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PRELIMINARY REPORT

# FUN, ACTIVE, SAFE, & SOCIAL

Short-term Evaluation of Bikes in Schools

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Greer Hawley<sup>1</sup> | Richard Scott<sup>1</sup> | Hamish Mackie<sup>1</sup> | Alistair Woodward<sup>2</sup> | Lily Hirsch<sup>1</sup>

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<sup>1</sup> Mackie Research <sup>2</sup> University of Auckland

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1	Changes in response to ACC review	Greer Hawley	16/02/2018
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**Authorship:** This document was written by Greer Hawley. For further information, please contact Hamish Mackie using the contact details below.

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**Mackie Research**

**Physical address**

Level 2 Princes court  
2 Princes Street  
Auckland 1010

**Postal address**

PO Box 106525  
Auckland City  
Auckland 1143

Ph 09 394 7041  
MB 021 067 0337

[www.mackieresearch.co.nz](http://www.mackieresearch.co.nz)



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# EXECUTIVE SUMMARY

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In the past 20 years there has been a dramatic decrease in the amount New Zealand children ride bikes. Over this period, New Zealand has also seen record levels of childhood obesity, increased hours of 'screen time', reduced free play, and more children being transported in cars – trends that have wider health, social, and environmental impacts.

Bikes in Schools aims 'to enable as many New Zealand children as possible to ride a bike on a regular and equal basis'. There are now more than 90 schools with Bikes in Schools around New Zealand. Generally, the model consists of schools building bike tracks within their school grounds, and providing a class set of bikes and helmets for students to use during lessons and at other times. The model is predominantly driven by schools, and funded through school fundraising efforts, complimented by other contributions from government and non-government organisations. From 2015 to 2017, ACC supported Bikes in Schools through funding the Bike On NZ Charitable Trust; ACC investment continues through their partnership with the NZ Transport Agency in the National Cycling Education System.

For ACC, investment in Bikes in Schools represented an opportunity for: injury prevention and risk management education; the promotion of life-long physical activity; and, the extension of injury prevention messages to families and the wider school community. ACC and others are also interested in understanding the broader benefits of Bikes in Schools.

## Evaluation aims

This evaluation aims to provide ACC with an understanding of the outcomes their investment is contributing to, feedback for on-going development and improvement of the model, and recommendations for future decision-making around Bikes in Schools.

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**This is a preliminary report, focussing on the short-term outcomes only; longer-term data will be collected throughout 2018, with a final report planned for early 2019.**

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The evaluation is structured around 11 Key Evaluation Questions, which includes a **process evaluation** component and an **outcome evaluation** component. The summary of findings is structured around these evaluation questions.

## Methodology and approach

The evaluation consists of the two main components below.

### An initial focus on established schools

In late 2015 and early 2016, schools who had previously established Bikes in Schools were surveyed, and a subset were interviewed/visited. The purpose was to understand critical factors for successful implementation and sustainability over time.

### A Quasi-experimental study involving 16 schools between 2015 and 2018.

A mixed-method approach was taken - data collection to date has focussed on students, staff, and school leaders. Based on a wait-list control type design, this component follows schools over time, and compares data from schools that set-up Bikes in Schools (termed intervention schools) to those in the 'fundraising' phase (termed comparison schools).

**Six to 12-months after Bikes in Schools** implementation (termed the short-term follow-up), student outcomes of cycle safety knowledge and behaviour, cycling participation, and physical activity are compared across 12 intervention schools, and two comparison schools. Control schools have also been recruited for comparison at the longer-term follow-up. Data from families will also be collected at the longer-term follow-up.

## Data integration

To answer the Key Evaluation Questions, the evaluators have drawn on qualitative and quantitative data from a range of sources. An evaluation rubric was also used to assess the degree to which Bikes in Schools was integrated across a Whole-School Approach. Short case studies profiling experiences at specific schools are used to demonstrate key points.

