over the course of the program. Time constraints and activities before and after school were identified as limiting use of AT or limiting AT trips per week.

Impact analysis

OE 9 What are the individual, social-environment, school and urban design factors associated with active travel to school among children that increase effectiveness?

The average distance children resided from school was further in W2 compared to W1, which appeared to influence AT uptake. Walkability and rainfall did not have a noticeable impact on effectiveness

This section presents a number of contextual factors that have been identified as potentially impacting on the effectiveness of the HAST program. These factors will provide a picture of the environment in which the HAST program was implemented over the two years.

Weather

All schools participating in the program were in Queensland, with two councils in the south east (Gold Coast and Ipswich) and two in the north (Cairns and Townsville). Table 3.4 presents the average monthly rainfall measured over the two years of the program. Higher monthly rainfall did not appear to affect events and activity, with Cairns having the highest number of events in 2014 and the highest monthly rainfall.

Table 3.4: Average monthly rainfall (mm) over the duration of the program by council

Year	2013	2014
Cairns	139.62	152.17
Townsville	59.60	86.43
Gold Coast	147.58	73.68
Ipswich	82.23	48.85

Source: Bureau of Meteorology

Walkability

The walkability index describes the ease with which a person is able to safely walk in their area based on factors including dwelling density, street connectivity and land use mix. The area is scored on a scale of 0 to 100, with the following categories:

- 0-49 being a car dependent area,
- 50-69 as somewhat walkable; and
- 70-100 as walkable.

Except for Ipswich, all councils were identified as being car dependent (Table 3.5), however the scores of each school varied greatly (Appendix G). W1 and W2 schools had similar walkability scores within each councils, with Cairns having the schools with both the highest and lowest walkability scores across both waves.

Table 3.5: Walkability index by council

Council	Walkability index
Cairns	41
Townsville	40
Gold Coast	48
Ipswich	74

Source: www.walkscore.com

Impact analysis

OE 9 What are the individual, social-environment, school and urban design factors associated with active travel to school among children that increase effectiveness?

Average distance of travel to school

The average distance children travelled to school differed across councils and between waves (except Gold Coast), as shown in Table 3.6. Intuitively, longer distances from school restrict the uptake of AT, and this was confirmed by feedback from parents and children, identifying distance as a main barrier to AT. There were a larger number of private schools in W2 compared to W1. Private schools typically have larger catchment areas, which makes it harder to invoke travel behaviour change given distance from school is a barrier to AT uptake.

In view of this, councils with children residing further from schools may benefit from focusing on strategies promoting cycling and mixed mode AT rather than walking.

Table 3.6: Average distance (km) from school by council (FU14)

Schools	Cairns	Townsville	Gold Coast	Ipswich
Wave 1	5.5	6.7	4.8	4.9
Wave 2	7.4	9.3	4.8	3.1*

*Note: Low response rate was received from the Ipswich W2 survey.

Source: Parent Survey

Table 3.7: Summary of Effectiveness domain

Summary of effectiveness domain:

- **Transport** – There was a high level of awareness by parents; a third of parents reported they had observed an increase in their children's use of AT. The proportion requesting to use AT had increased across W2 schools, while being constant for W1 schools.
- **Health** – The self reported mode of transport data shows that the use of AT has increased over the two years of the program, while the use of car has decreased over that time. Parents and teachers both reported that they believed the children's activity levels had increased as a result of the program.
- **Education** – W1 schools had a lower knowledge base on the correct RDA levels and saw an increase of 5.5% in the number of parents who correctly identified RDA level as 1 hour a day.
- Teachers and parents reported the reward/incentive mechanism to have worked well at inducing participation, while the safety concerns and the distance from school were identified as barriers to participation.
- The average number of trips to school by car has decreased since the first year of the program. With the average distance from school increasing from W1 to W2 schools for councils except for Ipswich.

Impact analysis

OE 10 Was the program a worthwhile use of stakeholders time and effort?

Teachers reported to spend between 24 and 45 minutes per week on HAST program activities; high degrees of reported satisfaction with the goals and values of the program suggest this was perceived as worthwhile

Reported effort of invested time to program by HAST officers

HAST POs reported investing most of their dedicated time into delivering the HAST program. In some councils the HAST PO role was shared with other related roles to promote activity levels and AT in the community. This meant the HAST PO could draw links between the programs being delivered across council with the aim of maximising effectiveness. Although there were synergies the time commitment required was difficult to balance particularly in the second year.

Reported effort and time investment by Teachers

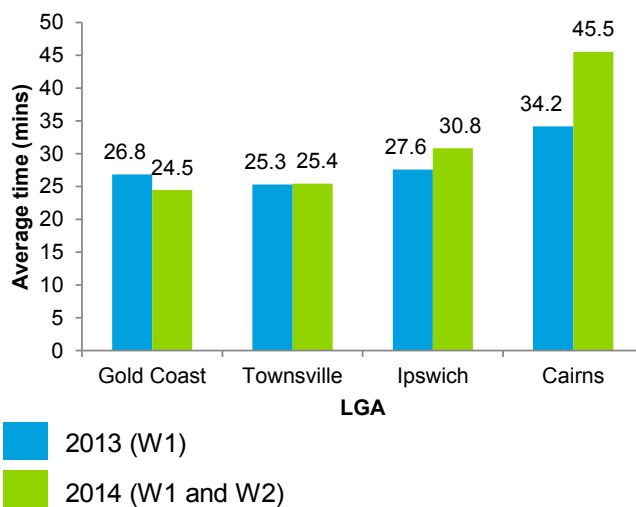
Teachers from enrolled schools invested time into the HAST program by collecting Hands Up data from students and participating in other activities such as ride and walk to school days, bike and bus education, healthy school breakfasts and bike repair workshops.

Across all councils, the average retrospective reported effort from teachers in 2013 was 29.0 minutes per week; as shown in Figure 32, this varied from 25.3 minutes to 34.2 minutes per week between councils.

Overall average weekly effort increased marginally in 2014 to 32.9 minutes, with more noticeable variation between councils shown in Figure 31.

Cairns reported the largest average weekly effort in both years, in addition to the largest change from 2013 to 2014, of 11.3 minutes. Average effort in 2013 may be a reflection of the large student numbers in W1 schools in Cairns, combined with a low proportion of teacher participation (see Figure 16) and comparatively low volunteer participation (see Figure 32).

Figure 31: W1 and W2 – Reported average time commitment to HAST program per week from teachers



Source: Teacher Survey

The change in effort between 2013 and 2014 in Cairns may reflect a further decrease in teacher participation (see Figure 16). The average reported effort and variation LGA was largely consistent across the other councils.

95.9% of teacher respondents agreed or strongly agreed that AT was a good idea (see Figure 27), and 92.9% agreed or strongly agreed that the events and activities should be embedded in the school (see Figure 39). This gives an indication that, whilst teacher participation rates in some councils were lower (see Figure 16), there is consistent belief in the program, and teachers are likely to see their contribution of effort as being worthwhile.

Impact analysis

OE 10 Was the program a worthwhile use of stakeholders time and effort?

Contribution of volunteers to program

HAST POs and school teachers in the four councils sought help from volunteers to assist with activities such as Ride and Walk to School events and Healthy Breakfasts, for W1 and W2 schools over the duration of the program; parents were likely to be the main contributors of volunteer time.

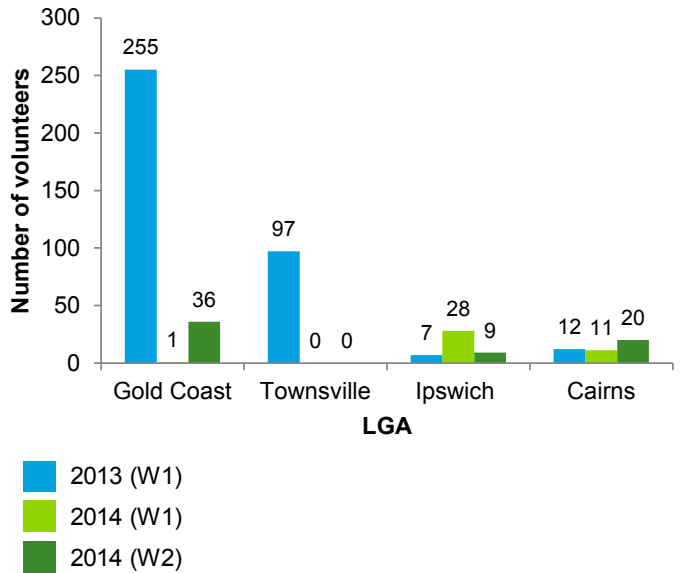
Figure 32 shows the number of individual instances of volunteer contributions to the program, as reported in the HAST PO toolkits. The time contributed per instance of volunteering appeared to range from 10 minutes to over 4 hours, although this variation may reflect differences in reporting behaviours.

In the Gold Coast and Townsville, volunteer contribution was high in 2013, but reduced substantially in 2014, despite an additional five schools in both councils being enrolled in the HAST program.

In contrast, fewer volunteers in 2013 for Cairns and Ipswich increased in 2014 with additional schools participating in the program; however, reported volunteer participation in Cairns and Ipswich was still quite low overall.

Variation may be due to parental engagement and availability for participation, in addition to differences in the way that volunteer participation was recorded through the HAST PO toolkit.

