

**LIFECYCLE  
FIJI  
BASELINE  
CYCLING  
SURVEY  
ANALYSIS  
&  
RECOMMENDATIONS  
REPORT  
2015**

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# INTRODUCTION

During the LifeCycle Fiji stakeholder meeting held on Wednesday, 20 August, 2014, the Land Transport Authority recommended a baseline cycling survey to demographically determine public interest in cycling, current commuter practices, and recommendations for bicycle infrastructural development.

Between 20 August, 2014 and the LifeCycle Fiji Steering Committee meeting of 17 October, 2014, categorical criteria were assembled by the IUCN ORO office and hosted through the Oceania Centre for Sustainable Transport site by the USP PaCE-SD programme. The content and format of the survey questionnaire were reviewed and finalized during the 17 October Steering Committee meeting, and the survey was opened to the public for all Fiji residents to participate. A bicycle & equipment package was offered as a draw prize to go to a randomly selected survey participant on the agreed deadline of 21 January, 2015.

To generate responses on a cross-country scope, the survey was promoted through social media and press announcements made in both nationally circulated daily news publications – the Fiji Sun and the Fiji Times. In order to obtain a sufficient sample group to generate meaningful demographic representation, surveyors were engaged from amongst students enrolled in USP undergraduate and graduate programmes to conduct survey interviews face-to-face. As of the 21 January, 2015 deadline, responses from 2066 participants were tabulated with 102 derived from online entrants. This sample group represents approximately 0.24% of Fiji's population.

This report was prepared by International Union for Conservation of Nature for the LifeCycle Fiji initiative to assist the Land Transport Authority of Government of Fiji and other LifeCycle Fiji steering committee members in land transport planning, market incentives, and bicycle development & advocacy.

The views expressed herein do not necessarily represent those of IUCN's Directors, Management, or staff, and serve in the capacity as a preliminary review.

## METHODOLOGY

For the purposes of the 24 February, 2015 Steering Committee review, the entirety of the survey list was aggregated and total responses for each dimension of the questionnaire were compared to the others in an exploratory analysis to identify relationships between different points of inquiry and the findings. Certain anomalies with the single response format were readily identified<sup>1</sup>, and additional limiting factors<sup>2</sup> must be considered when noting anomalies in the statistical totals (ie: nine respondents said they do not know how to ride bicycles and are not interested in learning to ride bicycles, but simultaneously claim to currently ride on Fiji roads).

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<sup>1</sup> In various instances, respondents provided more than one answer when using multiple modes of transport to commute, hence the +100% of total survey base (2066 participants) in response.

<sup>2</sup> The survey was conducted solely in English, and comprehension issues may have caused confusion with certain response incongruities.

## RECOMMENDATIONS

The baseline data collected will help inform ongoing activities and infrastructure planning, particularly in the Suva area where respondents were centralized. As presented in the data tables & charts below, the main findings, beyond margin of error, are as follows given the projections made based upon proportional representation;

- 1) The Fijian public is largely underequipped with bicycles (approximately 80% of respondents are without bikes).**
- 2) Conversely, over 70% of respondents noted the value of bicycles in the process of easing their commute.**

This gives rise to justification for further actions to enable and equip citizens to ride bicycles safely as their transport method of choice during their daily commutes. The baseline data collected will help inform ongoing activities and infrastructure planning, particularly in the Suva area where respondents were centralized.

## ACKNOWLEDGEMENTS

The author would like to thank the various individuals and organizations involved in the production of this report through valued contributions at all levels. I would first like to thank those surveyors, as without their diligence and efforts, this data would not have been collected; this team included Victor M. Alasa, Marlyn Prince, Ana Z. Waisu, Gabriella Lobendahn, Hulita Koloï, Mia Kami, Biu Koto, and Sukulu Malumu. Gratitude is also due to Hulita Koloï and Sela Finau, who provided dedicated attention to collation and digital entry of the collected data set.

The utmost gratitude is due to the governments of Austria, Italy, Luxembourg, and Spain for supporting the Energy, Ecosystems and Sustainable Livelihoods Initiative (EESLI), through which the LifeCycle Pacific activities have been funded.

Thanks are also due to all members of the LifeCycle Fiji Steering Committee and the associated stakeholders who have contributed input, advice, and feedback throughout the process of developing and implementing the survey. In particular, the suggestion of the survey by Fiji's Land Transport Authority, in conjunction with the Transport Planning Unit of the Ministry of Infrastructure and Transport to conduct the survey, the coordinated assistance of University of the South Pacific in conducting the field surveys, the Oceania Centre of Sustainable Transport for hosting the digital survey form, and the IUCN Oceania Regional Office staff who facilitated the survey, data entry, and publicity of the survey.

