

# The power of electric bikes in regional WA

Following the success of the RAC e-Bike Trial in Perth in 2015, RAC took electric bikes - e-Bikes - for another spin, this time in the picturesque regional city of Albany and they proved to be just as popular.

We partnered with the City of Albany and the Department of Sport and Recreation to run the RAC Regional e-Bike Trial (the trial) in Albany to help increase awareness and usage of e-Bikes, and boost cycling in Western Australia's (WA) regional cities and towns.

## Why did we run this trial?

Like in many regional cities in WA, those residing in Albany need and want access to a range of convenient and viable options to travel around their community, and for their daily commutes to and from work.

Cycling is low-cost and has many other benefits including helping to provide enhanced mobility options, reducing car dependency and lowering CO<sub>2</sub> emissions. It can also provide health, wellbeing and financial benefits for individuals. However, cycling can sometimes seem less practical for some due to perceived (or actual) barriers such as distance and time constraints, as well as environmental factors (such as Albany's hilly terrain and weather conditions).

Cycling is already booming, with hundreds of thousands of cyclists taking to WA's streets and paths every week. According to the 2017 National Cycling Participation Survey, 20.6 per cent of people residing in regional WA ride a bicycle in a typical week for any purpose (compared to 17.8 per cent of Perth residents). This increases to 27.4 per cent riding at least once in a typical month (compared to 24 per cent) and 41.1 per cent at least once in a typical year (compared to 42.1 per cent). The proportion of people riding for transport in regional WA was much lower than in Perth (17 per cent of those who rode in the last month compared to 41 per cent).

The City of Albany has a clear vision to transform Albany into one of Australia's primary cycling destinations. The *Cycle City Albany Strategy (2014-2019)* supports this vision and aims to improve cycling infrastructure, legitimise cycling as a mode of transport and improve the culture around cycling.

RAC wants to help make cycling a more convenient and realistic commuting option for those living in regional WA and believes e-Bikes are the key to unlocking more demand. The previous trial in Perth successfully showcased the potential of e-Bikes and this trial was an exciting opportunity to gain further insight and demonstrate their power in a regional city.

### What is an e-Bike?

An e-Bike, or power-assisted pedal cycle, is simply a bicycle with an electric motor and battery that provides assistance to the rider (up to a speed of 25km/hr), helping to take some of the effort out of cycling.

There are two categories of e-Bikes in Western Australia, those with a maximum power output of 200 watts and "Pedalecs" which comply with the European Standard EN 15194 and have a maximum power output of 250 watts.

These bikes are increasing in popularity around the world, with many people finding them a quick, convenient and easy way to get around. The global e-Bike market has expanded dramatically and it has been estimated that global annual sales will increase from around 32 million in 2014 to over 40 million in 2023<sup>1</sup>.

### What did the trial involve?

The trial was launched on Friday 30 September 2016. Over 10 weeks, from Monday 3 October 2016 to Sunday 11 December 2016, twenty employees from the two participating workplaces had exclusive use of an e-Bike for their commute to and from work, as well as any other trips they wished to make.

Three different models of e-Bike were used for this regional trial:

- > two that were city / urban e-Bikes, one of which had a step-through frame suitable for all types of riders (18 participants had city e-Bike models); and
- > an electric mountain bike, making cycling a more viable option for regional users who need to ride on unsealed roads (two participants had this model).

Participants were asked to complete before and after surveys and report their usage and experiences through weekly travel diaries<sup>2</sup>.

<sup>1</sup>Global annual sales of e-Bicycles are expected to exceed 40 million units by 2023. Retrieved from <https://www.navigantresearch.com/newsroom/global-annual-sales-of-e-bicycles-are-expected-to-exceed-40-million-units-by-2023>.

<sup>2</sup>All 20 participants completed the "before" survey and 17 participants completed the "after" survey.

**Safety induction**

To help the participants feel more confident and safer when cycling, all participants received the following as part of their induction:

- > a practical demonstration of how to use their e-Bike;
- > bicycle skills and on-road cycling training;
- > safety equipment (e.g. high visibility vests and ankle straps);
- > an induction booklet setting out procedures and important information (e.g. road rules of relevance to cycling in WA); and
- > useful resources (e.g. personalised journey planning maps).

