Evaluation of the Cairns Brinsmead-Redlynch Connector Path

Prepared for Queensland Department of Transport and Main Roads

CDM RESEARCH

Contents

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Executive Summary

The Department of Transport and Main Roads (TMR) commissioned CDM Research to undertake an evaluation of the Brinsmead-Redlynch Shared Path in Cairns. The path extends over a distance of around 5 km between Brinsmead and Redlynch in the western suburbs of Cairns, cost around $2m and opened in mid-2014.

Two fieldwork activities were undertaken to obtain input data for the evaluation:

- video-based manual counts classified by mode, direction of travel and time of day over a sequential 7-day period (Saturday 8 October 2016 to Friday 14 October 2016), and
- intercept surveys with bikeway users undertaken over three weekday AM periods and two weekend days.

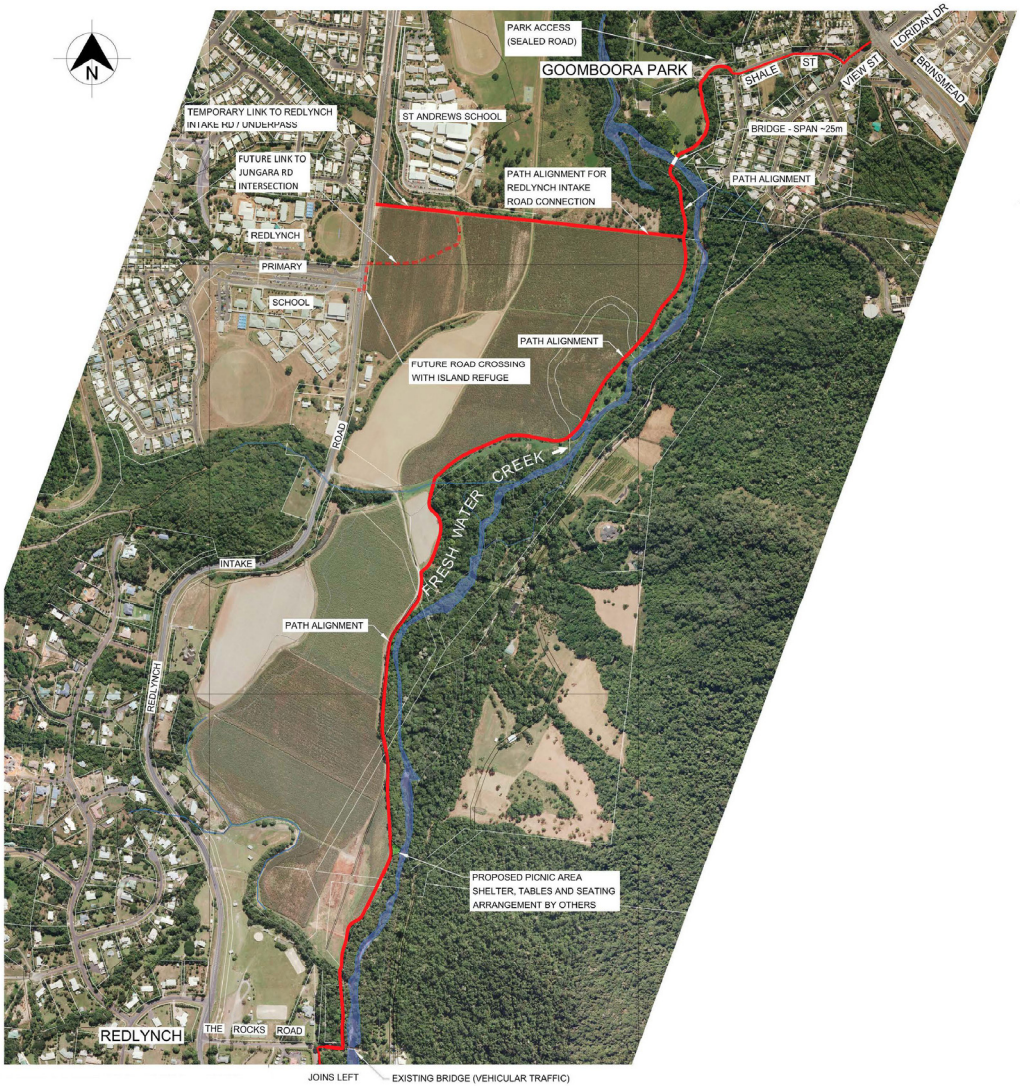
The data was input into a cost-benefit analysis to estimate the monetary project benefits. The key results of this evaluation were as follows:

- Average daily traffic to the north of the branch to St Andrews College of around 473 users, of which just over half (58%) are pedestrians. Average demand south of the branch was around 345 users between 5 am and 7 pm.
- Almost all pedestrians were using the path for fitness or recreation, compared with 69% of bicycle riders. Among bicycle riders 16% were travelling to education and 11% were commuting to work.
- The intercept surveys suggested there is very substantial active travel in the corridor that would not have happened without the path; 67% of recreational bicycle riders indicated they would not have travelled without the path, as would 55% of pedestrians walking for recreation. Furthermore, among transport bicycle riders just over half (52%) would have used a car for their journey if the path were not present.
- The average recreation cycling trip was about 15 kilometres, compared to 8 kilometres for transport. The average walking trip was 6 kilometres over 59 minutes.
- The user catchment is almost exclusively from the adjoining suburbs of Redlynch and Brinsmead.
- The cost-benefit analysis suggests the project represents excellent value for money; the BCR for the central discount rate of 7% was around 12.1. The benefits accrued primarily from health benefits for bicycle riders who would not otherwise have travelled, or would otherwise have used their car and from pedestrians who would not otherwise have walked for recreation. The benefits significantly outweigh the injury disbenefits.
- Path users were overwhelmingly positive towards the path. Suggested improvements generally involved drinking fountains, seating and better sharing between pedestrians, bicycle riders and dog owners.

1 Introduction

1.1 Background

CDM Research was commissioned by the Queensland Department of Transport and Main Roads (TMR) to undertake an evaluation of the Brinsmead to Redlynch Connector Path in Cairns. The path extends over a distance of around 5 km between Brinsmead and Redlynch and includes a branch to St Andrews School and Redlynch Intake Road (Figure 1.1). The path connects the two residential suburbs as well as St Andrews School, Freshwater Christian College, Redlynch State College and Goomboora Park. The project cost around $2 m and opened in June 2014.



■ **Figure 1.1: Brinsmead to Redlynch Connector Path (image: Cairns Regional Council)**

1.2 Methodology

This evaluation adopted a cost-benefit analysis (CBA) methodology as developed previously for TMR (CDM Research 2016). The CBA tool is implemented online[1]. The methodology requires a number of inputs, of which the most important are:

- average daily pedestrian and cyclist counts,
- average distances walked/ridden, and
- diversion rates and induced travel proportions.

The latter refer to the proportion of demand that:

- was already walking/riding before the project, and have changed their route to use the project,
- have diverted from other transport modes (e.g. private car, public transport), and
- all-new trips that would not have otherwise occurred in the absence of the project.

In order to obtain these input parameters two fieldwork activities were undertaken:

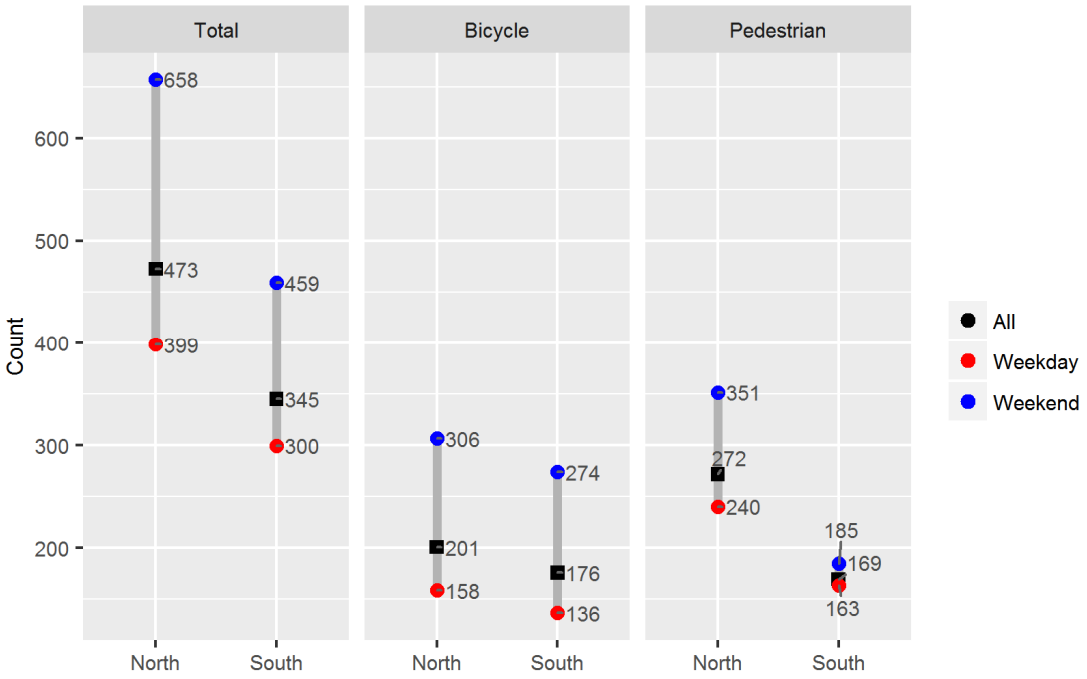
1. video-based manual counts classified by mode, direction of travel and time of day from 5 am to 7 pm between Saturday 22 October 2016 and Friday 28 October 2016 immediately north and south of the branch to St Andrews College, and
2. intercept surveys with bikeway users undertaken between 7:30 am and 10:30 am on Wednesday 9 November and Friday 11 November, from 4 pm to 7 pm on Thursday 10 November, 8 am to 11 am on Saturday 12 November and 4 pm to 7 pm on Sunday 13 November 2016.

This report first presents the summary data obtained from the fieldwork activities before then providing the output of the cost-benefit analysis.