## Summary of findings: Process Evaluation

### How and to what extent is Bikes in Schools being delivered and how does delivery compare across schools?

Schools establish and use Bikes in Schools in a way which works for them – from track design and day-to-day use, to how it integrates with their education goals.

Overall, there is high use of the bikes and bike tracks.

- Approximately 60% of intervention schools reported time-tabled weekly sessions on the bike track for all students. Other schools had time-tabled slots in a particular term, booking systems, or used the bikes for daily fitness.
- 80% of intervention schools reported lunchtime use of the bike tracks.
- 80% of intervention schools reported bike track use by families and the wider community in the weekends or after school.

The main factors that reduced use were bike and track maintenance, weather, bike theft, and taking time to establish systems and processes in the initial stages. Only one of the 12 intervention schools at the short-term follow-up, was not actively using their track (due to maintenance problems).

Learning on the bike track is mostly part of Physical Education Units, and/or Health units on safety (including road safety). Lessons focus on developing bike knowledge and skills, fitness, risk and challenge, developing the five key competencies in the NZ Curriculum, and having fun. Students have extensive opportunities to practically apply key injury prevention messages such as helmet-fitting, bike-safety checks, and negotiating other 'users' on the tracks.

In addition to practical bike lessons and bike riding, Bikes in Schools appears to be increasing exposure to class-room based learning about biking – and there are examples of inquiry learning about safety, using the bike tracks as a context. Six to 12-months after Bikes in Schools implementation, 47% of teachers who responded had taught about biking and bike safety in the last three weeks, compared to 15% at baseline. Schools also use the bike tracks for a range of other opportunities from triathlons, to 'brain breaks', rewards for doing well, and community events.

## How is Bikes in Schools perceived by the school community?

Overall, school leaders and staff highly value Bikes in Schools – clearly demonstrated by the large growth in the number of students with access to Bikes in Schools over the last 5-years (from ~4,800 students in 2013, to ~30,000 in 2017). Key themes for perceived benefits were: improvements in student bike skills, safety skills, and confidence; increased physical activity and fitness; improvements in behaviour and engagement; and, improved self-confidence and resilience. Many schools also highly value Bikes in Schools as a community resource - improving the connection between families, the community, and the school by creating a safe and social place to be active.

Schools acknowledged that Bikes in Schools took time, resource, and funds to implement, and the main challenges are maintenance of the bikes and tracks.

## How does the programme content and materials align with existing best-practice?

Compared to ‘one-off’ sessions on cycle safety, Bikes in Schools is a best practice model as it allows for sustained, authentic learning, and increased exposure to being on a bike.

Schools ‘embed’ Bikes in Schools across the three areas of a Whole-School Approach (school organisation and policies, teaching and learning, and community links and partnerships) at different rates, and in different ways depending on their motivations and capacity. For example, some schools have time-tabled use during class time, free play use at lunchtime, involvement of families/community after school and in weekends, and use the bike tracks for other learning or fitness opportunities. Other schools have timetabled sessions but were not focusing on lunchtime or community use yet, and were working on sustainable processes for bike and track maintenance. The relatively short-term nature of this evaluation is important to keep in mind when interpreting the outcomes. Snapshots of individual school experiences are provided at the end of this summary.

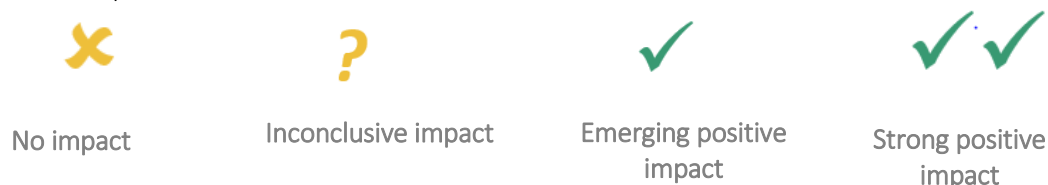
## What are the critical factors for successful delivery and sustainability of the programme?