## ABBREVIATIONS

ADB - Asian Development Bank

LTA – Land Transport Authority

FRA – Fiji Roads Authority

GSTS – Greater Suva Transport Strategy

EESLI – Energy, Ecosystems and Sustainable Livelihoods Initiative

IUCN – International Union for Conservation of Nature

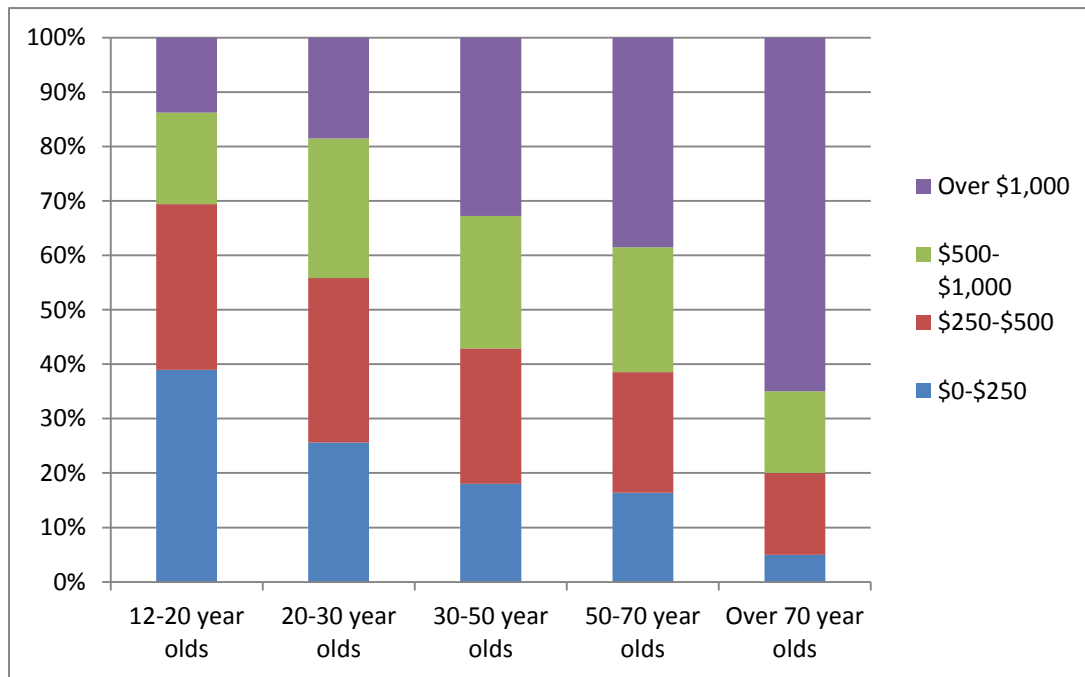
FRCA – Fiji Revenue & Customs Authority

IEA - Initial Environment Assessment

**COMPARISONS BY AGE – ANNUAL TRANSPORT EXPENSES**

| <u>Age &amp; Annual Transport Expenses</u> | <u>\$0-\$250</u> | <u>\$250-\$500</u> | <u>\$500-\$1,000</u> | <u>Over 1000</u> | <u>Total</u> |
|--|------------------|--------------------|----------------------|------------------|--------------|
| 12-20 year olds                            | 271              | 212                | 117                  | 96               | 696          |
| 20-30 year olds                            | 164              | 194                | 164                  | 119              | 641          |
| 30-50 year olds                            | 71               | 98                 | 96                   | 129              | 394          |
| 50-70 year olds                            | 20               | 27                 | 28                   | 47               | 122          |
| Over 70 year olds                          | 1                | 3                  | 3                    | 13               | 20           |
| <b>Total</b>                               | <b>527</b>       | <b>534</b>         | <b>408</b>           | <b>404</b>       | <b>1873</b>  |

Table 1.1 – Total figures of Annual Transport Expenses by age demographics



Graph 1.1 – Percentages of Annual Transport Expenses by age demographics

**RECOMMENDATIONS**

**COMMENTS:**

**What would the average spend for each of the age groups be?**

**What about questions regarding state of health and fitness?**

In comparing the amount spent on transport by individuals across age ranges, it becomes clear the younger segment of the student base and workforce (12-30 year olds) are both primarily spending less than \$500 per year on transport, and less than 18% of this population is spending more than \$1,000 per annum on transport – this means in order to make cycling as cost-competitive as possible for youth establishing their commuter habits, it is imperative a regulatory and market environment is created to provide a reliable, durable bicycle capable of handling the terrain around the Greater Suva Metropolitan Area at a capital cost of under \$500.