[1] https://cdmresearch.shinyapps.io/ActiveTravelBenefits/

2 Counts

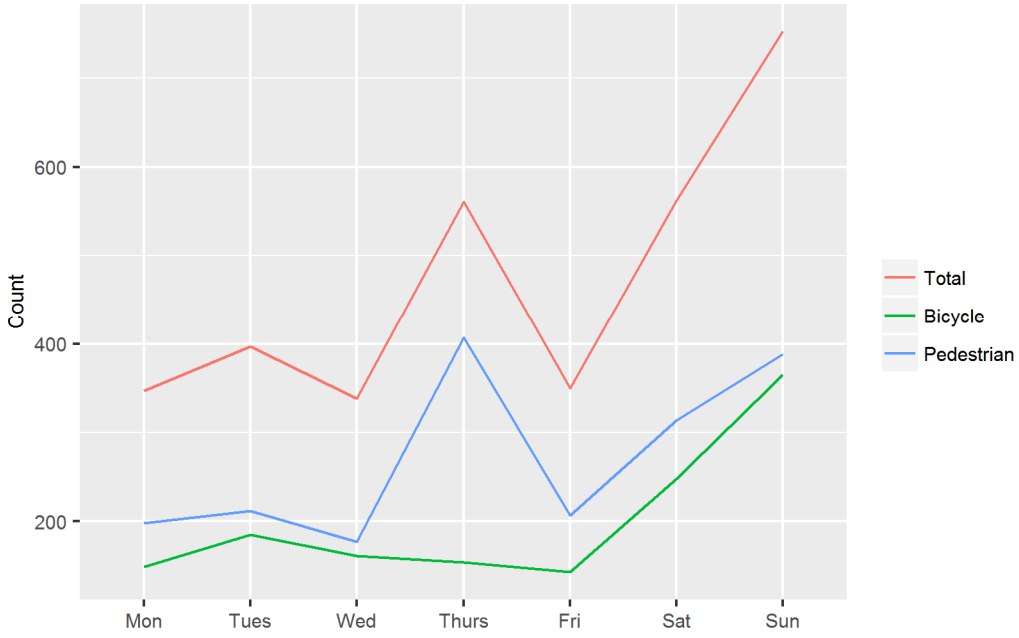
Path user counts were obtained immediately north and south of the branch to St Andrews School. Both locations are south of the Freshwater Creek crossing and Goomboora Park. The average daily count north of the branch was 473 users, of which just over half (58%) were pedestrians (Figure 2.1). The average count was significantly higher on weekends than weekdays for both bicycle riders and pedestrians. The path was about a third busier north of the branch than to the south, attributable mainly to higher pedestrian demand to the north.



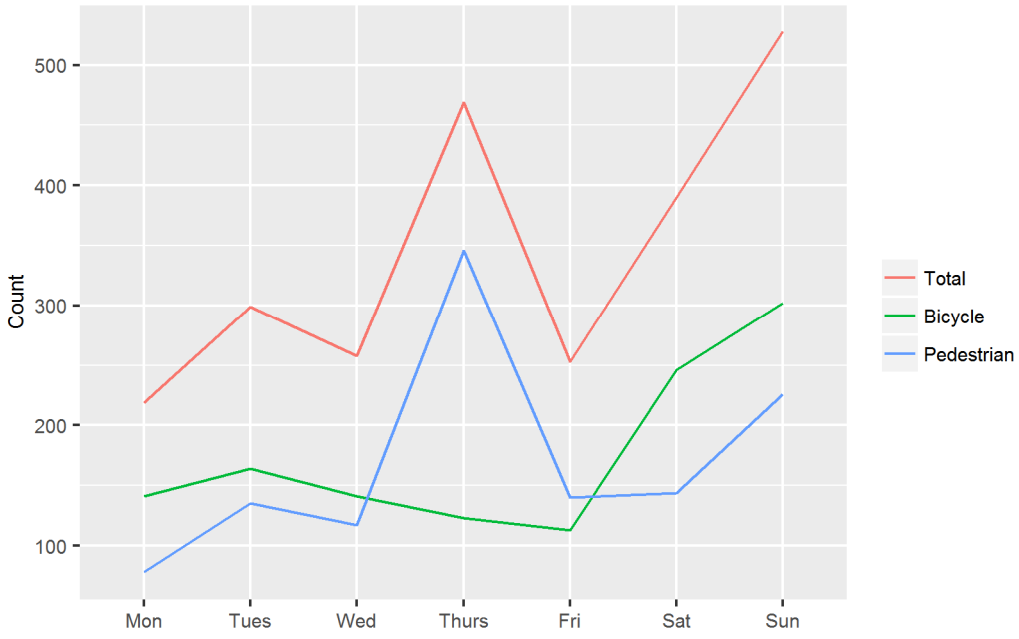
■ **Figure 2.1: Average count by mode and day of week (5 am – 7 pm)**

The counts by day of week fluctuated markedly, as shown in Figure 2.2. The pedestrian count north of the branch varied from a low of 177 on the Wednesday to a high of 407 on the Thursday. The bicycle rider count north of the branch was lowest on the Friday (143 riders) and highest on the Sunday (365 riders). The time of day profile suggests demand is strongest on weekday mornings and afternoons (Figure 2.3). The higher demand on the Thursday was attributable to a school group walking along the path (Figure 2.4).

There are three automatic cyclist and pedestrian counters on the path, one of which is located immediately south of the branch adjacent to the location of one of the cameras used for the manual counts. A brief comparison of the automatic counts against the manual counts are provided in Appendix C.