There is no ‘prescribed model’ for Bikes in Schools, and therefore, no right or wrong way of doing it; however, there is support that could be offered to ensure schools can maximise the opportunity. ‘Making it as easy as possible for teachers’ underpinned many of the recommendations from schools. Key factors are summarised below.




PEOPLE	THINGS	SYSTEMS & PROCESSES
<ul style="list-style-type: none"><li>• A lead staff member for day-to-day responsibility that is enthusiastic about biking.</li><li>• Principal support.</li><li>• Professional development for staff (annual or bi-annual)</li><li>• Professional support for bike maintenance and advice 1-2 times a year.</li><li>• Connections to other schools with Bikes in Schools for ideas and collaboration.</li></ul>	<ul style="list-style-type: none"><li>• Secure bike shed.</li><li>• Annual budget for bike and track maintenance.</li><li>• Sturdy/robust bikes.</li><li>• Wide range of bike sizes.</li><li>• One helmet per child.</li></ul>	<ul style="list-style-type: none"><li>• Staff member/students who can get the bikes out each morning/afternoon.</li><li>• Lesson plans, guidance, and support from specialist teachers (e.g. PE or sport coordinators).</li><li>• Process for identifying and maintaining broken bikes and the track problems.</li><li>• Time within the school timetable to use the tracks.</li><li>• Opportunities for free play on the tracks.</li><li>• Opportunities for families and the community to use the tracks regularly.</li></ul>

## Preliminary findings: Short-term outcome evaluation




Drawing on a range of data sources, the extent of the impact on each outcome at the short-term follow-up, was judged against the four categories below. More information is provided in the full report.



### To what extent has Bikes in Schools influenced the cycle safety knowledge, behaviour and skills of students, teachers, and families?

- Bikes in Schools improved access to bikes, increased the proportion of students who 'mostly' or 'always' wear a helmet, and those who 'mostly' or 'always' do a bike safety check before riding. 
- Students in schools with Bikes in Schools showed increases in self-reported bike skill level. Teachers also consistently reported improvements in students' bike skills and confidence. 
- There were considerable improvements in teachers' confidence in their own bike safety skills and confidence to teach bike skills. There were also increases in the use of biking as a context for learning. 

### To what extent has Bikes in Schools increased participation in cycling for recreation and transport in students, teachers, and families?

- Bikes in Schools is having a good level of impact on how often students ride a bike. At the short-term follow-up, 78% percent of students in schools with Bikes in Schools rode a bike at least once in the last seven days (an increase of 14%) – whereas only 48% of students in comparison schools rode a bike in the last seven days. Almost all this additional bike riding was done *at school*. 
- Bikes in Schools increased biking to school in two Auckland schools – a further 37-41 students biked to school after Bikes in Schools was implemented; however, no meaningful changes were seen in all other schools. It needs to be noted that increasing the amount students ride to school is not a goal of Bikes in Schools for some schools, and other barriers to cycling to school may persist. 
- After Bikes in Schools implementation, there are fewer teachers who 'never or rarely' ride a bike, and more teachers who report riding 'about once per month' or more. Most of this is riding on the bike track with their students. 

### To what extent has Bikes in Schools increased student's physical activity levels?

School staff report improvements in students' physical activity levels and fitness. They also value Bikes in Schools as a tool for teaching students about life-long physical activity.

Short-term evaluation results hint that Bikes in Schools has the potential to increase engagement in moderate intensity physical activity. There were small but statistically significant increases in Children's Physical Activity Questionnaire scores in intervention schools (a measure of overall physical activity). Activity Monitoring and cycling computer data also suggest that a relatively high amount of time is spent in moderate physical activity during bike track use.



It is plausible that the impact on physical activity becomes more apparent over time, as schools continue to embed Bikes in Schools. A study solely focussing on the impact of Bikes in Schools on physical activity and fitness is needed to examine this question in a more in-depth way.

### To what extent has Bikes in Schools influenced student engagement and behaviour at school?

Some staff and school leaders report improvements in student behaviour since Bikes in Schools was implemented. Students rate the bike tracks as one of their favourite things about school.