For the established generations (aged 30+), we see a dominant reliance on transport modes costing over \$500 per annum. The 70+ demographic had an overwhelming majority spending over \$1,000 per annum, so the additional cost burden for mobility among the most elderly segment of the population is significant. Improving the cardiovascular state of health and fitness of all age groups can contribute to offsetting the long-term costs associated with NCDs (here reflected in higher reliance on motorized transport) while creating a more able-bodied population through non-motorized transport modes.

## 1.2 – COMPARISONS BY AGE – DISTANCE OF COMMUTE

| Age & Distance of Commute     | Less than 5km | 5-10km     | 10-20km    | More than 20km | Total       |
|-------------------------------|---------------|------------|------------|----------------|-------------|
| 12-20 year olds who travel:   | 350           | 182        | 104        | 69             | 705         |
| 20-30 year olds who travel:   | 217           | 240        | 98         | 95             | 650         |
| 30-50 year olds who travel:   | 108           | 124        | 97         | 74             | 403         |
| 50-70 year olds who travel:   | 32            | 47         | 25         | 22             | 126         |
| Over 70 year olds who travel: | 6             | 5          | 3          | 5              | 19          |
| Total                         | <u>713</u>    | <u>598</u> | <u>327</u> | <u>265</u>     | <u>1903</u> |

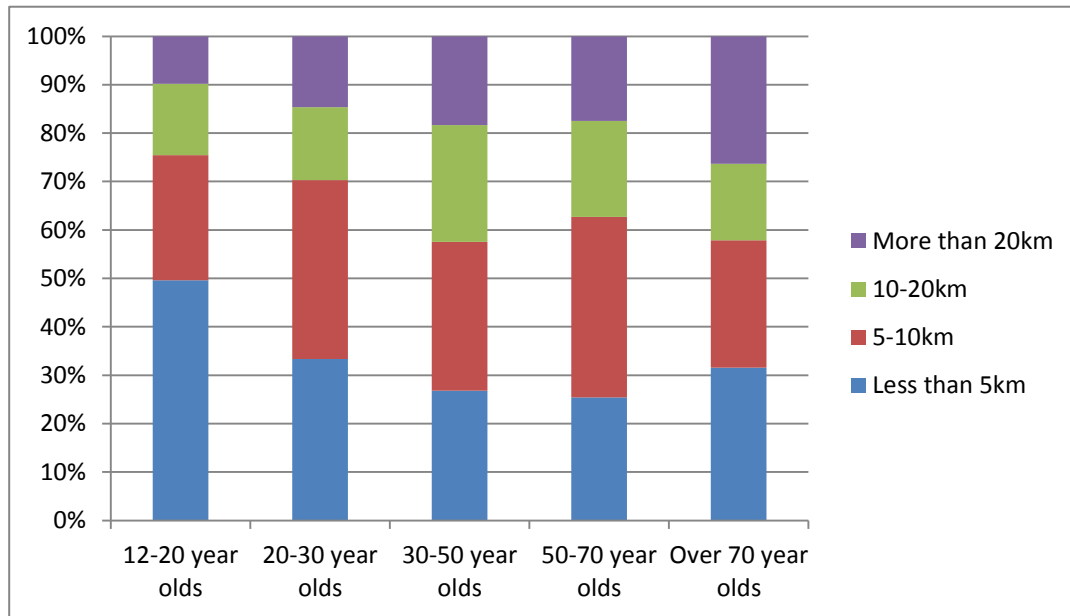
### RECOMMENDATIONS

The most dominant finding is seeing nearly 50% of 12-20 year olds within 5km of their destination. From a statistical sampling perspective, one of the main limitations of these particular dimensions is the large portion of respondents from the USP (Raiwai/Raiwaqa/Vatuwaqa) area. Thus, as we see reflected here (and elsewhere in the comparisons by age), there is likelihood of the responses skewed toward students, which means the end destination of their commute would largely be the University. However, for all respondents under age 30, over 70% live within 10km of their commuting destination. If we understand, “(a) journey on foot to a field 4 km away (about one hour) reduces the time available...by 25% (two hours out of eight) and uses up to three times as many calories.” (Singhal, 2008, p5)<sup>3</sup>, then we can conclude the lost productivity of pedestrian students and members of the workforce would be between 2-4 waking hours per day. Granted, this only holds true for the pedestrians, who make up about 12% of commuters, while over 50% aged 12-30 currently commute by bus (see table 1.4).

It is also noteworthy the populations aged 30+ tend to live farther away, contributing both toward increased transport costs and increased utilization of taxi cabs and personal cars as transport mode of choice.