**What were the key findings?**

Over the 10 weeks, almost 1,170 e-Bike trips were made by participants and around 60 per cent of which were for commuting purposes. The most frequently stated "other" purposes for e-Bike trips included fitness / exercise, for leisure / fun, and to go shopping.

Before the trial, a majority of the participant's commuting trips were made by car, either as a driver or passenger (85 per cent of all trips to and from work). During the trial, this reduced to 48 per cent on average over the 10 weeks and after the trial it dropped further to 41 per cent. This represents a significant 44 percentage point reduction when comparing the before and after trial data.

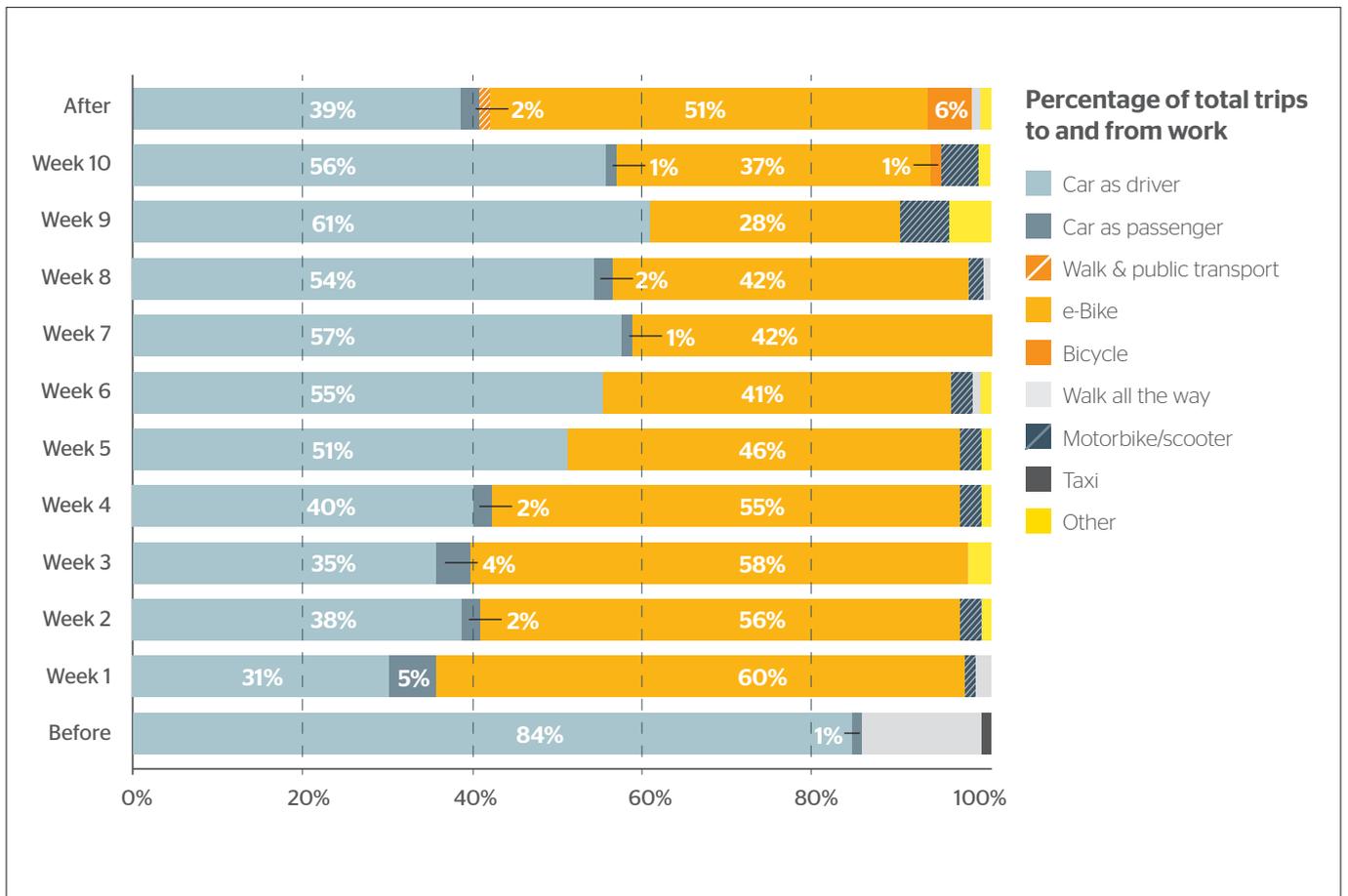


Figure 1 » Mode of travel for trips to and from work

While none of the participants reported cycling to and from work before the trial and 40 per cent noted that they never cycled for any purpose, over the 10 weeks, on average, almost half of all commuting trips were solely made by e-Bike. Usage of e-Bikes for commuting remained high throughout the trial, peaking at 60 per cent in Week 1 and dropping to 28 per cent in Week 9<sup>3</sup>. This high level of cycling was also sustained following the trial, with the after survey findings showing that 51 per cent of commuting trips continued to be made by e-Bike and an additional 6 per cent by regular bicycle (57 per cent in total).

In addition, over three quarters (76 per cent) of participants reported cycling for any purpose at least one to three times per week in the after survey compared to only 25 per cent indicating they did so more than once per month before the trial.

Participants reported the following personal benefits from their increased levels of cycling during the trial:

- > 10 of the 17 participants reported combined financial savings totalling an average of almost \$200 per week.
 

**“In the 10 weeks I managed to clock up 700km - that’s 700km of fuel I saved!”**

**City of Albany participant.**
- > 16 of 17 participants noted that they experienced a range of health and wellbeing benefits (including increased fitness, loss of weight and feeling less stressed after their commute).
 

**“A fantastic opportunity that has enabled me to make a significant change to my lifestyle!”**

**City of Albany participant.**

When it comes to intentions to maintain their newly established travel behaviour, the majority of participants that completed the after survey said they expected to continue

cycling more often than they did before the trial (8 of which said they were extremely likely to) and all said they were likely to drive less often (5 of which said they would likely drive a lot less often). To support these good intentions, during Week 7 participants were given the opportunity to purchase an e-Bike, with 14 of the 20 participants enjoying their e-Bikes so much that they took up this offer.