### To what extent has Bikes in Schools influenced school cycling and safety culture?

Bikes in Schools provides a platform to integrate many of the ACC SportSmart principles. The long-term impact of Bikes in Schools on the culture of schools will be examined at the longer-term follow-up.



### Are there any unintended effects of Bikes in Schools (positive or negative)?

There were no consistently reported negative impacts. Maintenance of the bikes and tracks, as well as bike theft (experienced by three schools) were one of the most apparent challenges experienced by schools; however, overall schools have developed, or are developing, strategies to overcome the impact of these issues.

## Implications and next steps

The value of Bikes in Schools lies in its universal appeal, and its flexibility and scalability. The model is relatively simple, and schools can shape it to meet their needs and integrate it into school life in alignment with their priorities. The ability of Bikes in Schools to meet a range of outcomes is valued by schools; and the short-term evaluation results are starting to build an evidence-base for these outcomes. The longer-term follow-up will investigate if these outcomes are further enhanced or sustained over time. As an educational resource to facilitate both practical and theoretical learning about bike safety, risk-taking, road safety, the environment, and life-long physical activity, Bikes in Schools is a best practice example. Community involvement, while not occurring at every school (depending on their circumstances), shows that Bikes in Schools can create a place for the whole school community to be physically active, safe, and social.

However, Bikes in Schools shouldn't be viewed as the panacea to all child health, injury, and mobility problems – and it needs to be remembered that schools have many other priorities. Combining Bikes in Schools with road environments that are safe and attractive for kids to cycle on is proposed as a combination for future focus – and a combination that is likely to further augment the benefits of Bikes in Schools. This combination would also help to further support the new National Cycling Education System.

## Recommendations

The positive findings of this evaluation suggest that Bikes in Schools has sufficient merit for continued or enhanced investment, as part of the National Cycling Education System. In addition, given the emerging cross government benefits, it is recommended that other sectors and organisations start to consider how they can support Bikes in Schools. Over-time, as students experience Bikes in Schools and then progress into other life stages, a formal assessment of the five to 10-year return on investment may be warranted.

More detailed recommendations are below.

### For ACC and other supporters of Bikes in Schools

- Continue to invest in Bikes in Schools through investment in the National Cycling Education System.
- Support schools to ensure bikes and tracks continue to be safely maintained - this would maximise Bikes in Schools use.
- Consider how Bikes in Schools investment can be targeted to contribute to equitable outcomes across child/community health, injury prevention, transport, and education. Any future investment strategy should include a focus on students/ communities with low bike access and fewer opportunities to develop cycling competencies.

### For Bike On NZ Charitable Trust (and other stakeholders)

- Continue to support schools to establish Bikes in Schools.
- Continue to reiterate the importance of professional track design and build, as well as ensure schools are well informed of bike and track maintenance costs. It's understood that this support is already available, and it may be a matter of revisiting schools in the first 3-6 months to check they have funds and processes in place.
- Continue to investigate the cost and feasibility of asphalt perimeter tracks – the evaluation indicates these may have lower maintenance costs and yield higher use.
- Investigate a mechanism (either online or face-to-face) to enable teachers in different schools to collaborate and share ideas around how they use Bikes in Schools. The National Cycling Education System may provide opportunities for this.
- Investigate lesson plans that link to the learning areas of the NZ curriculum and utilise the bike tracks as a context.
- Investigate potential nation-wide or region-wide funding contributions for track/bike maintenance.
- Continued guidance on the most 'hardy' bikes to purchase as schools continually update their bike fleets.
- Training or professional development for teachers – annually or bi-annually – the focus of this development may shift as schools further embed Bikes in Schools. Targeting specific schools where teachers are less confident would be beneficial.
- Support schools to identify ways they can involve the community and whānau in Bikes in Schools – while some were already doing this, others may benefit from ideas and support. This could also include ways to encourage safety behaviours (such as helmet wearing) outside of school grounds in regions where rates are low.