Recognizing 68% of respondents to this query are traveling fewer than 10km, productivity can be increased for pedestrians in this segment, and efficiency can be increased for all motor-modal segments.

Table 1.2 – Total figures of age groups & distance by commute



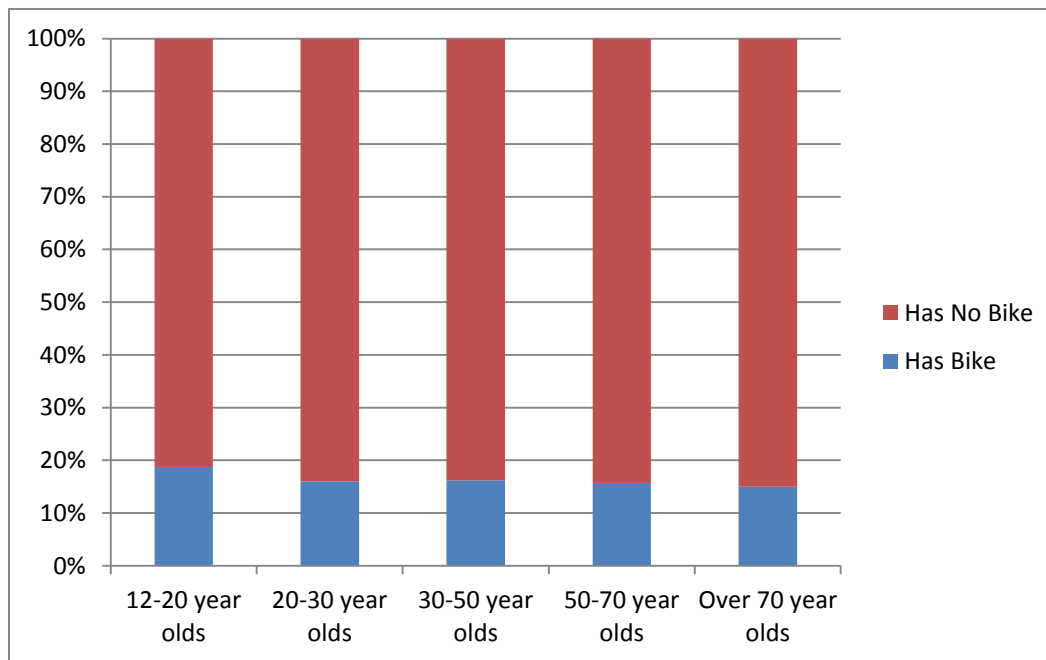
Graph 1.2 – Percentages of Annual Transport Expenses by age demographics

<sup>3</sup> [https://docs.google.com/file/d/0B4BC\\_PfJnyTjT1REUU5YSU93bWw/edit](https://docs.google.com/file/d/0B4BC_PfJnyTjT1REUU5YSU93bWw/edit)

**1.3 – COMPARISONS BY AGE – BICYCLE OWNERSHIP**

| <u>Age &amp; Bicycle Ownership</u>      | <u>Yes</u>        | <u>No</u>          | <u>Total</u>       |
|---|-------------------|--------------------|--------------------|
| <b>12-20 year olds who own bikes:</b>   | <b>133</b>        | <b>577</b>         | <b>710</b>         |
| <b>20-30 year olds who own bikes:</b>   | <b>105</b>        | <b>551</b>         | <b>656</b>         |
| <b>30-50 year olds who own bikes:</b>   | <b>66</b>         | <b>341</b>         | <b>407</b>         |
| <b>50-70 year olds who own bikes:</b>   | <b>20</b>         | <b>107</b>         | <b>127</b>         |
| <b>Over 70 year olds who own bikes:</b> | <b>3</b>          | <b>17</b>          | <b>20</b>          |
| <b>Total</b>                            | <b><u>327</u></b> | <b><u>1593</u></b> | <b><u>1920</u></b> |

Table 1.3 – Total figures of age groups & bicycle ownership



Graph 1.3 - Percentages of age groups & bicycle ownership

**RECOMMENDATIONS**

One of the overwhelming statistical responses from all age demographics is a particularly low incidence of bicycle ownership. For all respondents to this query, only an average of 17% across all age groups confirm they own bicycles – whether this is ownership by someone in the household or personal bicycle ownership is a point for further clarification in follow-up surveys.

We see a slightly higher incidence of bicycle ownership amongst the 12-20 age group (18.7%). This means even amongst the youth, who are characteristically known for riding bicycles in lieu of having the legislative option (or capital resources) to drive cars, are not being adequately served at an approachable price point by the market.