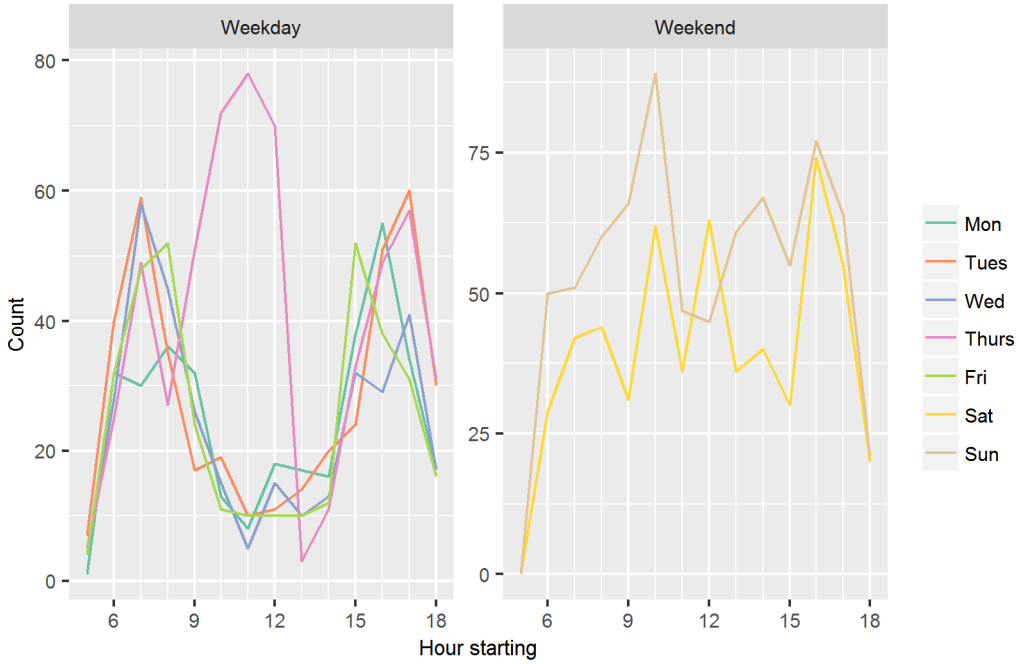


(a) North of the branch



(a) South of the branch

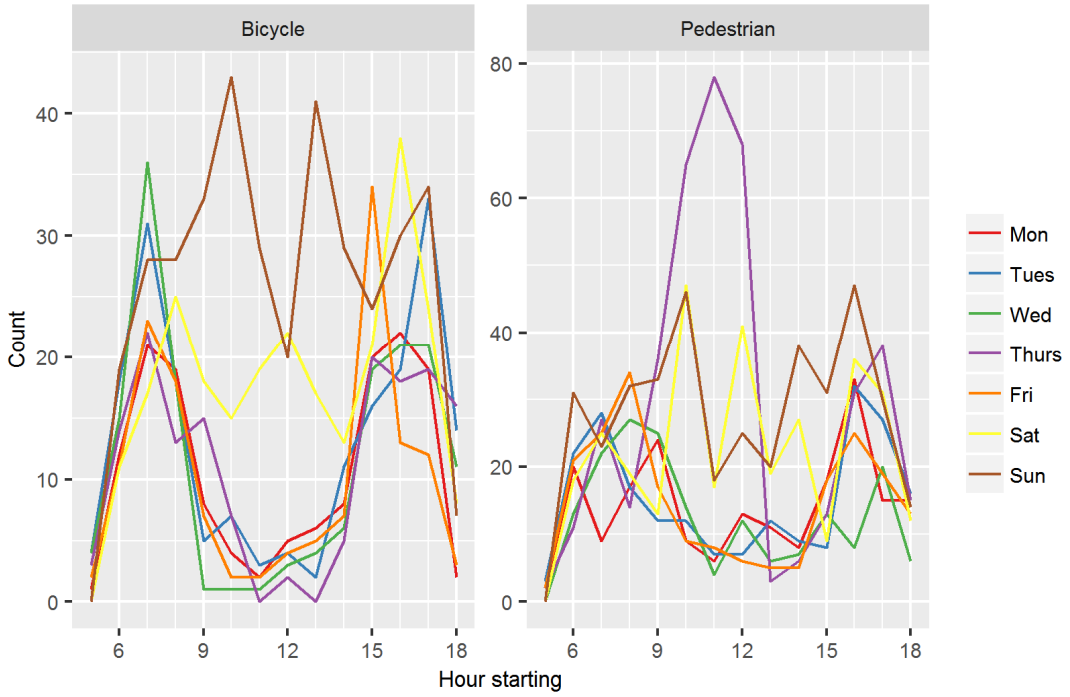
■ Figure 2.2: Day of week by mode



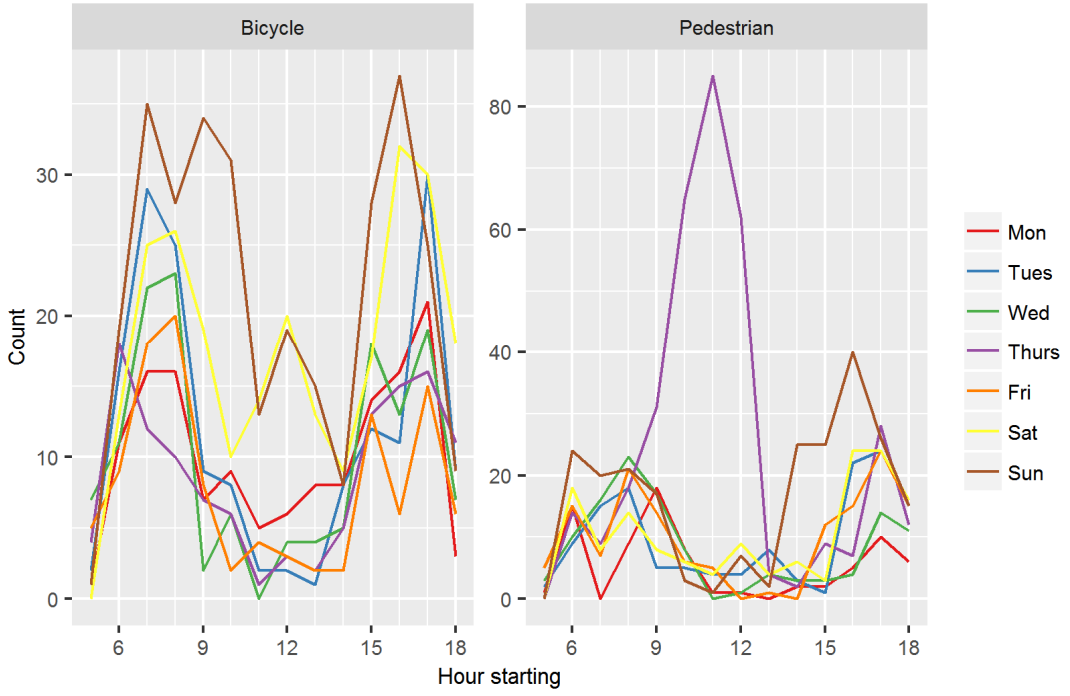
(a) North of the branch

(b) South of the branch

■ Figure 2.3: Time of day by day of week (hourly bins) for all modes



(a) North of branch



(b) South of branch

Figure 2.4: Time of day by day of week and mode (hourly bins)

3 Intercept surveys

Intercept surveys were conducted with path users north of the branch near Freshwater Creek between Wednesday 9 November and Sunday 13 November 2016. A total of 171 complete interviews were obtained, of which 96 (56%) were pedestrians and the remainder were bicycle riders.

Transport users (who were almost exclusively bicycle riders) were more regular users of the path than recreation users; 42% of transport users used the path at least every weekday compared with 17% of recreation users (Figure 3.1).

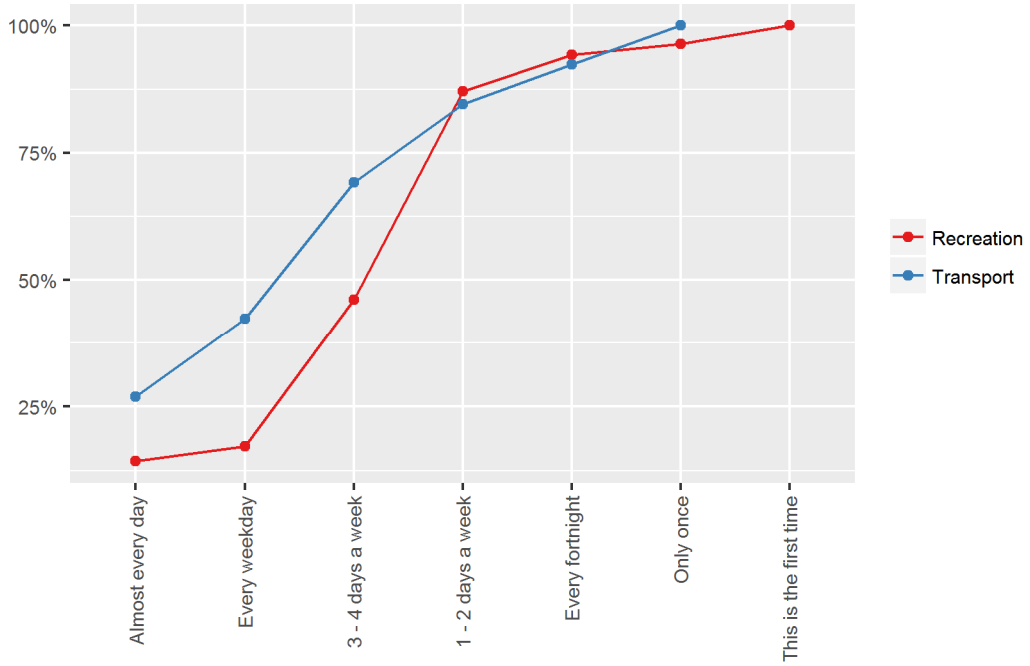
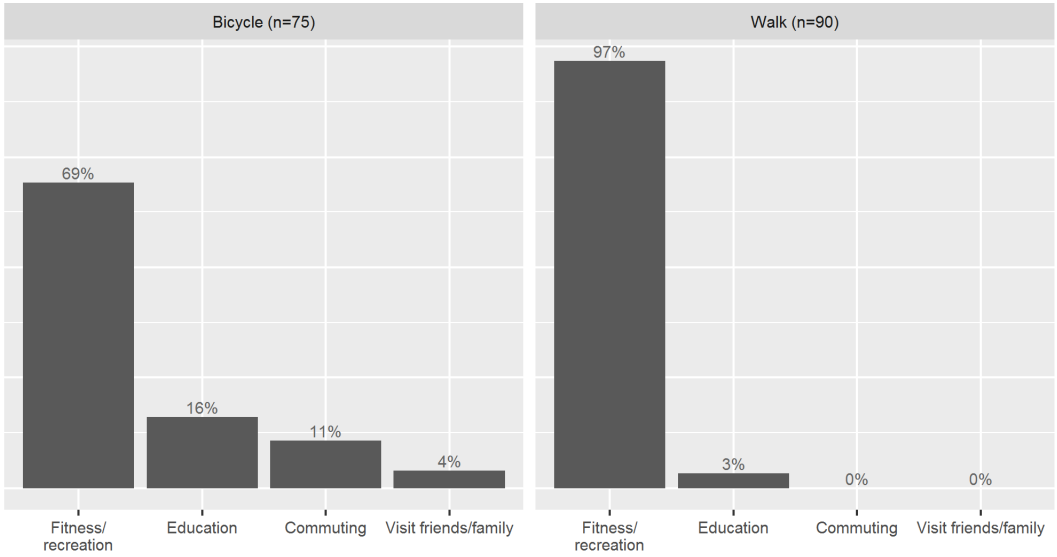


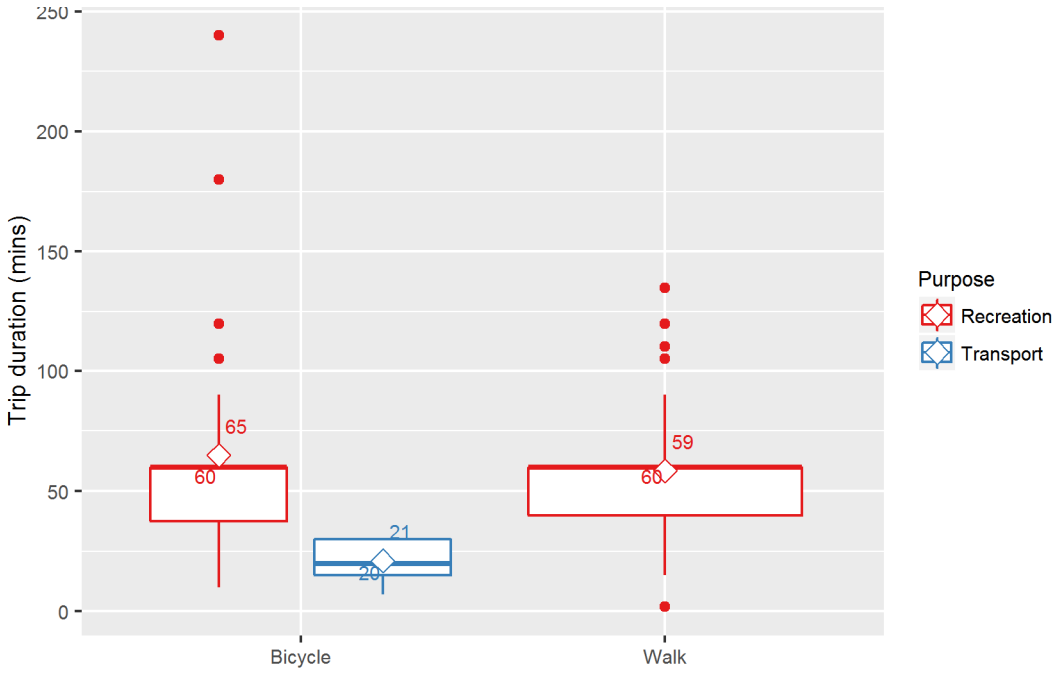
Figure 3.1: Frequency of use by mode (graph is cumulative from left to right)

Almost all pedestrians subject to the interview were walking for recreation or exercise (97%) compared to 69% of bicycle riders (Figure 3.2).