## For Schools (existing and future)

- Get professional advice for the track design and build. This should include the best design to manage drainage and minimise maintenance. While parents and community members may be useful in providing support, professional advice is likely to mean a better design/build long-term.
- Consider a sealed asphalt track as the main perimeter bike track – while this is likely to cost more initially, long-term maintenance costs are likely to be lower and track use through winter can be maximised.
- At the outset, consider the whole-of-life costs of the bike tracks and bikes, and how maintenance will be managed.
- Purchase a range of bike types and sizes from Balance Bikes to bikes for teachers.
- Keep the future in mind – students appear to develop bike skills very quickly and master the key obstacles, therefore building in challenge from the outset may future proof the design.
- Identify the 1-2 people in your school that are enthusiastic about Bikes in Schools and support them to drive the model.
- Think about how your school bike track can be (or continue to be) a community resource.
- Investigate opportunities for unstructured play using the bike tracks, as well as structured lessons.

*“A really balanced extra tool to encourage active play and fitness” (Teacher)*

*“Students really look forward to coming to school to do the practical bike lessons and both students and parents have more awareness of bike safety” (Teacher)*

*“Other kids have learnt a lot about bikes, some kids couldn’t ride, now pretty much everyone can ride.” (Male, Y6)*

*“it is constantly in use before and after school.....It’s a social place!” (Teacher)*

## Acknowledgements

A special thank you to all the schools that have supported this evaluation.

## School Snapshots

### Kaiti School: Bikes in Schools and student hauora

Kaiti School in Gisborne is a good example of embedding Bikes in Schools into school life, through a strong focus on student hauora.

Each student receives two 30-minute lessons on the bike track each week, coupled with rostered lunchtime riding. A specialist sport teacher has developed a programme that progresses students from helmet-fitting and basic skills, through to developing fitness and more advanced riding skills. Teachers are required to ride on the track with their students, and it's not unusual to see students and teachers walking around Kaiti school wearing a bike helmet – reinforcing this as a normal and habitual thing to do. Older students who reach a certain competence level are taken out into the community on quiet streets and pathways.



The Tumuaki, Billie Jean Potaka-Ayton, reports that the bike track has *“changed our school”*, noticing improvements in behaviour across the board. She stresses that good systems, time, and people resource are needed to make the model work. The school has supported a parent to upskill in bike maintenance, and this parent is now paid to maintain the bikes once a week.

The teachers at Kaiti are also extremely positive about Bikes in Schools with 95% of teachers rating it ‘valuable’ or ‘highly valuable’. Teachers report the following benefits for students:

*“Self-confidence and having an 'I can do' attitude” “learning to love being active”*

*“It’s a time when we all learn new skills which helps build our self-confidence and prepares us for cycling on the road”.*

Eighty Six percent of Kaiti students ‘like’ or ‘love’ riding a bike, and good shifts in bike skills are evident after one-year with Bikes in Schools.

While the bike track provides a safe place for students to ride within the school grounds, and a culture of biking is evident within the school – the principal would like to see more students riding *to* school. The safety of the road environment remains a concern, and the school is actively advocating for improvements to roads and routes to ensure Kaiti students can extend their learning into the community. This example demonstrates how BiS can spur on support for better environments for cycling, and thus, better environments for hauora.

## Henderson Valley School: Bikes in Schools and student voice

In 2015, at Henderson Valley School on the outskirts of Auckland, a group of Year 4 boys started having a *“random discussion about bikes”* (Male, Y6). An inquiry learning project, under the theme of sustainability, provided the platform for the boys to research a school bike track.

*“we all went around where the track is now and like designed it, and we went over the research, like how many bikes do we need, what size would be good for kids, where we would buy it from, what’s our money, how many helmets we need, how big the bike shed would need to be, how many hooks we need in the bike shed.”* (Male, Y6)

Supported by their teacher (who also loved biking according to the boys), and after a lot of hard work and fundraising by the wider school community, their detailed research led to the bike track being built in May 2017.