Figure 32: W1 and W2 – Reported number of individual instances of volunteer contribution



Source: HAST officer toolkit

OE 11 *Are there synergies evident across program sites?*

Synergies with concurrent programs that shared goals and values with HAST were reported in all councils, with the potential for future partnerships and collaboration to enhance sustainability

Project officers reported synergies between HAST activities and other programs with shared goals and values that were being conducted in councils and in schools.

In the Gold Coast Council region, the 'Active School Travel' program, facilitated by the Traffic and Transport division, and the 'Healthy and Active' program, facilitated by the Parks and Recreation division, were identified as having synergies with the HAST program. At the school level, a number of other projects were also identified, including 'Life Education', 'Nude Food', 'Munch and Crunch', school vegetable patch programs and other healthy eating promotions.

The Cairns HAST officer identified synergies with the Queensland Government 'Healthy Towns' program, in addition to local community events such as community bike rides that were able to be promoted through the schools.

Community activities including 'Get Rolling' and 'Ride the River' were identified in Townsville as having synergies with the HAST program, as well as the creation of information resources such as the *Active Travel Townsville* booklet developed by Townsville City Council in partnership with TMR and supported through HAST funding.

In Ipswich, the concurrent 'Fit and Fuelled Kids' program, as well as bus education, community youth and safety officers, and infrastructure were identified as having positive synergies with the HAST program.

Overall, there appeared to be synergies with a number of different community and state-level initiatives and programs being run in the councils with common goals and objectives, providing a mutual benefit and potential for partnerships and enhanced program sustainability.

Table 3.8: Summary of Efficiency domain

- Reported time dedicated by teachers to the HAST program varied from 24.5 minutes to 45.5 minutes per week, and reported satisfaction with the delivery and goals of the program suggest that this was perceived as a worthwhile use of their time.
- There were 476 individual instances of volunteer contribution to HAST activities reported over the two year program duration, with notable variation across councils; potential for increased volunteer contribution is an opportunity to further augment social capital in school communities reported in parent and teacher surveys.
- A number of synergies with concurrent programs were identified in each Council, providing mutual benefit and representing collaborative opportunities to enhance future efficiency and sustainability of the program.

Impact analysis

OE 12 Were there any differences evident in baseline surveys between target groups/populations? What impact did the program have on these differences?

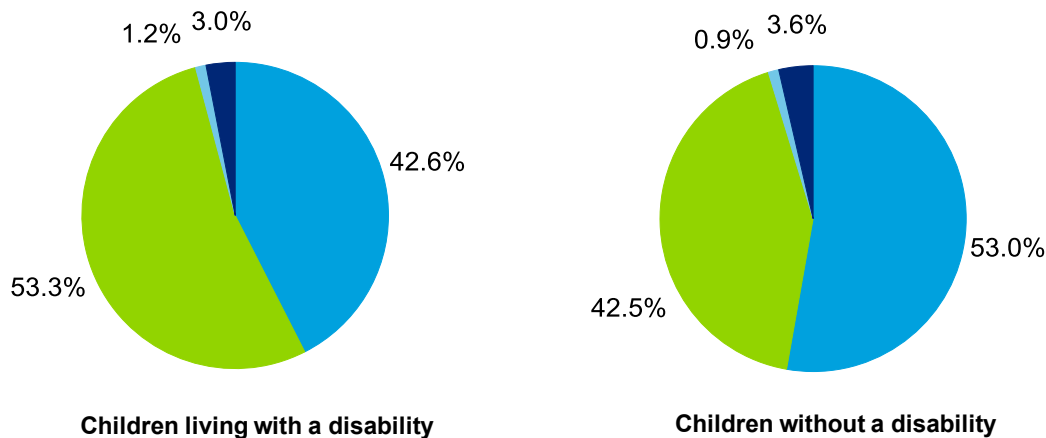
Children with a disability reported a lower baseline preference for AT; a 9.1% increase in AT and comparable participation rates suggest activities were appropriate for these children

Reported behaviour change in children living with a disability

At baseline for W1 and W2 schools, it was evident that there was a smaller proportion of children living with a disability who preferred AT as their mode of travel to school (42.6%) compared to those children without a disability (53.0%).

This baseline status difference may reflect mobility barriers that could reduce the uptake of AT in this cohort.

Figure 33: W1(BL13) and W2 (BL14) – Baseline preferred travel mode by presence of disability



Preferred Travel Morning (Group)

- Active travel
- Driving
- Other
- Public transport

Source: Parent Survey

Impact analysis

OE 12 Were there any differences evident in baseline surveys between target groups/populations? What impact did the program have on these differences?

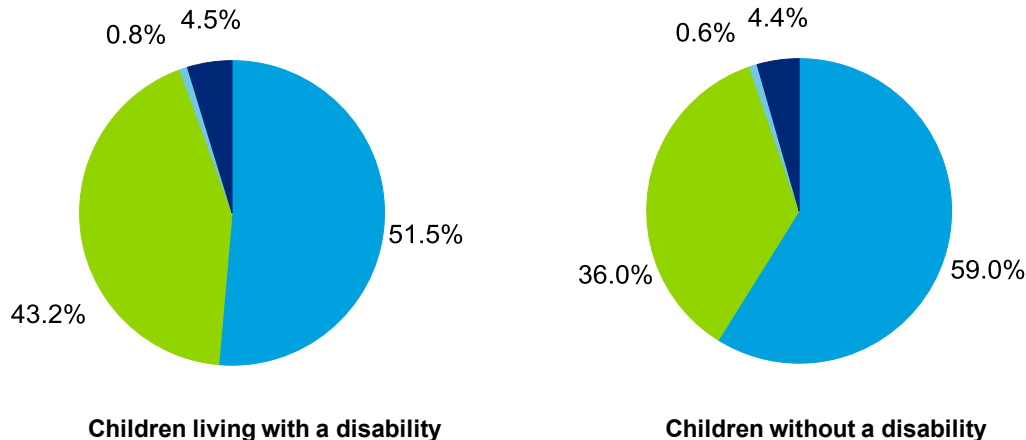
Reported behaviour change in children living with a disability (cont'd)

Interestingly, when assessed at FU14, the reported impact of the program on use of AT was comparable despite barriers (net reported increase in AT uptake of 22.4% compared with 25.8% in children without a disability).

The proportion of children preferring AT increased to 51.5%, and the proportion preferring driving reduced from 52.9% to 43.6%. This substitution from baseline to follow up of 9.1% was, in fact, greater than the substitution of 6.0% seen in children without a disability.

This indicates that the program had a similar reach and impact for the subgroup of the student cohort living with a disability, despite potential personal physical barriers. Reported participation in HAST activities was only 9.9% lower in this subgroup of the cohort, and the positive impact of the program on AT uptake suggests that activities were appropriate and acceptable for these children.

Figure 34: W1 and W2 (FU14) – Follow up preferred travel mode by presence of disability



Preferred Travel Morning (Group)

- Active travel
- Driving
- Other
- Public transport

Source: Parent Survey

Impact analysis

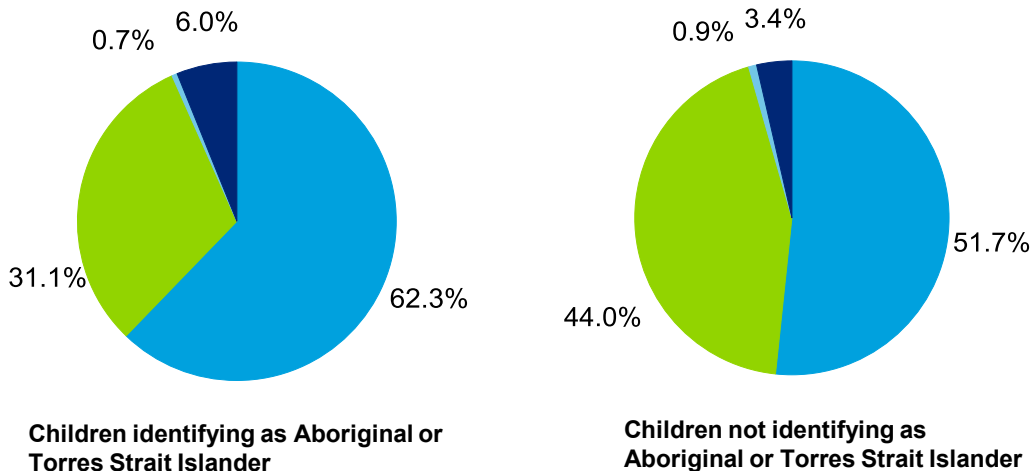
OE 12 Were there any differences evident in baseline surveys between target groups/populations? What impact did the program have on these differences?

Children identifying as Aboriginal or Torres Strait Islander had a higher baseline preference for AT; however, the impact of the HAST program appeared to be minimal in this group, also reflected in low participation rates in HAST activities.

Reported behaviour change in children identifying as Aboriginal or Torres Strait Islander

The subgroup of children identifying as Aboriginal or Torres Strait Islander had a high baseline level of AT use (62.3%) compared with those not identifying as Aboriginal or Torres Strait Islander (51.7%).

Figure 35: W1(BL13) and W2 (BL14) – Baseline preferred travel mode by Indigenous status



Preferred Travel Morning (Group)

- Active travel
- Driving
- Other
- Public transport

Source: Parent Survey

Impact analysis

OE 12 Were there any differences evident in baseline surveys between target groups/populations? What impact did the program have on these differences?