In essence, over 80% of Fiji’s population can be targeted for bicycle adoption at a bicycle-per-person level to achieve national market saturation. The +12% of pedestrian commuters should be the priority demographic to increase baseline mobility independence across the nation, since it would immediately provide each with a 3-5x increase of range and reduction in travel time.

However, to induce the personal car drivers, bus riders, and taxi commuters, cost-benefit analysis results must be widely disseminated, as the perceived comfort and convenience factor coupled with price regulation and financial market incentives are distorting market behavior.

### 1.4 – COMPARISONS BY AGE – TYPE OF COMMUTE

| Age & Type of Commute        | Walk       | Bus         | Taxi       | Car        | Bicycle   | Other     | Total       |
|------------------------------|------------|-------------|------------|------------|-----------|-----------|-------------|
| 12-20 year olds who spend:   | 114        | 445         | 60         | 124        | 6         | 6         | 755         |
| 20-30 year olds who spend:   | 64         | 401         | 72         | 113        | 9         | 45        | 704         |
| 30-50 year olds who spend:   | 59         | 175         | 74         | 123        | 7         | 10        | 448         |
| 50-70 year olds who spend:   | 13         | 58          | 19         | 49         | 0         | 5         | 144         |
| Over 70 year olds who spend: | 1          | 3           | 1          | 13         | 2         | 0         | 20          |
| <b>Total</b>                 | <b>251</b> | <b>1082</b> | <b>226</b> | <b>422</b> | <b>24</b> | <b>66</b> | <b>2071</b> |

### RECOMMENDATIONS

It was initially noted upon review the low sample size of the population aged over 70 – this can be primarily attributed to life expectancy constraints in Fiji. These life expectancy constraints, however, are reinforced by the high incidence of NCDs largely attributable to lifestyle choice, of which sedentary behavior is a significant component.

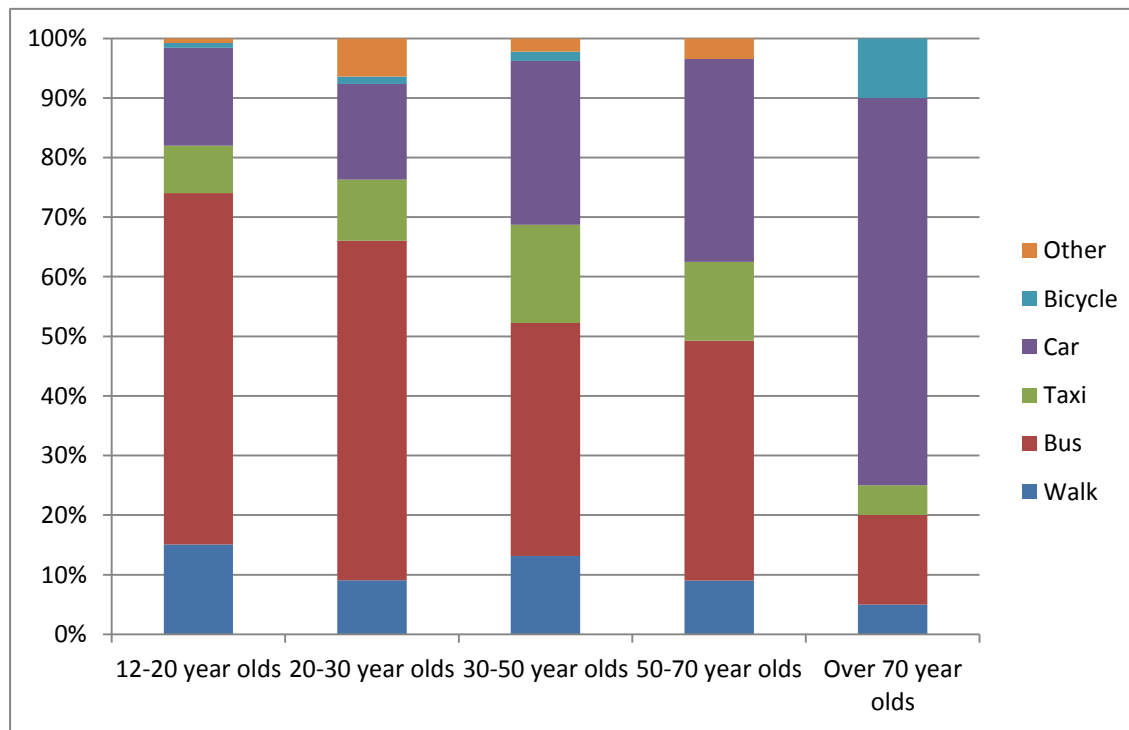
It is also worth noting the survey was specifically presented to respondents as a cycling survey, with bicycle equipment being offered as a draw prize for participants, so the proclivity of cyclists to respond with high frequency may reflect higher than normal mode share on the part of cyclists in the results (1.15% of total).