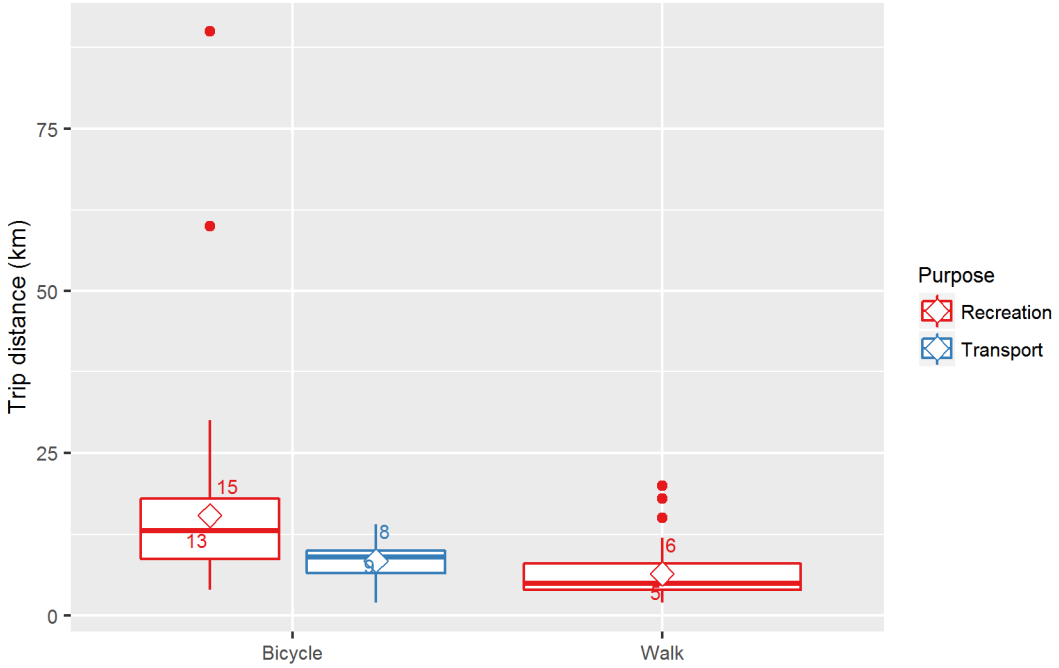


■ **Figure 3.2: Trip purpose by mode**

The average bicycle trip for recreation had a duration of 65 minutes (Figure 3.3) over 15 kilometres (Figure 3.4). Transport cycling trips were shorter on average (21 minutes over 8 kilometres). Walking trips for recreation lasted on average 59 minutes over 6 kilometres.



(c) Figure 3.3: Trip duration by mode and purpose (diamonds are means, lines are medians)



(d) Figure 3.4: Trip distance by mode and purpose (diamonds are means, lines are medians)

The trip origin and destination suburbs by purpose for cycling trips are illustrated in Figure 3.5 for recreation trips and Figure 3.6 for transport trips. The predominant trip flows are as follows:

- Just over half of all recreation cycling trips (55%) started and finished in Redlynch, followed by Brinsmead (18%) (Figure 3.5).
- The majority of transport cycling trips were within Redlynch (39%) or between Redlynch and Brinsmead (22%) (Figure 3.6).

For recreational walking trips (which consist of almost all walking trips) 63% started and finished in Brinsmead, with most of remainder (27%) starting and finishing in Redlynch.

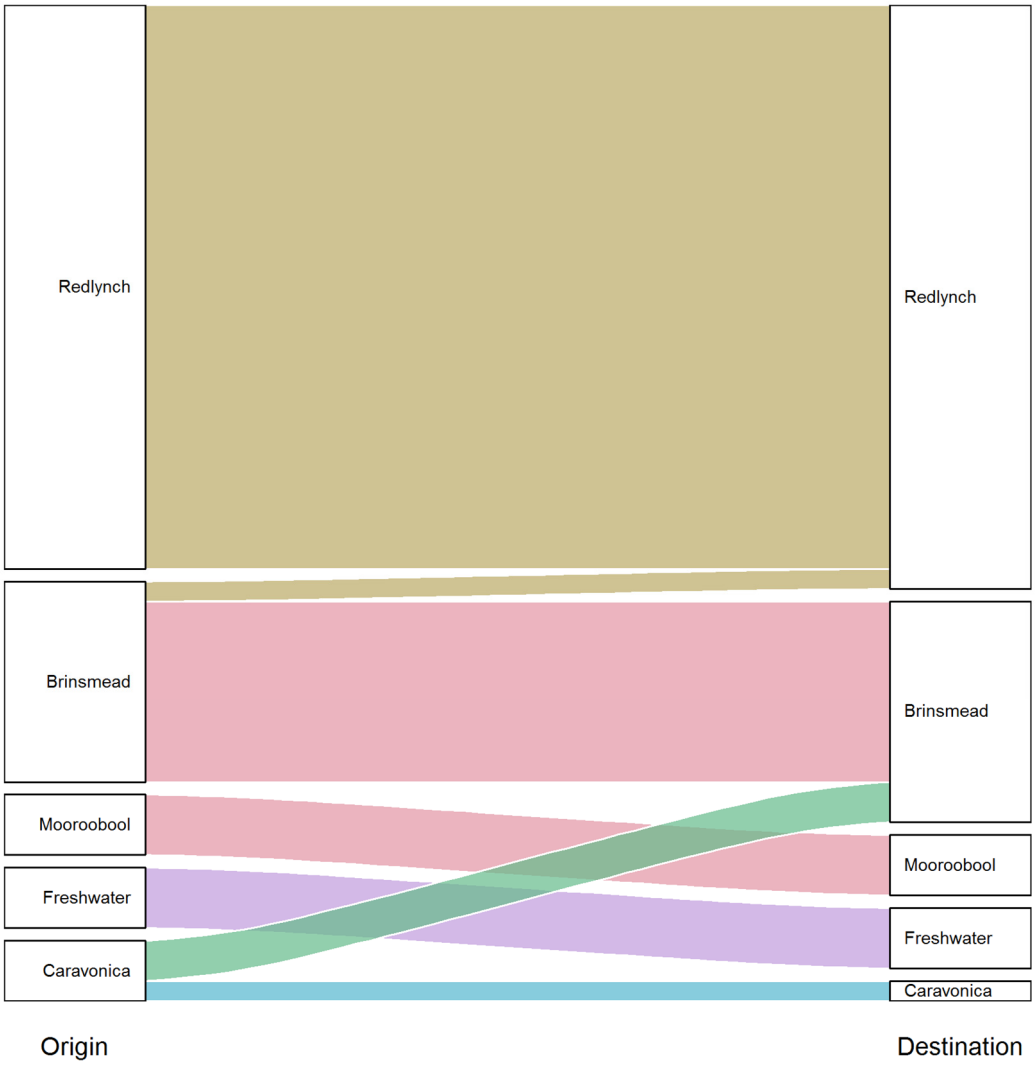


Figure 3.5: Origins and destinations of cycling trips for recreation (n=51)

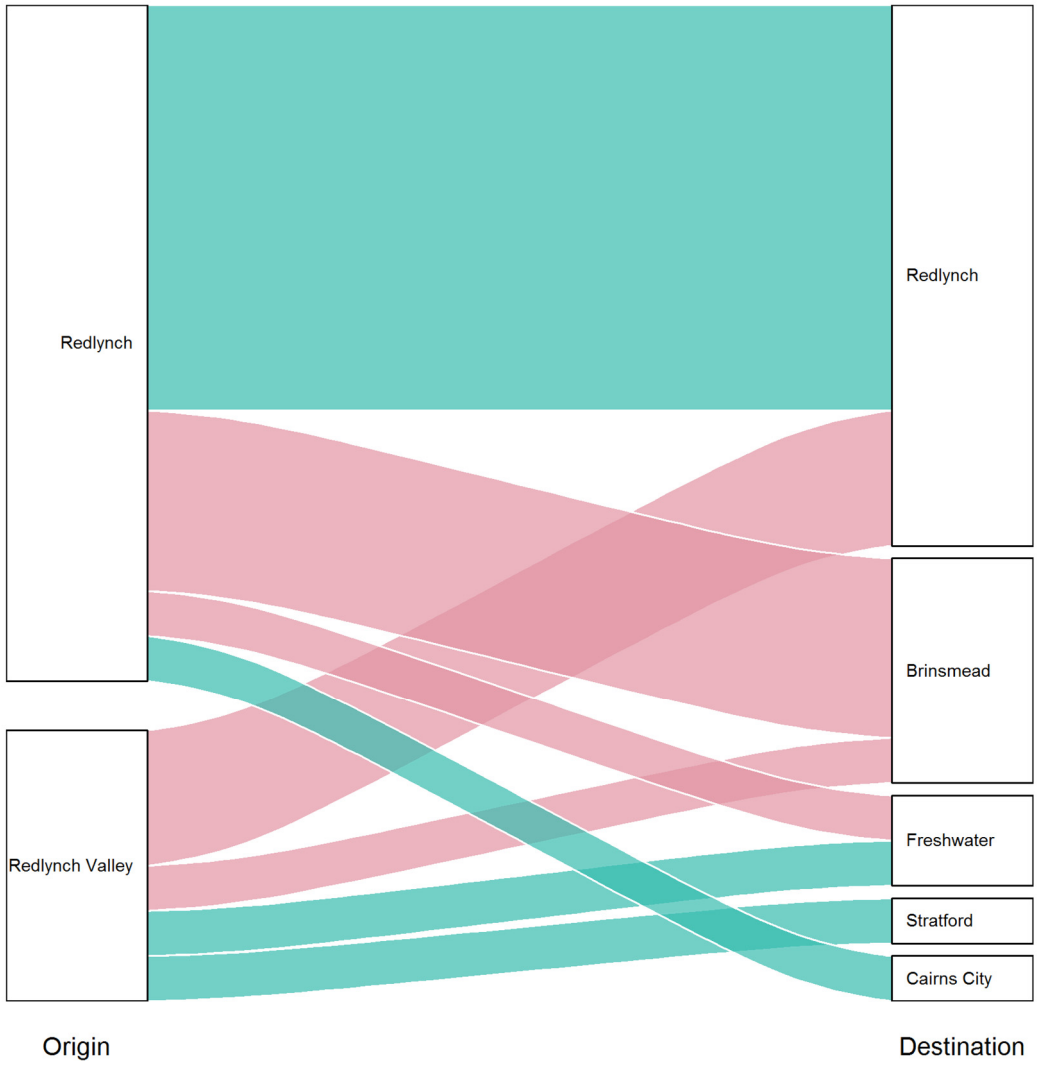


Figure 3.6: Origins and destinations of cycling trips for transport (n=23)

Respondents were asked what they would have done for their trip if the path were not present. Just over half of transport bicycle riders (52%) would have used a car, either as a driver or passenger (Figure 3.7). Around 30% would have ridden irrespective, but used an alternative route. For recreation riders two thirds would not have travelled at all, suggesting there may be some health benefit accruing to this group. Among pedestrians just over half would not have travelled, with the remainder taking a different route. These results are markedly different from those observed at other locations where this survey has been undertaken, most notably because the proportion of users who would have taken a different route is much lower than at those other locations. We suggest this is a particularly significant finding, which we attribute to the absence of a viable alternative prior to the construction of the path and the latent demand among residents for active transport infrastructure.