All of those who responded to the after survey were satisfied with their e-Bike experiences over the 10 weeks (with 14 out of 17 being extremely satisfied) and would recommend e-Bikes to family and friends as a commuting option.

In terms of what they liked most about their e-Bike, freedom and enjoyment, opportunities for fitness, and convenience for commuting were common themes. This is consistent with their top three reasons for e-Bikes usage (fitness and exercise, health and wellbeing and enjoyment and comfort). While some participants reported that the weight and power-assist functions of the e-Bikes took some time to adjust to when compared to a regular bicycle, in general, all participants who responded to the after survey disagreed that e-Bikes were difficult to use (with 13 out of 17 stating that they strongly disagreed).

Some participants also made observations about the quality of some bicycle paths and investment in on-road and off-road infrastructure emerged as the participants’ top two priorities for Government investment to encourage more people to cycle (consistent with the findings from the 2015 RAC Cycling Survey<sup>4</sup> and key strategies in the *Cycling City Albany Strategy*).



<sup>3</sup> Participants reported that the main reasons preventing them from using their e-Bikes more during Week 9 were illness and work and personal commitments requiring a car.

<sup>4</sup> RAC Cycling Survey 2015. A total of 5,657 responses were received from both RAC members and non-members. Of those who cycle, 90 per cent predominantly cycle in metropolitan Perth and 10 per cent in regional WA.

### Summary

As with the previous trial in Perth, the feedback received from participants during and after the RAC Regional e-Bike Trial was very positive and from this it is apparent that many now have a newfound, or re-ignited, passion for cycling that will continue.

“It has been an enjoyable experience that has enabled me to make cycling a regular part of my week.”

**City of Albany participant.**

“A fantastic experience that improved my health, allowed me to enjoy the outdoors more and take on a cycling challenge that I otherwise would not consider.”

**Department of Sport and Recreation participant.**

The trial has provided encouraging evidence of the potential of e-Bikes to enhance the attractiveness and convenience of cycling as a mode of transport for commuting in WA’s regional cities. We’re looking forward to exploring future opportunities to encourage and facilitate safe and responsible e-Bike usage and cycling more broadly.

### About the RAC

RAC works collaboratively with Government and other organisations to ensure our members and the community can move around our State safely, easily and in a more sustainable way. We give back by reinvesting our profits for the benefit of our members through projects aligned to RAC’s Mobility Agenda, such as the RAC Regional e-Bike Trial.



### Supported by:



Department of Sport and Recreation

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