Reported behaviour change in children identifying as Aboriginal or Torres Strait Islander (cont'd)

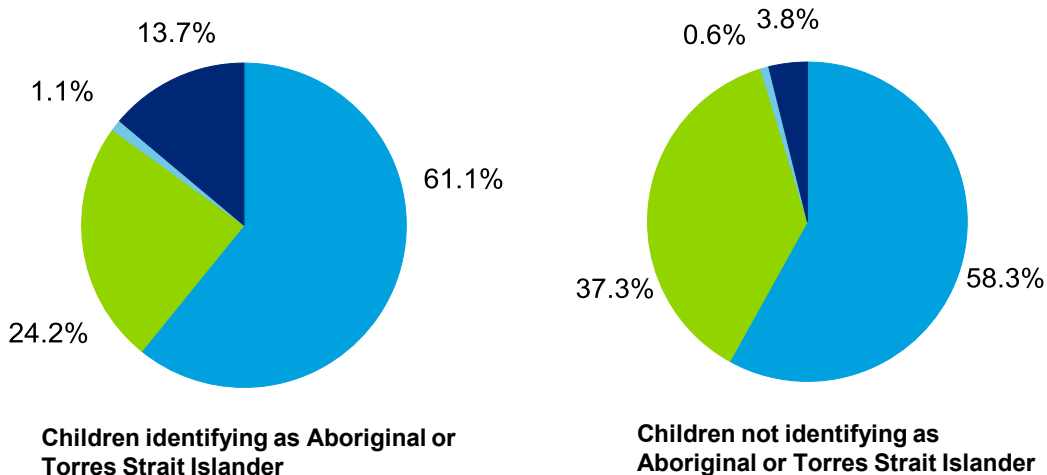
After exposure to the program, the proportion of children preferring AT had reduced marginally by 1.2% to 61.1%, despite a net 9.8% of parents of Aboriginal or Torres Strait Islander children reporting an increase in use of AT since baseline (W1, W2; FU14). Relatively small sample sizes and differences in sampling distribution between survey instances may partially account for this disparity.

Despite minimal impact, the proportion of these children preferring AT at the end of the program was still higher than that reported by children not identifying as Aboriginal or Torres Strait Islander, as shown in Figure 36.

The only notable change from baseline to follow up in children identifying as Aboriginal or Torres Strait Islander was an increase of 6.9% in children preferring public transport, and a decrease of 7.7% of children preferring driving.

Small change in AT uptake in this subgroup of the cohort is likely to be a reflection of both an elevated baseline level use of AT, in addition to substantially lower reported participation rates in HAST activities (25.3% compared to 50.7% in children not identifying as Aboriginal or Torres Strait Islander). It is not clear what the drivers of lower uptake of HAST activities are in this group.

Figure 36: W1 and W2 (FU14) – Follow-up preferred travel mode by Indigenous status



Preferred Travel Mode (Group)

- Active travel
- Driving
- Other
- Public transport

Source: Parent Survey

OE 16 How far do people travel to school and how does this impact choice of travel mode?

Children residing further from school had a lower baseline preference for AT and, at follow-up, most of those who substituted tended towards cycling as their preferred AT mode.

Residence distance from school by mode of transport

The proximity of children's residence to their school is an important factor influencing their preferred travel mode. The majority of children in W1 schools lived 0 to 5 km from their school at baseline (74.6%), 16.9% of student resided 6 to 10km from their school, and the remaining 8.5% of students lived more than 10km from their school. Children living within close proximity are likely to be more amenable to using AT; shown in Figure 37. Children living within 2 km of the school having the highest baseline proportion of preferred AT use, decreasing as distance from school increased.

For W1 schools, the HAST program had an impact on children residing 6 to 10km from school, with the proportion of children preferring AT increasing from 41.5% at BL13 to 51.0% at FU14.

The proportion of children residing 0 to 2 km who preferred AT decreased from BL13 to FU14 by 6.4%; however, this should be considered in the context of a high baseline proportion of children preferring AT. Similarly, there was a decrease of 5.4% from BL13 to FU14 of children preferring to use AT.

For W2 schools, residences of children were mostly concentrated within 5 km of their school (64.9%). Children in W2 schools had a higher baseline preference for driving compared with W1 schools, presenting a greater opportunity for impact of the HAST program. This higher baseline preference for driving was seen in children residing close to their school and further away, and may be a reflection of a higher rate of car registration per household in W2 compared to W1 schools.

Figure 33 shows the change in preferred travel mode from BL14 to FU14 after 1 year of exposure to the HAST program. Preference for AT (walking, cycling or scootering) increased in all categories of proximity to school, but to varying degrees. The biggest impact appeared to be in children who resided within 5 km from schools, for whom transition to AT is likely to be most feasible. The changes in AT preference for the majority of children in W2 seemed to be largely driven by an increase in cycling, notably in children living 3 to 5 km from school, and children living more than 10km from school. Increased preference for cycling may be a reflection of the activities such as 'Ride to School' day and bike buses, in addition to the efficiency covering longer distances cycling compared with walking and scootering.

These results suggest that children residing further from school had sufficient access to the HAST program and activities. Impacts on preferred travel mode were spread across proximity categories, with the largest increases in uptake of AT observed in those living 6 to 10 km from school in W1, and 3 to 5 km from school in W2.

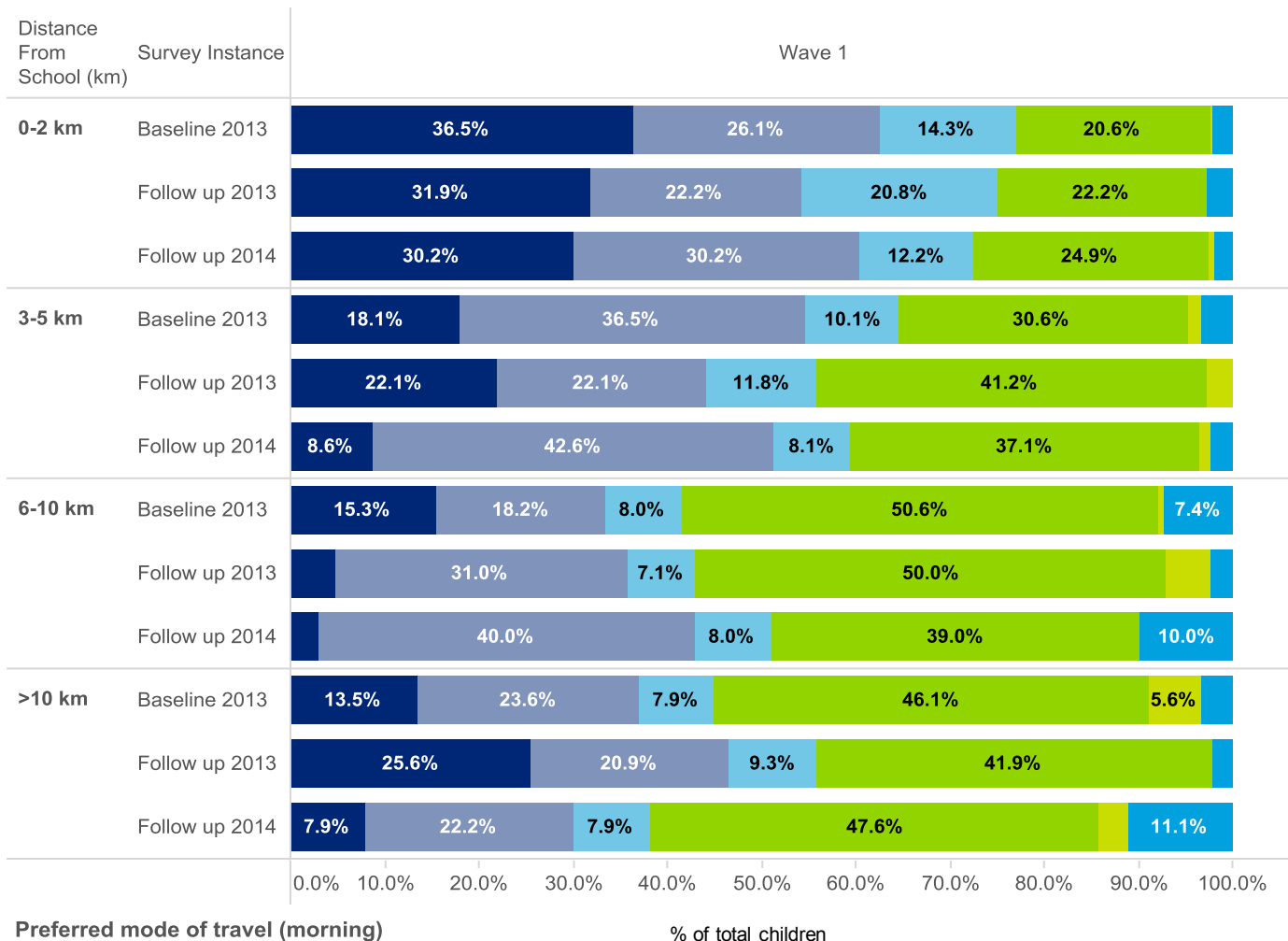
This indicates that the benefits of the HAST program were not solely realised by children in close proximity; to the contrary, there appears to be more potential for impact in children living moderate distances from school with lower baseline preference for AT.