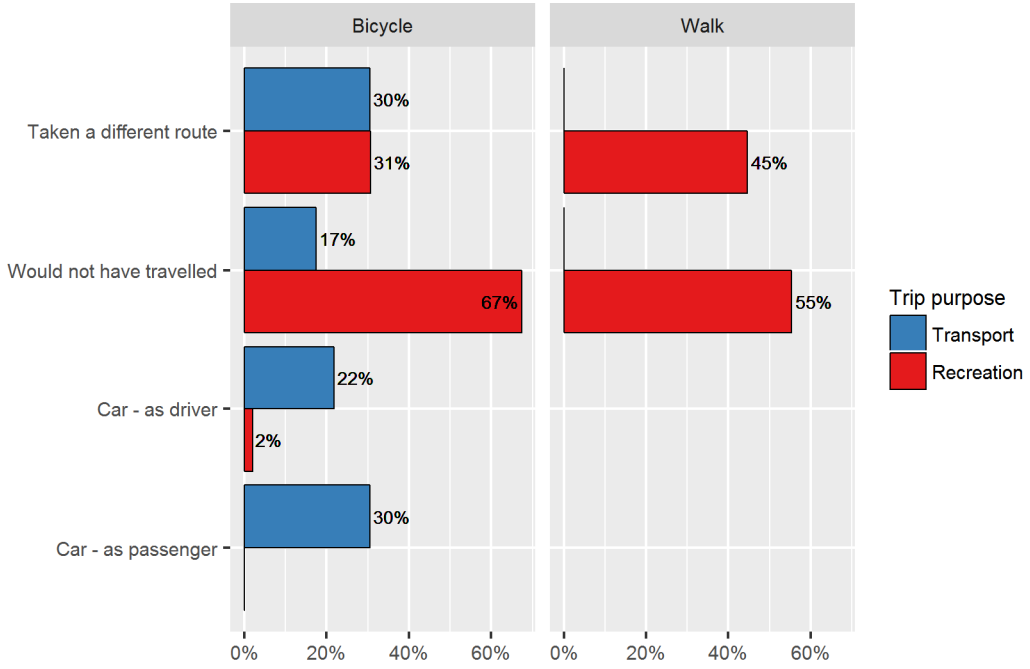


Figure 3.7: What would you have done if this bikeway was not here?

Bicycle riders were asked what they would have done if they could not have used their bicycle for their trip. The most frequent response among those riding for recreation was that they would not have travelled (81%) (Figure 3.8). Among transport riders most would either have used a car as a passenger (48%) or as a driver (30%). These findings are broadly consistent with Figure 3.7 and suggest both that there are significant physical activity benefits and mode shift occurring from private car.

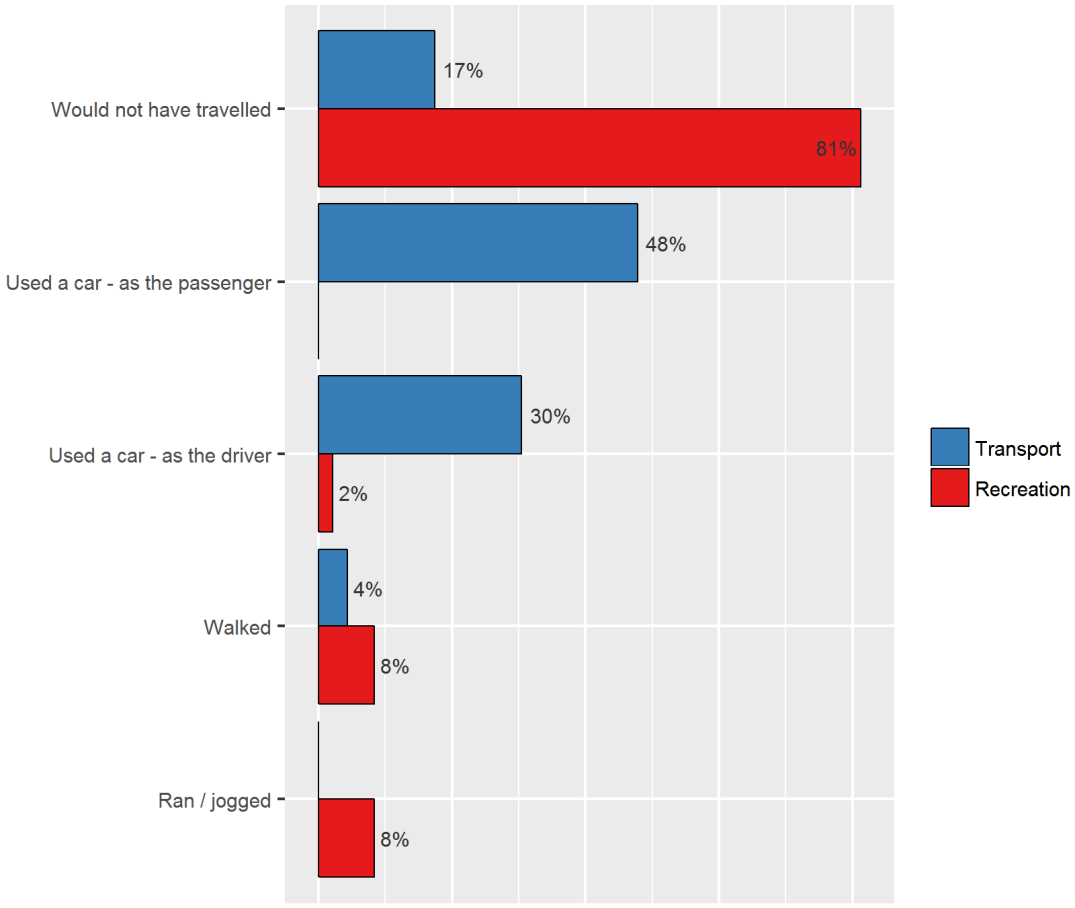


Figure 3.8: What would you have done if your bicycle was not available for this trip?

Respondents were invited to offer any other thoughts at the completion of the survey. Respondents almost universally indicated strong support for the path, with many citing the scenery, shade and safe distance from roads as important attributes (Appendix B). Pedestrians frequently suggested the following improvements:

- drinking fountains,
- seating, and
- speed management for bicycle riders.

Bicycle riders most often suggested:

- improved notification about impending closures for cane cutting[2],
- path slipperiness after rain or where vegetation falls onto the path, and
- dogs on leashes.

[2] The path was closed for several days in the weeks prior to the survey for cane cutting.

4 Cost-benefit analysis

The cost-benefit analysis framework as described in CDM Research (2016) was used to estimate the monetary benefits against the costs of the project. The key elements of this framework are:

- broad consistency with the current national guidelines (Transport and Infrastructure Council 2016),
- 30-year economic life with no residual value at the end of the appraisal period,
- estimates mortality and morbidity health benefits using a willingness to pay methodology for valuing statistical life,
- no safety in numbers effect,
- 80% of bicycle travel in the area occurs on-road without provision, 5% on-road with bicycle lanes, 10% on off-road shared paths and 5% on footpaths,
- relative risks for bicycle lanes of 0.5, off-road shared paths of 0.3 and footpaths of 1.8 (all relative to on-road with no provision),
- cumulative annual demand growth of 3%,
- rule-of-half applies to the willingness-to-pay component of health costs, vehicle operating and parking costs, PT fares for all users and travel time savings for new users only,
- Monte Carlo simulation to represent parameter uncertainty,
- capital and operating cost estimates to +/-10% at 95% confidence level, and
- demand estimates to +/-20% at 95% confidence level.

The input assumptions to the cost-benefit analysis are summarised in Table 4.1, and are based wherever possible on the survey data.

Table 4.1: Economic assumptions

Parameter	Assumption	Source
General assumptions		
Economic life	30 years	
Discount rate	3%, 7%, 10%	
Health benefit ramp-up period	5 years (linear)	Genter et al. (2009)
Effective average motorist speed	30 km/h	Estimate
Effective average cyclist speed	20 km/h	Estimate
Effective average walking speed	6 km/h	Estimate
Effective average PT speed	15 km/h	Estimate
Bicycle riders		
Opening year demand (AADT)	201	Video counts north of branch
Average trip distance	13.3 km	Intercept surveys
Diversion: car	18%	Intercept surveys
Diversion: PT	0%	Intercept surveys
Diversion: walk	0%	Intercept surveys
Diversion: reassign	31%	Intercept surveys
Diversion: induced	51%	Intercept surveys
Transport purpose split	26%	Intercept survey
Change in trip distances	0 km	Assume no change
Pedestrians		
Opening year demand (AADT)	272	Video counts north of branch
Average trip distance	6.5 km	Intercept surveys
Diversion: car	0%	Intercept surveys
Diversion: PT	0%	Intercept surveys
Diversion: reassign	45%	Intercept surveys
Diversion: induced	55%	Intercept surveys
Transport purpose split	3%	Intercept survey
Change in trip distances	0 km	Assume no change
Facility		
Length	5 km	Full path
Type	Off-road path	
Diverted motor vehicle travel time by period	Busy: 10%	Guesstimate

Parameter	Assumption	Source
	Medium: 30% Light: 60%	
Investment		
Capital cost	2014: $2 m	TMR
Operating cost	$10,000 p.a.	Guesstimate

The results of the cost-benefit analysis are summarised in Table 4.2. For the central discount rate of 7% the BCR is 12.1, indicating excellent value for money.