However, bus commuters made up a clear majority with over 52% of respondents noting it as their most common transport mode.

Despite their relatively small portion of the total sample group, the 70+ age group was disproportionately inclined towards personal cars, with 65% of respondents citing it as their primary transport mode.

It was also suggested respondents be provided opportunity to qualify “other” as a response, since it received over 3% of the mode share. It may apply to taxi vans, motorbikes, horses, etc., so further clarification should be sought.

Table 1.4 – Total figures of age groups & bicycle ownership



Graph 1.4 – Percentages of age groups & bicycle ownership

**1.5 – COMPARISONS BY AGE – BICYCLE SUITABILITY**

| <u>Age &amp; Bicycle Suitability</u>     | <u>Yes</u>  | <u>No</u>  | <u>Total</u> |
|--|-------------|------------|--------------|
| 12-20 year olds who find bikes useful:   | 549         | 161        | 710          |
| 20-30 year olds who find bikes useful:   | 476         | 178        | 654          |
| 30-50 year olds who find bikes useful:   | 276         | 125        | 401          |
| 50-70 year olds who find bikes useful:   | 85          | 41         | 126          |
| Over 70 year olds who find bikes useful: | 10          | 10         | 20           |
| <b>Total</b>                             | <b>1396</b> | <b>515</b> | <b>1911</b>  |

**RECOMMENDATIONS**

**COMMENTS:**

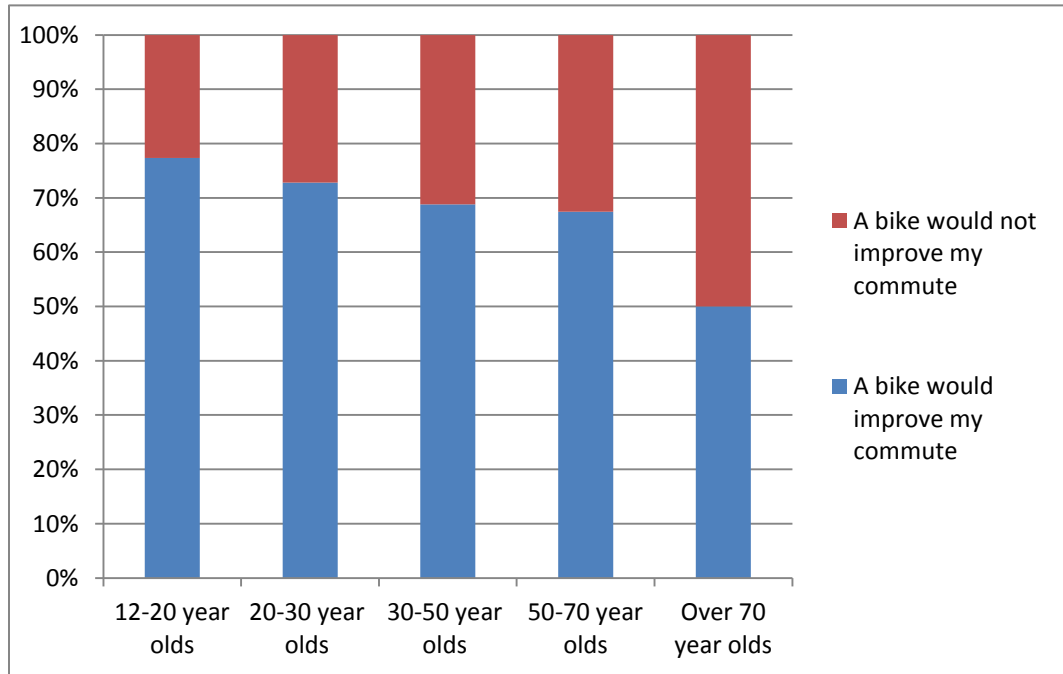
**(Additional discussion on employer incentives to further enable cyclists)**

**Breakdown between 12-20 by student/workforce designation**

Upon review of these results, it was suggested to include a designation between students and workforce members, particularly in the 12-20 age segment. This was mentioned particularly in regard to developing appropriate market incentives to further enable the uptake of cyclists in the transport profile, since 77.3% said bicycles would be useful for improving their commute, while only 18.7% own bicycles.

Workforce incentives would clearly be valued, as a clear majority of 20-70 year olds also found bicycles to be useful in improving their commuting practices. Only respondents aged 70+ were evenly split, and across all respondents, over 73% of respondents reported bicycles would be a useful alternative for their commute. Taken with table 1.3 – supply is low, demand is high, and the market may be opened to facilitate rapid adoption of bicycles.