Impact analysis

OE 16 How far do people travel to school and how does this impact choice of travel mode?

Figure 37 and Figure 38, shows that cycling has increased with the most consistency out of all the AT modes. This is consistent with the observed change in preferred travel mode across the two years. 64.9% of children reported living within 5km of the schools, which would be an ideal distance to use cycling as an AT mode to and from school.

Figure 37: W1 (BL13, FU13, FU14) – Preferred travel mode



Preferred mode of travel (morning)

- Public Transport
- Other
- Driving
- Scooter
- Cycling
- Walking

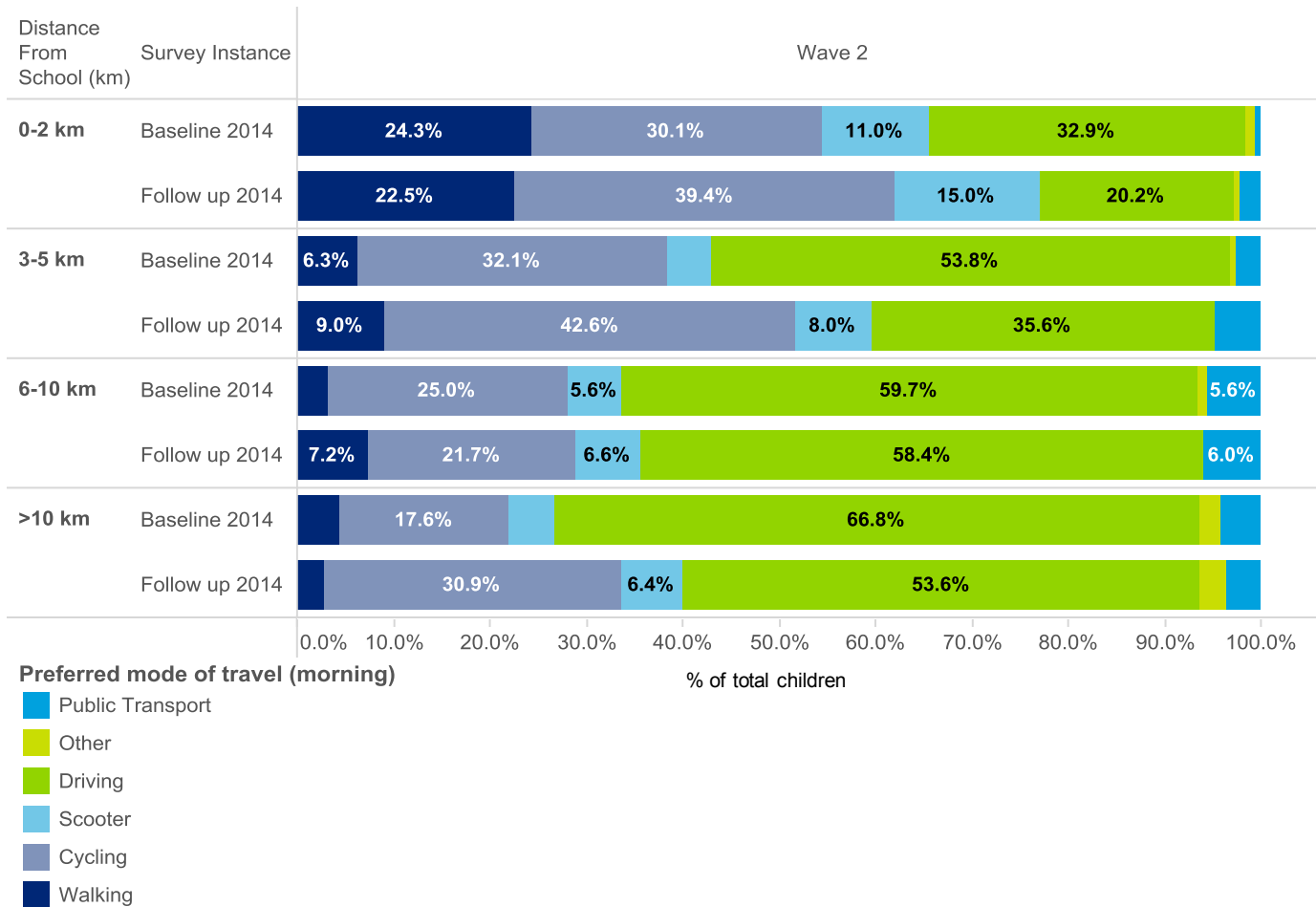
% of total children

Source: Parent Survey

Impact analysis

OE 16 How far do people travel to school and how does this impact choice of travel mode?

Figure 38: W2 (BL14, FU14) – Preferred travel mode



Source: Parent Survey

Table 3.9: Summary of Equity domain

- Children living with a disability had a lower baseline preference for AT than the rest of the cohort. The impact of the HAST program appeared greater for this group, resulting in a 9.1% increase in preference for AT.
- Children identifying as Aboriginal or Torres Strait Islander had a higher baseline preference for AT (62.3%); however, the impact of the HAST program appeared to be minimal for this group, potentially reflecting very low participation rates in HAST activities.
- Children residing further from school had a lower baseline preference for AT and, at follow-up, most of those who substituted tended towards cycling as their preferred AT mode.

Impact analysis

OE 18 What strategies and interventions are schools, councils and communities using at each program site? And why?

The activities that were designed to contribute to more than just the HAST objectives were more widely accepted by the school community

Project plan of activities and approach at each site

Over the period of the two years of implementation the delivery model was broadly consistent.

The involvement and engagement of key stakeholders across the period of the program remained consistent. TMR continued to provide support to councils and was responsive to their needs; they arranged a number of workshop sessions with the HAST POs to share knowledge and experiences in regard to what was working or not working in particular sites. This allowed HAST POs to learn from each other and try new engagement strategies and activities. This was valued by HAST POs and contributed to building links across councils which will last beyond the program period.

The delivery model by councils was made up of a combination of:

- Support for schools,
- School travel plan events/activities and community events,
- Professional development for teachers; and,
- Infrastructure improvements.

STPs had some similar scheduled events with the National Walk and Ride to School Days occurring across all councils.

Some activities and events were tailored as required to suit the needs and level of engagement of different schools. Although not all interventions were delivered in all councils.

The delivery model was broadly consistent across sites, with activities and events tailored to school needs

PD proved to be a challenge in some sites as it was difficult to release teachers from class. Regardless of these challenges, Cairns were able to deliver PD to a number of teachers and Townsville had one teacher in W1 participating. The issues in regard to access to PD would have been addressed with a dedicated budget for release time that could be accessed by schools. It also presents the opportunity to more closely align with Education Queensland in order to facilitate access to PD for HAST teachers.

There was a high degree of satisfaction with the delivery of PD and teachers reported that it had contributed to their skills. This will also assist in the sustainability of the program.

Broader community events were reported to have occurred in all councils. Councils were able to integrate the HAST based events with other initiatives to strengthen the messaging with regard to AT.

Impact analysis

OE 18 What strategies and interventions are schools, councils and communities using at each program site? And why?

Cairns

The approach taken in Cairns was to work collaboratively with each school depending on their level of engagement and momentum. A wide range of activities were reported to have been well received by schools, as well as the PD for teachers and investments in minor infrastructure provided to schools (e.g. scooter racks, tool fixing pole). The most accepted and appropriate events/activities included:

- Walk to school / ride to school
- Bike bus
- Pedometer activity
- Bike education and
- Bike maintenance including a boys shed for children with behavioural difficulties.

Ipswich

The most accepted events in Ipswich were reported as bike education, healthy/multicultural breakfasts, and nutrition education. The success of these events were linked with the ability to integrate the activities into the schools existing schedule and were appropriate matched to the skills and needs of the community.

In the first year of the program, events and activities such as Park, Walk and Ride, and the Smoothie Bike, were identified as popular and created a sense of community among the school. Those activities that contributed to more than the health and activity agenda of the school such as community cohesion, were more accepted.

Over the two years of implementation, Ipswich Council also assisted schools in gaining funds outside of the HAST program for activities and infrastructure development.

Those activities that integrated into the school activities and contributed to more than just the HAST objectives were more accepted by the school community

Gold Coast

At the Gold Coast the approach was to embed the activities within schools and encourage schools to take ownership of the program, with a focus on incorporating activities into the curriculum.

The scooter education, Healthy Breakfasts, Park 'n' Stride and Walking Wheeling Wednesday were seen to have been the most accepted events/activities, with the highest level of parent and children engagement. Competitions and games were also reported to have worked well to facilitate school's engagement.

Both Gold Coast and Cairns councils had assisted schools in gaining additional external funding outside of HAST.

Townsville

The most accepted events/activities in Townsville were those that were able to build on the schools existing activities, raise awareness and build a community atmosphere such as the walk to school day, bike education/maintenance and walk/ride to school days. The delivery model was reported to have provided organisation and structure.

Impact analysis

OE 17 *Is the HAST program accepted by schools, parents and students?*

OE 19 *How were events received? What benefits were generated?*

92.9% of teachers agreed that the events and activities should be implemented at their school

Reported acceptance of HAST program by schools

The majority of teachers (92.9%) agreed the events and activities as part of the HAST program should be embedded at their school, as shown in Figure 39. In 2013, the incentives and rewards were identified by teachers as having the greatest impact.

From the teacher focus groups it was clear that the range of activities and events catered for a range of ages and were appropriate for the whole school.