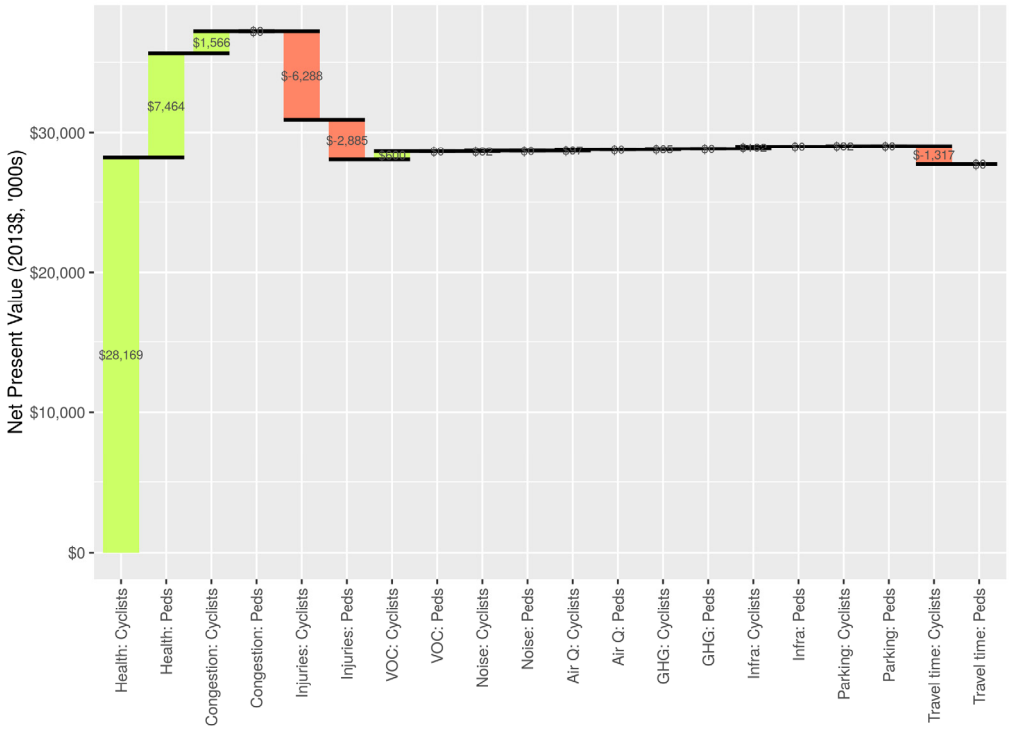
Table 4.2: Economic assessment

	Discount rate		
Parameter	**4%**	**7%**	**10%**
Benefit-Cost Ratio (BCR)	18.3	12.1	8.5
Likelihood BCR < 1.0	0%	0%	0%
Net Present Value (NPV)	$39.7 m	$25.4 m	$17.1 m
Present Value of Benefits (PVB)	$42.0 m	$27.7 m	$19.4 m
Present Value of Costs (PVC)	$2.3 m	$2.3 m	$2.3 m

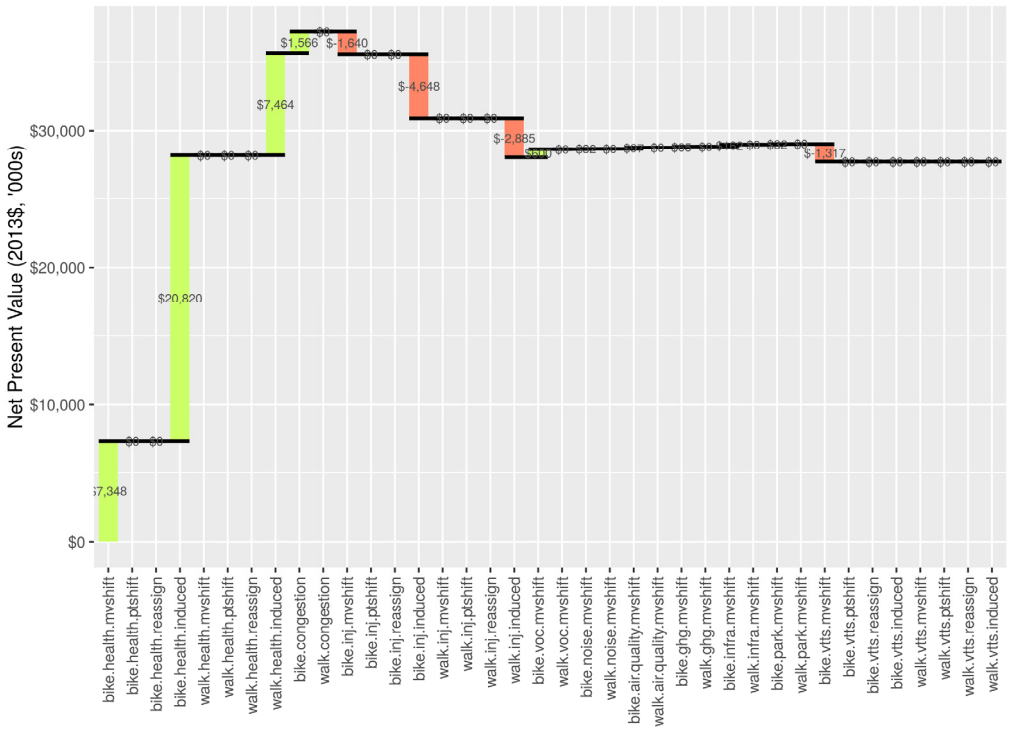
All values are 2013 prices and values.

The breakdown of the NPV for the central discount rate is shown in Figure 4.1. Almost all benefits accrue from health benefits to cyclists and pedestrians. These benefits are attributable to induced (i.e. all new) cycling trips followed by riding trips that would otherwise have occurred by motor vehicle and induced walking trips (Figure 4.2). Most disbenefits are associated with an increased injury burden. We would expect there to be additional cycling injuries due to the additional induced travel, and in shifting from car to cycling[3]. Much of the additional cycling exposure will not occur on the path itself but rather on paths and roads leading to and from the path. As many of these roads lack dedicated cyclist provision we may reasonably expect an increased injury burden because of crashes involving motorists and bicycle riders. However, as illustrated in these figures, the health benefits very significantly outweigh the injury disbenefits.

[3] The model assumes, based on the limited crash and exposure data available, that the injury risk associated with riding is greater per distance travelled than driving a motor vehicle.



(e) Figure 4.1: Summary breakdown of net present value



(f) Figure 4.2: Detailed breakdown of net present value

5 Discussion

The user surveys indicated overwhelming support from users for the path. Furthermore, the cost-benefit analysis suggests the project represents excellent value for money. We attribute the very high BCR to the following factors:

- very low project cost of $2 m for around 5 km of path,
- very high level of induced walking and riding for recreation, which in turn leads to higher physical activity and improved health outcomes, and
- high level of mode shift away from private car to bicycle riding for transport trips.

Moreover, the path was observed to have relatively high levels of usage by comparison to other paths in outer suburban and regional areas. We suggest this demand can be attributed to the absence of attractive alternative routes in the corridor and the favourable demographics of the local population. Specifically, we suggest the presence of young families and young to middle aged adults with an interest in physical activity are contributing to the comparatively high levels of usage. Together, these factors all conspire to produce the highly favourable BCR. The levels of induced travel and mode shift away from car are very high in comparison to most other active travel projects to which this methodology has been applied, suggesting that this project has been particularly effective in increasing the level of physical activity among the local community.

It is notable that the path usage cannot be attributable to supply-side constraints on car travel; there is minimal traffic congestion in the area and ample free car parking. This contrasts with the inner suburban areas of larger cities where such constraints are likely to play a role in encouraging riding and walking for transport. Moreover, the path provides a far more direct connection between Redlynch and Brinsmead than the pre-existing road network. However, we would reiterate that almost all walking demand (97%) and most cycling demand (69%) is for recreation purposes for which car substitution is unlikely to be an issue. Nonetheless, there does seem to be evidence to suggest that there has been some shift away from driving to school or work because of the path.

We suggest the positive community sentiment in combination with the highly favourable BCR provide very strong support for the investment in the project. Not considered in this evaluation, but further supporting the investment, is the notion of spatial equity whereby it could be argued that areas with a clear deficiency of active travel options, such as this corridor, warrant investment irrespective of the cost-benefit analysis.

References

CDM Research. 2016. 'Measuring the Benefits of Active Travel'. Prepared for Queensland Department of Transport and Main Roads.

Genter, J. A., S. Donovan, B. Petrenas, and H. Badland. 2009. 'Valuing the Health Benefits of Active Transport Modes'. Research Report 359. Wellington, N.Z.: NZ Transport Agency.

Transport and Infrastructure Council. 2016. 'Australian Transport Assessment and Planning Guidelines: M4 Active Travel'. http://atap.gov.au/mode-specific-guidance/active-travel/files/m4_active_travel.pdf.

Appendix A: Intercept survey script

We're completing a quick survey on the path. Could you help us?

1. INTERVIEWER enter mode of travel
    a. Bicycle rider
    b. Pedestrian
2. In what suburb did you start your trip, and where will you finish your trip?
    a. Start: _____
    b. Finish: _____
3. How long will the trip take?
    a. Hours: _____
    b. Minutes ____
4. How far is the trip?
    ____ km
5. What is the purpose of your trip?
    a. Commuting to or from work
    b. Fitness, recreation or sport
    c. Shopping
    d. School, university or other education activity
    e. Other: _____
6. How often have you walked/ridden here in the past month?
    a. Almost every day
    b. Every weekday
    c. 3 – 4 days a week
    d. 1 – 2 days a week
    e. Every fortnight
    f. Only once
    g. This is the first time
7. This bikeway has only recently been built. Are you aware that it's new?
    a. Yes
    b. No
8. How would you have made this trip if this bikeway wasn't here?
    a. Taken a different route (incl. used the road)
    b. Would not have travelled

c. Car – as driver
d. Car – as passenger
e. Motorcycle
f. Train
g. Bus
h. Ferry
i. Taxi
j. Don't know
k. Other: _____

9. What change, if any, would you say the construction of the bikeway has had on the amount of time you've spent walking/riding over the past month?
    a. Significantly decreased (by at least an hour a week)
    b. Decreased (by less than an hour a week)
    c. No change
    d. Increased (by less than an hour a week)
    e. Significantly increased (by at least an hour a week)
10. IF BICYCLE RIDER: What would you have done if you couldn't ride your bike for this trip?
    a. Would not have travelled
    b. Used a car – as the driver
    c. Used a car – as the passenger
    d. Motorcycle
    e. Train
    f. Bus
    g. Ferry
    h. Taxi
    i. Walked
    j. Ran / jogged
    k. Don't know
    l. Other: _____
11. IF TRANSPORT PURPOSE: Which of the following best describe how easily you could have used a car for this trip?
    a. I had a car available and could easily have got access to it
    b. I could have got a car from another person where I started my trip (e.g. another household member)
    c. I did not have ready access to a car to make this trip
    d. I do not have a drivers licence
    e. Other: _____

12. IF COULD HAVE USED CAR: Would it have taken more or less time to reach your destination by car?
    a. More time
    b. Same time
    c. Less time
13. IF TRANSPORT PURPOSE: Which of the following best describes how easily you could have made this trip by public transport?
    a. I had a convenient public transport alternative
    b. I had a public transport alternative but it would have taken longer
    c. I did not have a viable public transport alternative
    d. Other: _____
14. IF COULD HAVE USED PUBLIC TRANSPORT: Would it have taken more or less time to reach your destination by public transport?
    a. More time
    b. Same time
    c. Less time
15. INTERVIEWER enter any other comments: _____