Table 1.5 – Total figures of age groups & bicycle suitability

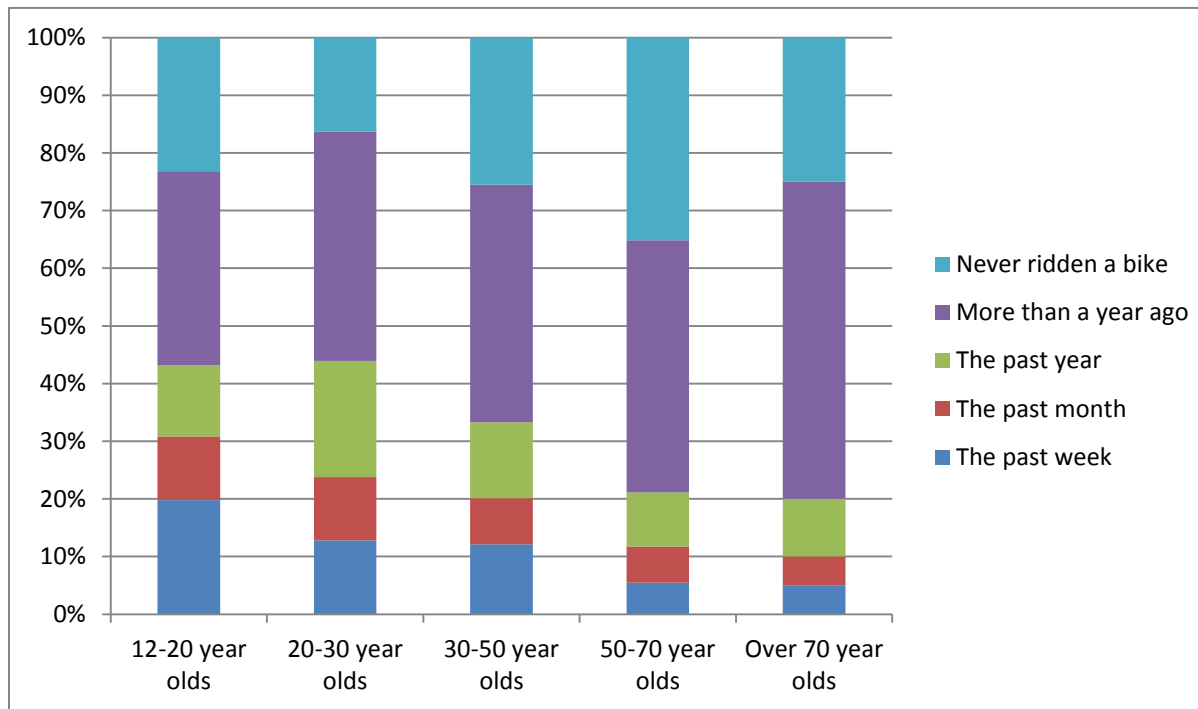


Graph 1.5 – Percentages of age groups & bicycle suitability

**1.6 – COMPARISONS BY AGE – LAST BIKE RIDE**

| <u>Age &amp; Last Bike Ride</u> | <u>The past week</u> | <u>The past month</u> | <u>The past year</u> | <u>More than a year ago</u> | <u>Never</u> | <u>Total</u> |
|---------------------------------|----------------------|-----------------------|----------------------|-----------------------------|--------------|--------------|
| 12-20 year olds                 | 141                  | 79                    | 88                   | 240                         | 165          | 713          |
| 20-30 year olds                 | 84                   | 72                    | 132                  | 261                         | 107          | 656          |
| 30-50 year olds                 | 50                   | 33                    | 54                   | 170                         | 105          | 412          |
| 50-70 year olds                 | 7                    | 8                     | 12                   | 56                          | 45           | 128          |
| Over 70 year olds               | 1                    | 1                     | 2                    | 11                          | 5            | 20           |
| <b>Total</b>                    | <b>283</b>           | <b>193</b>            | <b>288</b>           | <b>738</b>                  | <b>427</b>   | <b>1929</b>  |

Table 1.6 – Total figures of age groups & last bike ride



Graph 1.6 – Percentages of age groups & bicycle suitability

**RECOMMENDATIONS**

**COMMENTS:**

**Communal use component worth further examination.**

It was noted the 39.6% of respondents who stated they'd ridden a bicycle in the past year was around double the respondents who said they had bicycles (see Graph 1.3), so the component of communal use of household bicycles was raised again as an area worthy of further investigation and inquiry.