Despite 96.0% of teachers agreeing AT was a good idea, as shown in Figure 27, the majority of teachers travelled by car (91.6%) with only 6.9% using AT. This was consistent both in the morning and afternoon. In 2014, a number of teachers noted that it was important for the children to have role models in order to ensure continued use of AT.

The events/activities that were the most successful included the National Ride to School Day, the Healthy Breakfast, Bike Education, Travel Passports and Bike Bus. The feedback from SSIs with school representatives demonstrated that overall, the program had been well received and accepted. One school was not supportive due to additional effort required; the teacher survey found that the average time requirement was around 30 minutes per week (Figure 31).

Figure 39: W1 and W2 (FU14) – The events and activities in the program should be embedded at my school

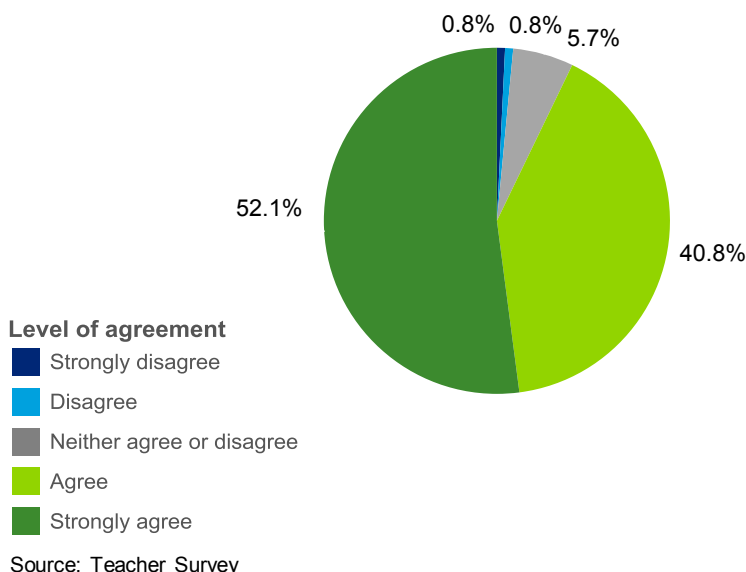
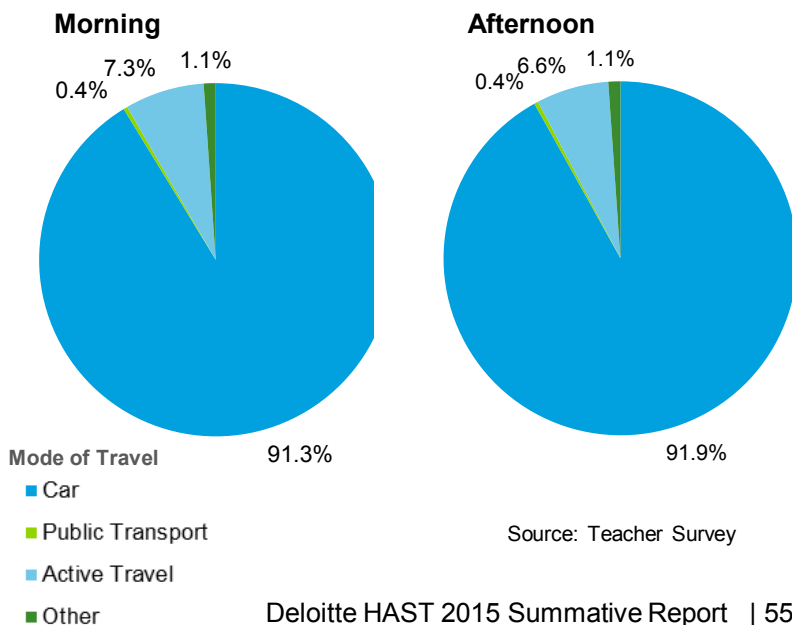


Figure 40: W1 and W2 (FU14) – Teacher reported mode of travel



Impact analysis

OE 17 *Is the HAST program accepted by schools, parents and students?*

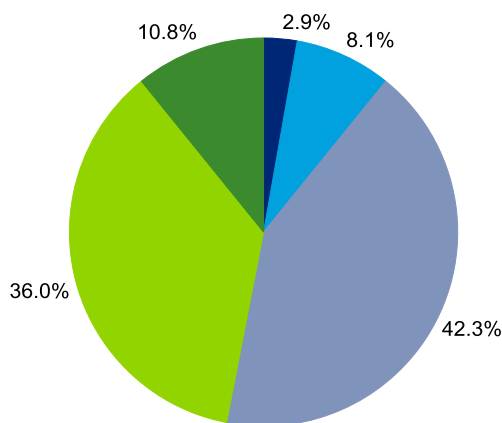
OE 19 *How were events received? What benefits were generated?*

Reported acceptance of HAST program by parents

Overall 46.8% of parents agreed activities had been tailored to their needs and 42.3% were undecided neither agreeing or disagreeing (Figure 41).

All four councils had very similar percentages of participants who agreed with the varying councils ranging between 51.2% for Gold Coast and 44.8% for Ipswich.

Figure 41: W1 and W2 (FU14) – Parent reported agreement on appropriateness and acceptability of activities



Activities tailored to parent's needs

- Strongly disagree
- Disagree
- Neither agree or disagree
- Agree
- Strongly agree

Source: Parent Survey

46.8% of parents agreed activities had been tailored to their needs

Reported acceptance of HAST program by students

Through the child focus groups conducted in both years of the program, it was evident that children had enjoyed the events/activities as part of the HAST program.

In Townsville the most commonly acceptable activities included passports, RACQ Streets Ahead and Walk to School Day. At the Gold Coast the Golden Boot, Active Travel Passports, bike education and pedometer activity were the most widely accepted.

In 2014, the favourite events were the Bike Bus and Walk to School Day. This was consistent with the favourite activities reported through the parent survey. Children expressed a desire for the Bike Bus to be run more regularly as it allowed children who are not permitted to travel alone to join in and provides supervision. This particular strategy would help address the safety concerns raised by parents as a barrier to uptake of AT.

OE 19 How were community events received? What benefits were generated for the community?

Student reported benefits

During both the 2013 and 2014 focus groups, children reported bike education as the main benefit. Children reported an increase in confidence riding their bikes and greater awareness of road safety. In 2014, children reported that they had fun while participating in HAST activities.

Table 3.10: Summary of Appropriateness & Acceptability domain

- The program fostered knowledge sharing through a number of workshops organised for the HAST POs and developed links between councils
- The councils adopted variations of the events and activities that were most popular at each school. It was reported that the events implemented were highly dependent on the engagement and momentum displayed by each school
- 92.9% of teachers agreed or strongly agreed that the events and activities should be implemented at their school. Despite this, the teacher reported mode of travel showed that 91.6% of teachers travelled by car
- 46.8% of parents reported that the activities had been tailored to their needs, while 43.2% were undecided. There is the potential to develop a better understanding of what parents would have found as appropriate AT activities
- The Bike Bus was the favourite activity expressed by children as it allowed the children who required supervision to participate
- Benefits of the program included having fun, increasing socialisation and developing a higher level of confidence in riding bikes

Impact analysis

OE 20 How sustainable is the HAST program and what can be done to enhance its sustainability?

OE 21 Has the HAST program built the skills and knowledge of key council and school personnel to support sustainability?

School champions played a key role in the implementation of the program, while the existing knowledge and skills of HAST POs supported successful delivery

Reported ways to enhance sustainability from TMR and the DoH (Qld)

Sustainability was a key focus for TMR and the DoH (Qld). It was expressed by DoH (Qld) that the focus should be on activities enabling sustainability including curriculum change, and infrastructure improvements.

It is recognised that HAST is a short-term solution to a long-term health need and therefore efforts are taken to enhance the sustainability of the program.

The HAST POs and TMR came together in August 2013 to discuss concepts to enhance the likelihood that positive outcomes from the HAST initiative may be sustained beyond the funding period.

The HAST program was examined using the building blocks of sustainability including planning for sustainability, evidence, organisational support, community engagement and partnerships, program champions, policies and procedures, evaluation, ability to evolve and adapt and funding sources.

It was concluded that HAST fulfilled the key elements of sustainability and has theoretical underpinnings of a sustainable initiative.

Key actions for the HAST team to ensure best practice and a robust approach include:

- Encouraging knowledge sharing between the regions,
- Incorporating priority on embedding health policies into existing business; and
- Seeking funding and resource support from diverse and multiple sources.

Reported knowledge regarding how to implement an AT program in school

Existing knowledge and skills of HAST POs and school champions positively impacted the implementation of the program. Teachers reported there had been little time commitment required from them and that implementation had relied on the school champion and their commitment to the program.

Reported knowledge regarding how to implement an AT program in council

Councils reported that while additional information and support was provided to councils, implementation was largely dependent on the existing knowledge and skills of HAST POs.

Impact analysis

OE 22 How could the HAST program be embedded in LGAs/ schools as 'business as usual'?

OE 23 Has the HAST program increased commitment to active school transport by the local government?

Turnover of teachers, presents a barrier to implementing the program as 'business as usual', with councils encouraging more than one person per school to ensure sustainability in delivery

Professional development for both project officers and teachers

Three of the four HAST POs completed PD in 2013, and all four undertook a PD course in 2014. The PD was reported to have contributed to achieving the HAST program objectives of building the skills and knowledge of key council and school personnel to support sustainability of the program.