Appendix B: Verbatim comments

Pedestrians:

Track safe. Worry about snakes
Brilliant!
Cyclists too fast ... education.
Gets slippery after rain when leaves fall on path - more checks after bad weather
After the wet with leaves on the path it gets slippery. Love the path. Refreshing.
Love the natural surrounds. Are they going to turn the old cane field bordering the path into parkland? That would just cap a good thing!
Seats and water stations would be good thing other than that fantastic
The incline is great for oldies
Water taps would be great for drinking
Seats for the older folk along the way
Art would be nice
Thanks to the council for the great path
Drink fountains would be great
Don't like the path prefer to walk my dog on the bush paths...becoming too commercial.
Solar lighting maybe.
Emergency zone with phone in case of accident.
Cyclists travel too fast need speed humps or something
Best walking I've seen in Australia. Drinking fountains would be good solar pumps older person seating.
Positive in general. Like the nature. It's the only place where you can let your dog for a swim. Please don't change that!!!
The road is too dangerous to ride on - should include shoulders on the road.
Dogs should be on leads - this interviewee has crashed because of a dog running in front of him
Cyclists going too fast - need a speed limit
Cyclists being aggressive
Happy - convenient
Would like a creek path or even just sections of it
Absolutely loves the path
Wish it showed up on google maps so more people knew about it
Biological info boards about the ecology and animals of the area would be nice for kids
Speed limit for cyclists
Caution: children signs would be helpful
Arrows painted on the path to show which way to go in each lane
Great that it's away from traffic
Love it.
Path is a great safe place
It'd be great if the path looped around
Get rid of graffiti

More care of picking up rubbish and more rubbish bins along the path
Few more seats
Better access and maintenance of creek bed - all overgrown and not safe to walk in places
More signs about people not picking up poo - dog bag stations
Gorgeous shady safe
Flat peaceful coffee cool waters
Beautiful. Shady. Cool. Lovely walk
Scenic flat cool shady thanks to Linda cooper
Social / scenic / flat / cool
Complaint about dogs not on leashes on the path. Particularly later in the day.
Peaceful. Annoyed by dogs off leash. Shady.
Excellent path. Does path twice a day almost every day.
Shady flat safe friendly
Owner of local caravan park. Says that if we did this survey in peak season we would get a lot more people. She tells tourists to walk here.
No traffic. Fast bikes annoying. Happy people.
Would be nice to have a fenced dog run strip along side the path so dogs could run free without interfering with cyclists and pedestrians.
Easy access. Good water hole.
Request for cyclists to use bells when behind.
Love it. Peaceful. Loves the water. More signs dogs on leash. Cyclists too fast racing.
Supposed to be recreational.
Redlynch side to the north water runs over path. Gets muddy -- slip hazard!!
Great place
Arrogance of cyclists complaining about dogs being off leads...
Nice place to walk the dog. Nice and flat and safe (walking cane & old dog) bikes go too fast
Good jogging but fence should be moved over so there is a grassed edge to jog on
Pushbikes should be segrated from pedestrians mo
Good path. Better than the track before
Love the track thanks - jogger
Safe for kids. Wish there more paths. Speed cyclists need a speed limit!! Going way too fast.
Lighting at night
More advertised/ signage - more locals should know about it
More paths like it
Safe path. Cyclists go way too fast. Need speed limits
Dogs on leashes please
Terrific. Love the walk.
More shade in the afternoon
Grass needs to be slashed on the edges because of snakes please
Snakes in the long grass by the cane - needs mowing
Lovely path. Safe. Flat.
Would have used the esplanade. Park should open earlier than 6am so that we can park safely.

Fantastic. love being off the road. The nature.
Fantastic. Love the nature. No traffic.
Great. Fantastic. Looking forward to an extension. More distance between cane field and path .... obscures vision in places. Bad people could hide in there and snatch or harass kids or women
Would be lovely of there was a bridle path for the horses which had been closed off to us now. A segregated path for dogs off leash and horses. Bikes travel too fast.
If it weren't here would have used the esplanade. This is great
Very safe and flat for us old people to walk. I'm playing in the geocache game. Going to find the cache I left here last year.
Convenient path for my studies of bird life
Love the path! Cool shady. Close to nature. Wide enough. Well maintained.
Drink stations please. Signage for trees fauna etc. Bench seating in little stopping bays.
Trees and park on the opposite side of path too. Cyclists travel too past.
Awesome. Water fountains. Benches.
Arrows for pedestrians. Otherwise very nice
Fantastic! Will come back and do the whole loop with the kids. Drove from gordonvale
Don't want the housing estate. Path is wonderful
Water stations please. Running.
Needs speed humps for the racing cyclists!! And water stations please.
Nice flat track. Needs a few more seats. More doggie bag stations.
Come from Whitfield. Looking forward to coming back!
Come from Smithfield. Very good thing!

Bicycle riders:

Best thing Linda Cooper ever did. Terrific. Frustration is when they cut the cane... road closed without warning. Could do with wider path on the southern side.
Annoying when cane is cut and there is a mess on the path. Also please some system of notification for when cane is cut and path is inaccessible.
Redlynch valley end of path needs widening
Cops some abuse from pedestrians - believes path should be for everyone.
Extend it to crystal cascades
Slippery with vegetation and rain. But a good thing other than that. Appreciate it.
Don't want public transport because it brings outsiders into the Redlynch Valley.
Don't build up right to the path.
Beautiful
Don't build in the cane fields!!
Needs better flood management.
Cane field should be park land instead
Dogs off leashes
Motorbikes shouldn't be on here! Sees them occasionally
If people could be more courteous of horses on the path - participant has had several incidents when people are really rude and unpleasant
Dogs need to be on leashes
Convenient picturesque shortest way home

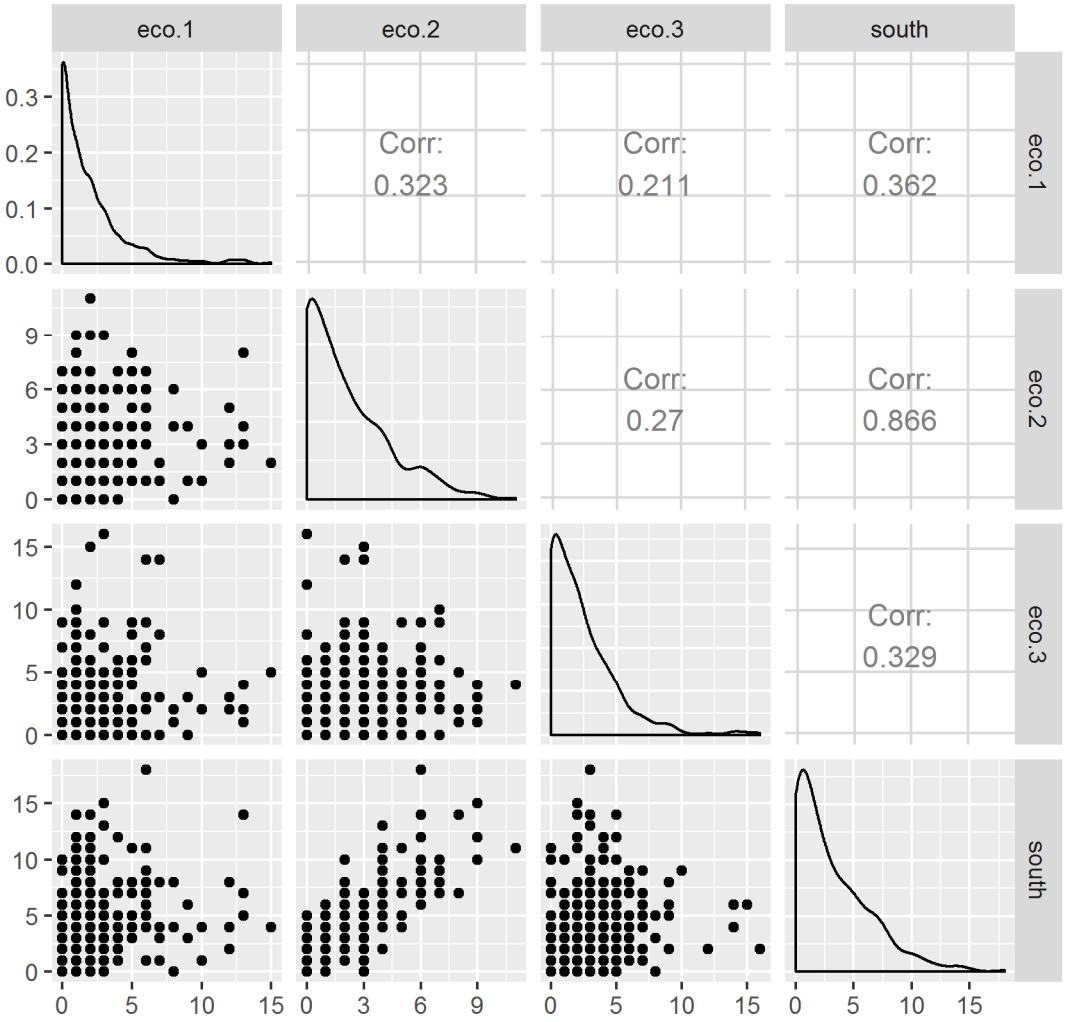
Easy access great ride good exercise
Beautiful. Shady. Good interaction between dogs and pedestrians.
Dogs on leads please. People should use bells when overtaking. Cameras please after recent mugging
Scenic
Buses would be great - there is limited public transport.
Dogs not on leads. Near collisions.
Spotted a cassowary recently.
Beautiful track.
Good flat safe
Complaints about lack of public transport.
Nice and shady.
Fun shady flat
Track needs regularly cleaning - particularly after rain when there is water over the track - or a drain installed.
Lights please.
Dogs on leads please.
Shade in the afternoon please more trees.
Beautiful path.
Tree roots have made the concrete unstable in places - needs maintenance.
More visibility around tight corners.
Convenient
Bad erosion - currently completing a school project about the safety risks, has already contacted the council. Says that the drop off from the path was only about 10 cm away in places.
Wouldn't have bought the bike if it weren't for the path. Convenience. Peaceful. Dogs not on leads a problem.
Dogs off leash - creates a hazard.
Path needs to cater for dogs off leash. With the fence put up now dogs can't go on the grass to sniff and walk. Pedestrians wander and bikes go too fast so there have been some near misses.
Commuters who use this path need to be alerted as to when cane harvesting will affect use of path – i.e. A board with dates or some kind of Internet notification. Although he is concerned that a lot of kids will ride the path even when it is closed for cane harvesting because they're too scared to ride on the road and have few options of alternative transport.
Good path for roller skating
Very smooth
Fine love it
Brilliant path
Fantastic
Love going down the big hill
Love it. Would love an underpass from the other side of highway so the kids could use this path more to travel to and from school. (The rocks rd arthur lions area)
Better access to the path by bike for kids - parents don't want kids crossing the highway - (Rocks road/Arthur Lyons Rd)