Now, each class in the school has a timetabled slot, and each team is allocated a day for lunchtime riding. On Fridays, lunchtime riding is used as a reward for specific students. These boys are now the school Bike Monitors, who are responsible for bike maintenance and getting the bikes ready each day.

*“it’s actually part of our PE curriculum, just like swimming”* (Male, Y6)

*“Each class gets a turn a week, ours is on Monday”* (Male, Y6)

These boys love biking, especially jumps! But they also like sharing their knowledge and skills with others.

*“that’s my favourite part of it, like teaching other kids how to ride”* (Male, Y6)

*“it feels really nice when you help out someone, you feel proud of yourself”* (Male, Y6)

*“Other kids have learnt a lot about bikes, some kids couldn’t ride, now pretty much everyone can ride.”* (Male, Y6)

One student described seeing the track finally eventuate as *“mind blowing”* (Male, Y6)

*“it was actually quite impressive, because we had been waiting it for a really long time, like forever, and finally it happened, so I felt pretty happy and it was pretty fun as well”* (Male, Y6)

The trio recommend other schools trial bikes before they buy and investigate different types of bikes.

This demonstrates how Bikes in Schools can be an opportunity for student voice and inquiry learning, from the outset.

## Makaraka School: Bikes in Schools as a ‘hook’ for science and learning about risk

At Makaraka School, a small peri-urban school in Gisborne, Bikes in Schools aligns with their ethos of adventure, risk, consequences, and learning by experience. The Principal, Hayden Swann, described how the school wanted students to learn bike skills, but also spatial awareness, and they had noticed improvements in these areas as a result of the bike track.

*“Learning about consequences – these days if we don’t provide these opportunities it may not happen”*. Given the semi-rural nature of the school, the track is also seen as safe place to ride, and families bring their younger children to the school to teach them to ride.



*Students demonstrating the corners at Makaraka School Bike Track*

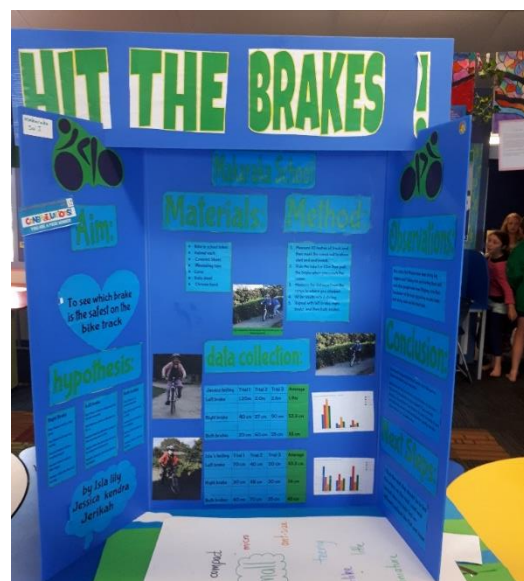
One of the corners of their bike track is very sharp – nearly 90 degrees. In the first month, a number of students would fall each circuit. No serious injuries occurred, and now all students have learnt how to manage this corner – the school preferred this, rather than making the track safer or easier.

Students also like the variety the track has – ramps, smooth bits, corners, and it’s all integrated.

One student described her strategy to deal with the sharp corner *“now I know when I get to the tree I need to slow down”* (Student, Makaraka School).

Makaraka School has also begun using the bike track as a context for science learning. Year 4/5 students developed a question related to bike safety and researched the answer through a collaborative science project. The school sees this as an opportunity to use the bike track as a ‘hook’ for learning and to keep the challenge of the bike track alive. One student talked about his investigation into *‘which is the safest helmet?’* – using, a pumpkin, a range of helmets, and dropping them from a height! Makaraka school plans to extend this type of learning through the bike track to other year levels next year.

This demonstrates how the bike tracks can create a platform for deeper learning around safety and managing risk.



*Student science project about braking.*