Other benefits of the courses reported by HAST POs included increased topic knowledge, and the opportunity to network.

While PD for teachers was well received in Cairns and once in Townsville, it had not been able to be accessed to the extent that was planned, due to the difficulties in negotiating teacher release time. This was consistent in both years of the program.

Reported intention/barriers to continue with the program by councils

At the end of 2013, all councils intended to continue with the program in 2014 and had started recruiting schools. In 2014 another 19 schools joined the HAST program. Some of the councils were also planning to present a business case in order to embed the program in councils and in schools to ensure future sustainability.

Councils reported that in 2013, the focus had been on activities and events, but that from a sustainability perspective it would be beneficial to also build capacity. In 2014, the frequency of the Bike Maintenance and Bike Education programs increased to address this concern.

The high turnover of teachers, political will, and the availability of funding were identified by councils as barriers to sustainability.

In 2014, councils tried to ensure the sustainability of the program and identified the following strategies:

- Have more than one person involved within schools such as the principal, HAST champion, teachers and parents,
- Organise events which are focused on changing culture and sustaining health and activity change,
- Articulating the value of the program to the school, teachers and children
- Establishing the infrastructure to support the use of AT; and
- Have an engaged school community.

Impact analysis

OE 22 How could the HAST program be embedded in LGAs/ schools as 'business as usual'?

OE 23 Has the HAST program increased commitment to active school transport by the local government?

Reported intention/barriers to continue with the program by schools and teachers

Through the SSIs, it was reported that the schools wished to see the HAST program continue in their schools. This was consistent with the teacher surveys, where there was a high level of agreement that AT was a good idea and should be implemented at their school. Schools also reported that having a dedicated HAST school champion was key to the sustainability of the program.

Teacher highlighted the number of children having before and after school activities as creating a conflict with the ability to travel actively. Teachers also raised the concern that without HAST funding, it would be challenging to fund the activities requiring significant investment.

Table 3.11: Summary of Sustainability domain

- School champions were identified as key to the implementation of the program at each school. The program implementation was also seen to be dependant on the knowledge and skills of the HAST PO for successful delivery
- The high turnover of teachers was identified as a barrier to implementation and councils encouraged schools to ensure that more than one person was supporting the delivery
- Teachers highlighted that without HAST funding, it would be difficult to fund the activities that require investment, potentially reducing the sustainability of the program

Chapter 4

Cost Benefit Analysis

Cost Benefit Analysis

Introduction and methodology

Aim

Cost Benefit Analysis (CBA) is an evidence-based tool used to allow decision makers to evaluate the relative merits of public expenditure based on sound economic principles.

To evaluate a program, a CBA compares the funding requirements and operational costs of the program to the monetised benefits that the program will generate. When expected benefits exceed the expected costs, the program is considered to be an economically viable way to spend limited resources.

CBA has a consistent approach and methodology that is applied in the process of evaluating programs. The method applies monetary values to the program to ensure a robust measure of the economic costs and benefits. Decision makers can then assess the viability of the program.

The methodology involves the following steps:

- Definition of the base case
- Identification of the costs and benefits that might be expected as a result of introducing the program
- Identification of the core parameters of the evaluation (base year, evaluation period, discount rate)
- Quantification of costs and benefits over the evaluation period
- Estimation of Net Present Value (NPV), Benefit Cost Ratio (BCR) and Internal Rate of Return (IRR); and
- Testing of the sensitivity of the CBA results in response to changes in the underlying assumptions used.

Methodology

CBA compares the proposed project to a base case. The base case captures the 'status quo' and represents a scenario where business as usual occurs. The definition of the base case will impact on the types of benefits and costs that will occur as a result of the program.

CBA applies monetary values to the program to ensure a robust measure of the economic costs and benefits

The project case captures the expected changes that are attributable to the implementation of the program. The project case represents the incremental benefits and costs to the community, above and beyond what would have occurred without the benefits created by the program.

Base case for this evaluation

The base case is the reference point, against which the benefits of implementing the HAST program will be measured. It represents the 'without the program' scenario.

Project case for this evaluation

The project case is the implementation of the HAST program across four councils, including a total of 38 schools, in Queensland. The program was implemented across two years. The first wave of schools (W1) started in 2013, and an additional second wave of schools (W2) started in 2014. W1 schools had two years of exposure to the program; W2 schools had one year of exposure.

Cost Benefit Analysis

Assumptions

Assumptions

The base case and project cases have a number of characteristics that are common to both scenarios. These characteristics are the contextual assumptions that have no relationship with the introduction of the HAST program. The number of children in the four council regions was modelled based on the forecast rates from Queensland treasury for the relevant age groups from 2014 to 2022. In addition, the health benefits accrued are the same per kilometre under both assumptions, with the differing factor being the number of kilometres travelled by each mode under the two cases. Transport-related maintenance and costs are based on a per kilometre value and will appear in both the base and project case. The same approach is taken for the pathways given that they are used in both the base and project cases. This section provides an overview of the methodological assumptions adopted in the CBA. A full list of the key assumptions that underpin the CBA is provided in Appendix H.

Discount rate

The CBA will involve the calculation of benefit and cost streams that occur over a ten-year period. It is important that the CBA recognises both the time value of money and the alternative use to which the financial capital could have been applied.

The time value of money refers to an individual's willingness to value a fixed nominal amount of money at different points in time. The preference is interpreted as the individual placing a higher value on the money at the present time compared to that same amount in the future.

The difference in value is due in part to a perceived risk of uncertainty in the future and an underlying assumption by all individuals that they will be better off in the future. The CBA takes this into consideration by applying a discount rate to the benefits and costs incurred in the future. The discount rate is defined as the rate at which the future cash flows must be adjusted to reflect the current values of those cash flows.

The selection of the appropriate discount rates for use in CBA in Australia is dictated by a number of jurisdictions and agencies. Health-related CBAs use lower discount rates than other CBAs, such as transport; these lower rates have been used in this instance. A discount rate of 5.0% is used, with sensitivity analysis performed with rates of 3.0% and 7.0%.

Evaluation period

The evaluation period represents the period of time over which the benefits and costs of a project will be measured. Implementation of the program started in 2013 with W1 schools from the four councils. In 2014, a second wave of schools (W2) commenced the program. The evaluation period for the program was selected as ten years from the start of implementation. Whilst it is ideal to capture as many years of data as possible, an evaluation period of ten years is believed to strike a balance between data availability and robustness with accuracy and validity of the benefits which can be accrued and measured.

Inflation and price year

Inflation is an impact which results in the nominal price of goods and services to rise over time. From an economic perspective, the inclusion of inflation in the analysis will cause the costs and benefits to appear higher in monetary terms and may create a bias in the evaluation. In the CBA, time-related unit parameters will be escalated for future years with some measure of real income growth.

The price year is the year in which the prevailing prices are used in the analysis for the valuation of costs and benefits over the life of the project. It is also usually the same as the base year. The base year is the year to which all future costs and benefits are to be discounted; this gives an indication of the present value of these factors. The base year for this CBA is 2013.

Cost Benefit Analysis

Decision criteria

Decision criteria

Benefit cost ratio

The benefit cost ratio (BCR) is the ratio of the present value of benefits to the present value of costs, measuring the relative net gain of the proposed expenditure. The BCR will be greater than one when discounted benefits are greater than the discounted costs. A project with a BCR above one provides a net economic gain and is, therefore, justified from an economic view point. The calculation of BCRs allows decision makers to select in a budget constrained environment, the projects that will have the highest expected benefits. This ensures the efficient allocation of resources. The BCR formula is shown below:

$$BCR = \frac{\sum_{i=1}^n \frac{B_i}{(1+r)^i}}{\sum_{i=1}^n \frac{C_i}{(1+r)^i}}$$

Where:

- B = Annual benefits in given year
- C = Annual costs in given year
- r = discount rate
- i = starting time period

Net present value

The net present value (NPV) measures the actual or real net economic benefit of the project. While the BCR provides a ratio of benefits to costs, the NPV measures the net gain/loss. The NPV formula shows that the NPV is calculated by subtracting the discounted costs from the discounted benefits. All projects with a positive NPV provide a net economic benefit and are justified from an economic perspective. The NPV should be used when comparing mutually exclusive project options. The option with the highest NPV is the preferred option from an economic standpoint.

The NPV formula is:

$$NPV = \sum_{i=1}^n \frac{(B_i - C_i)}{(1+r)^i}$$

Where:

- B = Annual benefits in given year
- C = Annual costs in given year
- r = discount rate
- i = starting time period

Internal rate of return

The internal rate of return is the discount rate for which the present value of benefits is equal to the present value of the costs (i.e, where NPV is zero). It measures the required rate of return at which a program is no longer viable from an economics standpoint. The IRR is the 'r' in the NPV formula and may be estimated using the following rearrangement of the formula:

$$r_{n+1} = r_n - NPV_n \left(\frac{r_n - r_{n-1}}{NPV_n - NPV_{n-1}} \right)$$

Where:

- r_n = nth approximation of the IRR
- NPV = net present value

The IRR is computed automatically using the financial functions found in most spreadsheet packages; Microsoft Excel uses an iterative technique for calculating IRR to an accuracy within 0.00001%.