Brilliant great shady
More circuit machines at the Goomboora Park end.
Should go all the way to crystal cascades
Safe. Fabulous.
Path gets very slippery when wet in the rain. Don't put housing estate in the cane fields!
Brilliant. Asset for the people. Great quality. Location is fantastic. Great connection between places. More off-road trails please for mountain bikes.
Amazing path thank you
Good thing! Love the option to use the path or go off road along the river edge natural paths.
Don't build it out please. Keep it natural. Widen edge to the path to share with meandering dogs and kids.
Good path. Shady. Creek. Nice scenery. Feel safe.
Be great if the path looped around instead of having to come the same way back
Please put a sign up that it is also a bridle path that horse riders have been using forever!
Please don't build houses down to the path. Path is fantastic and the area is a valuable natural asset!

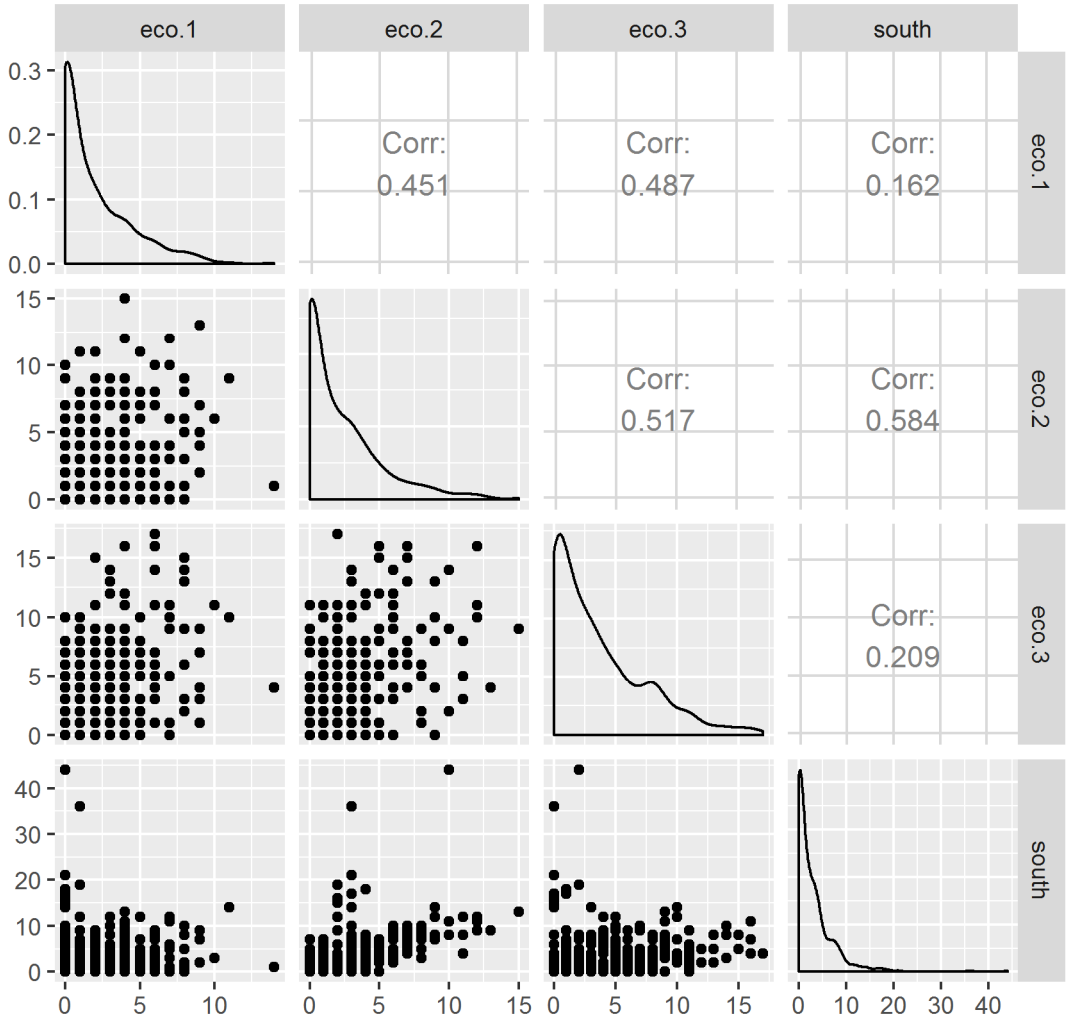
Appendix C: Automatic counter comparison

An Eco-Counter inductive loop detector for counting bicycles and a side-facing passive infrared sensor are used to count path users immediately south of the branch to St Andrews College, along the branch to St Andrews College and at the southern end of the path in Redlynch. The counters record in 15-minute bins without direction of travel but classified by mode (bicycle rider, pedestrian). While the location where the automatic counters are installed is known, the identification of the counters in the online reporting tool is not linked to the locations. As such, it was necessary to guess which Eco-Counter corresponds to which location. Comparison of the 15-minute binned counts suggest the 2nd of the Eco-Counter devices corresponds to the location immediately south of the branch (Figure C.1 and C.2). However, the correlation is rather weak (0.866 for bicycle riders and 0.584 for pedestrians).

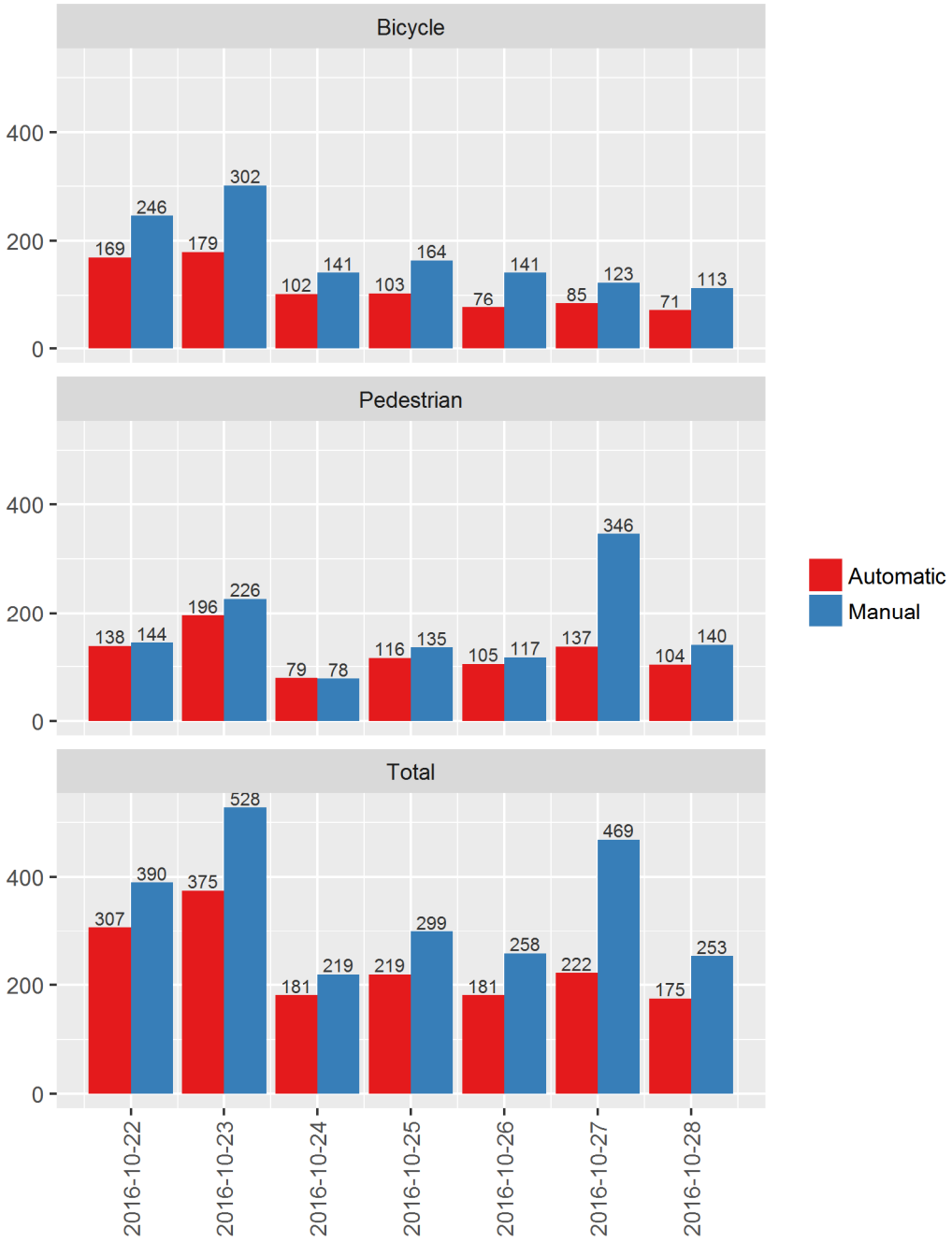
Assuming the 2nd counter is indeed located south of the branch the daily count reported by the automatic counter is around 30% lower than the manual count, and the pedestrian count is around 10% low. The latter is expected, as side-facing sensors tend to under-count pedestrians in groups. However, the undercount for bicycle riders is unexpected; this device is known to count within 5% at other sites. We suggest the the calibration of the inductive loop may need adjusting, as it appears to be significantly undercounting.



■ **Figure C.1: Correlation pairs-plot of 15-minute count for bicycle riders**



■ **Figure C.2: Correlation pairs-plot of 15-minute count for pedestrians**



■ **Figure C.2: Counter comparison**