Cost Benefit Analysis

Costs

The CBA includes both the direct and indirect costs for the implementation of the HAST program. Data for the direct costs was provided by TMR, while the indirect costs are based on assumptions such as the value of volunteer time and cost of maintenance. All assumptions are documented in Appendix H.

Costs

Direct

The direct costs are budgeted costs from TMR and include the program management costs such as staff salary, training, administration and infrastructure costs. In addition the HAST program encouraged the uptake and participation in the program with incentives and rewards; these program delivery costs were incurred by TMR and were therefore also included. In the base case, the direct costs of the program are zero given that, without a program, there is no need for management and program expenses. The CBA was undertaken based on the assumption that post the two years of implementation of the program, all costs are carried forward except for the program management expenditure for TMR, as the program development is now complete.

Indirect

The indirect costs for the HAST program include the capital and maintenance costs of the program infrastructure, and the time spent by volunteers and committee members to deliver the program.

The only costs that appear in both the base and project cases are the maintenance costs for equipment and infrastructure, which is a function of the number of kilometres travelled. The maintenance costs of bicycles for adults were established through desktop research, however no consistent market value could be established for the maintenance costs for scooters and skateboards. The value for bike maintenance varies greatly in the literature and it was therefore included as a factor to be tested using sensitivities to identify the impact of variation.

Table 5.1 presents a summary of the direct and indirect costs included in the CBA. The direct costs are carried forward over the course of the evaluation period accounting for the escalation in prices. The same escalation is applied to the indirect costs.

Table 5.1: Program cost summary

Cost type	Cost item	2013 (\$'000s)	2014 (\$'000s)
Direct	Program management expenditure	423.1	376.4
	MOU obligations	252.3	342.3
	HAST program expenses	37.0	34.5
	HAST program support	113.8	184.2
Indirect	Maintenance costs (equipment)	291.6	473.9
	Maintenance costs (infrastructure)	0.4	0.6
	Time costs of volunteers and committee members	22.5	17.4

Cost Benefit Analysis

Benefits

The two key benefit types resulting from the implementation of the HAST program are transport benefits and health benefits.

- **Transport benefits:** travel time savings; reduction in vehicle operating costs (VOC); reduction in accident costs; reduction in externalities
- **Health benefits:** reduction in health system costs and reduction in mortality; morbidity costs.

Both of these benefits rely heavily on the modelling of the distances covered by each transport mode under both the base and project cases, which are derived from the results of the surveys completed for both W1 and W2 schools. The calculations for each of these benefit streams are outlined below and explained in more detail in Appendix I.

Transport benefits

Vehicle Operating Costs (VOC)

Ausroads defines VOC as costs incurred by road users and road service providers. These include fuel prices, costs associated with maintenance (e.g. lubricating oil, tyre use, repairs), and vehicle depreciation. The calculation is defined as:

$$c = A + \frac{B}{V} + C * V + D * V^2$$

Where:

c = vehicle operating cost (cent/km)

A, B, C, D = model coefficients for cars

V = average speed in km/h.

The HAST program is expected to affect the VOC by changing the distance travelled by car.

The methodology for the calculation of the VOC rate is from the Ausroads guide (2012). The average speed required to calculate the VOC rate has been derived from our survey data. In 2013, the average speed for the base case is calculated from the total kilometres travelled by car divided by the total estimated travel time by car. The project case uses the same formula with the data from the FU14 survey (including both W1 and W2 in 2014). Separating the two waves allows us to model the staged introduction of schools and therefore identify any differences in the impact of the program between the two stages.

Accident costs

Accident costs take into consideration both human, vehicle and general costs to derive an estimate of an average crash cost for different severity categories.

Table 5.2: Accident rates for car travel (crash per 100 million km)

Fatal	Serious injury	Minor injury	Average casualty
0.6	19.4	32.0	52.0

Source: Ausroads (2012)

Accident rates from the Ausroads (2012) guide was used including the accident costs for the different severity levels. These were then inflated to 2013 dollars. The net change in accident costs between the base and project case is driven by the different number of car kilometres expected to be travelled in transporting children to and from school.

Cost Benefit Analysis

Benefits

Externalities

Cars on the road generate negative externalities. The HAST program impacts the externalities generated by changing the car kilometres travelled. Ausroads (2012) has established a monetised unit cost per vehicle kilometre travelled (vkt) for a range of common externalities used in transport projects. Ausroads considers seven externalities, five of which were identified as being relevant for the HAST program. These are air pollution, greenhouse emissions, noise pollution, water, and nature and lands.

A percentage switch was built into the model to assess the impact of each externality category and allow for the selection of the relevant externalities. The table below presents the unit costs of each externality.

Table 5.3: Externalities unit costs (\$/vkt)

Externality	Unit cost (2010)*	Unit cost (2013)
Air pollution	0.028	0.030
Greenhouse	0.022	0.024
Noise	0.0091	0.010
Water	0.0042	0.005
Nature and lands	0.0005	0.001

*Ausroads (2012) uses 2010 prices and these have been escalated to 2013.

The result is driven by the total number of vehicle kilometres travelled under the base and project cases. The positive overall externality results indicate that the number of car kilometres in the base case are higher than in the project case.

Travel time savings

Value of time associated with travelling is measured in CBAs to capture the opportunity cost of time that a traveller spends on his/her journey.

Ausroads provides a value of travel time for non-work related time as dollars per person hour, and an occupancy rate for the number of persons per car. A person per active travel trip was also included in the model to take into account the number of active travel trips that were supervised by an adult. This will quantify the total value of time spent using each travel mode. As more children use the active travel modes, the time spent travelling will increase and in turn, so will the total value of time.

Table 5.4: Average travel time per trip

Travel mode	Base case (mins)		Project case (mins)	
	W1	W2	W1	W2
Car	29.46	32.45	30.18	33.49
Bus/Train	50.15	75.16	60.44	72.73
Walking	36.14	33.30	40.69	36.13
Cycling	38.48	45.03	55.32	44.28
Scooter/Skate board	37.91	110.21	45.19	21.17

Cost Benefit Analysis

Benefits

Health benefits

The HAST program is expected to generate a range of health benefits; these include reduced health system costs and a reduction in mortality and morbidity costs. Table 5.5 contains the AT kilometres for base case and project case in the first year of the model from which the health benefits will be derived.

Reduced health system costs

The HAST program is expected to improve the health of participants, therefore reducing health system costs due to less demand for health services. The health benefits accrued from reduced health system costs are modelled based on the methodology developed by *Genter et al* for New Zealand. Australian and New Zealand populations exhibit similar characteristics and hence the same assumptions were applied for the Australian context. The methodology involves determining the higher and lower bound health sector costs by multiplying the higher and lower bound percentages of deaths attributed to inactivity. That amount is then divided by the total inactive population to derive a per capita health sector cost due to inactivity. *Genter et al* recognises that this approach represents a crude estimate of health sector costs due to inactivity. Health sector costs of obesity alone are estimated at around 11%⁴ of the annual budget, and obesity is associated with insufficient activity levels.

Table 5.5: Total km travelled in each mode

Travel mode		Base case ('000s km)		Project case ('000s km)	
		2013	2014	2013	2014
Wave one	Walking	1,027.1	960.0	752.3	703.1
	Cycling	512.4	479.0	762.4	713.0
	Scooter/skateboard	71.7	67.0	354.0	330.3
Wave two	Walking	0	274.2	0	255.4
	Cycling	0	229.9	0	490.0
	Scooter/skateboard	0	7.2	0	10.9

In our costing methodology, obesity is only one of five diseases that are correlated with levels of inactivity. Therefore the values used here are reasonable estimations of the health sector costs that are attributable to inactivity.

Mortality and morbidity costs

Inactivity has been associated with mortality and morbidity. Mortality cost is the cost associated with a person not living to life expectancy.

The loss of life years can be translated into a loss of productivity from those individuals. Similarly, morbidity is the cost associated with a person not living a number of years free from disability. Two methods were used to determine the costs of mortality and morbidity resulting from inactivity.

In method A, the mortality rates of five diseases associated with inactivity were used to determine the total annual attributable deaths (low and high expectations). Using the population figures corresponding to those death rates, the per capita annual mortality rate associated with inactivity can be calculated. Similarly, the Years Lost to Disability (YLD) are calculated based on data from the Australian Burden of Disease and Injury (2003). In 2003, 6.6% of the total YLD were due to inactivity. Using the same population as above, the per capita YLD can be calculated. Using the willingness to pay (WTP) method, the annual value in monetary terms was calculated.

⁴<http://www.aihw.gov.au/australias-health/2012/spending-on-health/>

Cost Benefit Analysis

Benefits

Method B derived an annual value from the disability adjusted life years (DALYs) attributable to inactivity. The source of the data is the Australian Burden of Disease and Injury (2003), with the DALYs attributable to inactivity derived from the total DALYs multiplied by the percentage due to inactivity. This ratio is then multiplied by the inactive population to have a ratio of DALY per inactive adult. Using the WTP, the annual value due to inactivity of DALYs was calculated.

Benefit per kilometre

The methodology from *Genter et al* was used to derive the per kilometre health benefits associated with AT. Table 5.6 presents the assumptions that were used in deriving the monetary per kilometre benefit value. The prevalence of each activity category was derived from the survey results. The categories are defined as:

- Sedentary: less than or equal to 60 minutes of combined moderate and vigorous activity per week,
- Insufficient: more than 60 minutes a week, but less than 60 minutes a day for 5 or more days; and
- Sufficient: more than 60 minutes a day for 5 or more days.

The annual number of kilometres over which benefits are received for each mode is taken from *Genter et al* and takes into account the time required to accrue the required activity levels.

Table 5.6: Health benefit assumptions

Activity category	Benefit weight	Baseline Prevalence (BL13)	Annual km over which benefits are received (walking)	Annual km over which benefits are received (cycling)	Annual km over which benefits are received (scooter/skateboard)
Sedentary	1.00	0.38%	625	1,250	910
Inactive	0.859	25.22%	450	900	682
Active	0.15	74.40%	312	624	455

Table 5.7: per km benefit summary

Active travel mode	Per km benefit (\$/km)		
	Low	Mean	High
Walking	2.58	3.15	3.73
Cycling	1.29	1.58	1.86
Scooter/skateboard	1.73	2.12	2.50

Table 5.7 shows the monetary value from a health benefit perspective of doing one kilometre of each of the AT modes of travel. The low, mean and high values allow us to test the sensitivity of the benefit levels on the CBA results. The results of the sensitivity analysis are included in the results section of the report.

Cost Benefit Analysis

Results and recommendations

Results

The results of the CBA are presented in NPV terms and also in the form of the BCR of the program over the evaluation period. A positive NPV indicates that the benefits of the program over the evaluation period are greater than the costs. Similarly, a BCR greater than one means that the benefits generated by the program are greater than the costs. Table 5.8 presents the results of the HAST CBA under a 5.0% discount rate. An NPV value of \$3.3M was derived, indicating that under the current assumptions and methodology, the HAST program generated benefits beyond the economic costs invested.

Table 5.8: CBA results in 2013 dollars ('000s)

Discounted rates	3.0%	5.0%	7.0%
Present value of costs	\$8,111.0	\$7,486.0	\$6,941.0
Present value of benefits	\$11,931.2	\$10,806.1	\$9,829.3
NPV	\$3,820.2	\$3,320.1	\$2,888.3
BCR	1.47	1.44	1.42

Sensitivity

Discount rates

The BCR is reported 1.47 at a discount rate of 3.0%, 1.44 at 5.0%, and 1.42 at 7.0%. The lower and upper bound discount rate was used to test the sensitivities of the CBA results on different discount rates.

Health benefits

In the Genter et al methodology, the health costs due to inactivity are not directly quantified; as such, *Genter et al* uses a lower and higher bound estimate to develop the per kilometre benefits. The change in those values will then drive differences in the total benefits calculated. Under the lower bound, the BCR is 1.36, at mean value it is 1.44 and at the upper bound it increases to 1.52.

Table 5.9: Sensitivity analysis of change in health benefit value 2013 dollars ('000s)

Health benefit value – 5%	Low	Mean	High
Present value of costs	\$7,486.0	\$7,486.0	\$7,486.0
Present value of benefits	\$10,201.2	\$10,806.1	\$11,410.9
NPV	\$2,715.3	\$3,320.1	\$3,925.0
BCR	1.36	1.44	1.52

Bike maintenance costs

Desktop research of bike maintenance costs yielded a wide range of values, unlike the commonly agreed on maintenance values for cars from Ausroads. These values ranged from 0.04 \$/km to 0.53 \$/km. A value of 0.38 \$/km (2013 dollars) within that range was selected from a Queensland source[^] for the purpose of the CBA. A sensitivity analysis has been performed on this parameter to reflect the wide range of values. A lower bound value of 0.04 \$/km was used to test the results using a lower maintenance cost. Under that scenario, the BCR increases to 1.81 making the program more attractive. The higher bound maintenance cost of 0.53 \$/km results in the BCR decreasing to 1.33 and reducing the overall benefits of the program.

Table 5.10: Sensitivity analysis of change in bike maintenance cost 2013 dollars ('000s)

Maintenance cost – 5%	\$0.04/km	\$0.38/km	\$0.53/km
Present value of costs	\$5,981.3	\$7,486.0	\$8,134.2
Present value of benefits	\$10,806.1	\$10,806.1	\$10,806.1
NPV	\$4,824.8	\$3,320.1	\$2,671.8
BCR	1.81	1.44	1.33

[^]Benefits of the inclusion of active transport in infrastructure projects (Transport and Main Roads)

Cost Benefit Analysis

Recommendations

Limitations

The costs and benefits associated with car travel are well documented and, in Australia, Ausroads provides a methodology so that all transport related projects can be evaluated with consistency.

However, the costs and benefits associated with the use of bikes, scooters and skateboards is not well documented. Addressing this gap in available evidence will allow more accurate evaluation of active travel initiatives in the future.

The number of kilometres travelled and the mode used was self-reported. Recall bias and variation in ability to estimate distance may impact the robustness of this data.

Recommendations

The results of the CBA indicate that, under the assumptions made and over an evaluation period of ten years, the costs of the program are less than the expected benefits; this is evidenced by a BCR greater than one. Under the sensitivity analysis, the lower bound of some of the key drivers still result in a BCR greater than one. This is demonstrating that even under less favourable conditions or assumptions, the program is still creating more benefits than it costs to run.

Benefits appeared to be largely driven by travel costs included in VOC. Health benefits are accrued over a five year period and hence the full impact is only felt in the later years of the program.

Consideration of where benefits are realised is important to inform future funding programs with multiple-sector impact, such as these.

The HAST program has a BCR of 1.44 at 5.0% discount rate

Chapter 6

Conclusions

Conclusion

The HAST program has successfully delivered on a number of the key objectives established at the onset of the project.

Objective 1: *To increase the proportion of children who actively commute to school by walking, cycling and using public transport.*

Over the duration of the program, there was an 11.2% increase in children who actively commuted according to the self-reported Hands Up data. This increase was comprised of a mixed uptake of walking, cycling and skateboarding/scootering. Overall, 19.9% of parents reported that their child's use of AT had increased.

Objective 2: *To increase the proportion and absolute number of children attending participating schools that meet the recommended physical activity levels for good health.*

With the data available, it was not possible to definitively assess change in adherence to recommended daily activity (RDA) levels. However, considering average daily moderate activity increased by 72.8 minutes, it would be reasonable to conclude that the proportion of children meeting RDA levels is likely to have increased.

Objective 3: *To improve knowledge and attitudes towards AT within the school community (students, staff and families).*

Students, parents and teachers participating in focus groups all displayed a clear understanding of the value of AT and acknowledged that the program had contributed to their knowledge about AT.

Surveys indicated that 95.9% of teachers believed AT was a good idea, and 92.9% believed that HAST activities should be embedded into schools permanently. 73.1% of parents agreed that they had been informed about AT options, and the proportion of students who requested to use AT increased by 6.7% over the duration of the program.

Objective 4: *To deliver locally appropriate adaptations of HAST, in partnership with selected local governments, to target schools in their area.*

HAST officers and the TMR project team reported that the structure and governance of the HAST program supported a collaborative approach to implementation. The Steering Committee membership comprised representation from Health, Education, and Transport Departments, local council, and the Heart Foundation. This enabled multiple perspectives to be considered in the program design and implementation phases.

A similar approach was taken in local councils with the establishment of Regional Committees. This allowed for a degree of overall consistency but also consideration of local conditions and ownership over the program, with a number of examples of local adaptations at both a council and school level.

Objective 5: *To build the skills and knowledge of key council and school personnel to support sustainability of the HAST program beyond funding. To increase commitment to active school transport by the local government.*

Overall the project has delivered professional development training to Council Officers and some teachers. Stakeholders have reported that these development opportunities have contributed to their knowledge of how to deliver successful AT programs. In conjunction with this, the regular HAST meetings have enabled sharing of successes between councils. Access to professional development (PD) for teachers was generally reported as challenging due to the need for backfill.

Conclusion

Key lessons and next steps

The HAST program has provided the opportunity to develop and test the implementation of a program focused on Health and Activity, developed and delivered in partnership across Governments, Departments and Non-Government sector.

Its success is testament to the input, collaboration and joint ownership of the objectives of all parties involved.

There are important lessons from this program which should be noted, and next steps to continue with program success; these include:

- The coordinated approach to the implementation of this program is key to its success. Policy responses should consider the overall impact of programs from a number of perspectives. The HAST program has implications for the areas of Health, Transport and Education. In considering the ongoing nature of this program, continued coordination should be established.
 - There are a number of features and components of the program that can be integrated into curriculum, resulting in joined up solutions to achieve multiple outcomes. The use of gamification and competition, both within and across schools, was seen to have the most impact towards driving participation.
 - The involvement of councils officers and community was integral to the implementation of the program . Connection with community was a crucial component of success; great levels of success were observed in schools where there was ownership of the program.
 - Stemming from community involvement, the program also had the unintended impact of building community connection within schools; between teachers, parents and students; and with the wider community linking with council and business. The school community valued this connection and observed the positive impacts.
 - Through the development of the program, there are a number of artefacts which have been developed. These should be documented and shared for ongoing use by councils and schools.
- Consideration should be given to digital-based learning platforms for continued learning of the benefits of active travel and access to professional development for teachers.
 - The impact at schools with a lower baseline use of AT is higher; hence, data should be used to identify schools where there is a greater opportunity for influencing change.
 - The CBA has shown net positive benefits to the continuation of the program. If program investment is continued to realise these benefits, the impact of the program should continue to be monitored.