In a related comparison (see Table 1.8), 51.9% of respondents say they already know how to ride bicycles, while respondents to this question indicate 77.8% have ridden bikes in the past. This may indicate around 26% of respondents (501 in total) have tried riding bicycles, but would not consider themselves competent in their ability to ride, which would account for 67.8% of those who last rode a bike more than a year ago.

This indicates a need for increased training offerings to build competency of cyclists alongside introduction of more bicycles to the local market. To safely place commuter cyclists on the road, confidence must be built, and these figures indicate that confidence may be built through frequent riding.

**1.7 – COMPARISONS BY AGE – DESIRE TO LEARN TO RIDE ON FIJI ROADS**

| <u>Age &amp; Desire to learn to ride on Fiji roads</u> | <u>Yes</u>  | <u>No</u>  | <u>I ride Fiji roads</u> | <u>Total</u> |
|--|-------------|------------|--------------------------|--------------|
| 12-20 year olds  | 558         | 57         | 89                       | 704          |
| 20-30 year olds  | 505         | 58         | 82                       | 645          |
| 30-50 year olds  | 292         | 46         | 64                       | 402          |
| 50-70 year olds  | 86          | 23         | 16                       | 125          |
| Over 70 year olds                                      | 13          | 3          | 4                        | 20           |
| <b>Total</b>   | <b>1454</b> | <b>187</b> | <b>255</b>               | <b>1896</b>  |

**RECOMMENDATIONS**

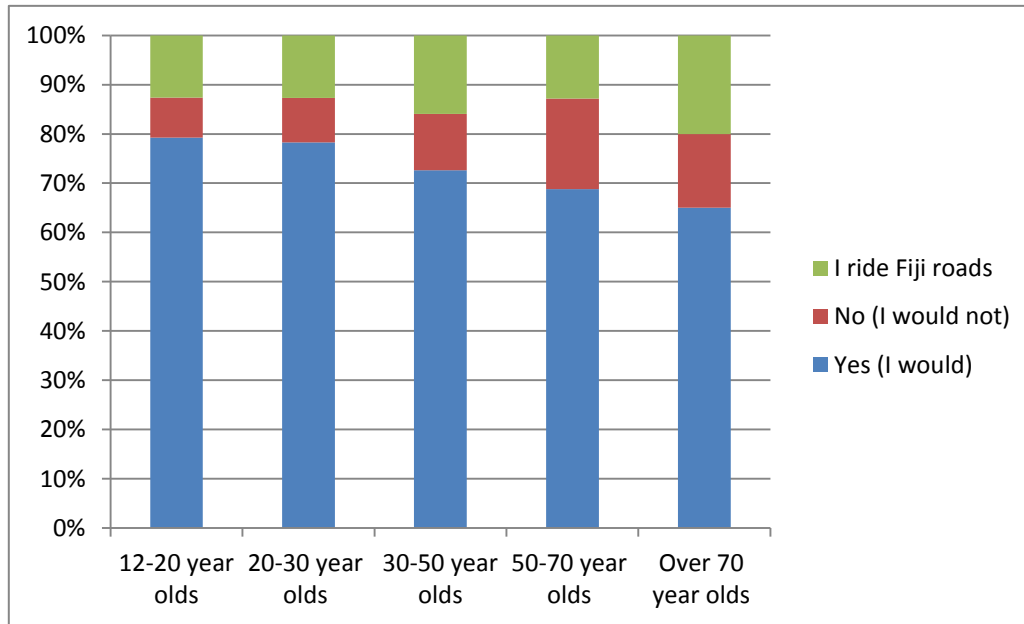
The initial disparity noted is the response rate for those riding on Fiji roads being 10x the segment who stated they commute to work by bicycle (see Table 1.4).

This means people are attributing their commute by other modes under “riding Fiji roads”, and this may be corrected in future surveys by explicitly stating the question as “a desire to learn to cycle on Fiji roads.” However, the 76.6% majority of respondents expressing desire to learn to ride on Fiji roads supports the findings of Table 1.6 and 1.8, wherein a standardization of road rights and responsibilities for cyclists is something the majority of the commuter population would like to see provided and have the opportunity to be trained in.

It is recommended cycling competency training protocols be established at institutional levels, allowing the majority of the population (projected to find cycling a suitable means to ease their commute) to confidently join commuter traffic on Fiji roads through bicycle transport.

On a related note, the absence of provisions for eBikes (electrically assisted bicycles/mopeds) was recommended for inclusion in future legislation and revision of the Land Transport Act. Currently, rights and responsibilities are ill-defined, and exposed commuters will require stronger legislative protections to encourage safer road conduct by motorists, taxis, and bus operators.

Table 1.7 – Total figures of age groups & desire to learn to ride on Fiji roads

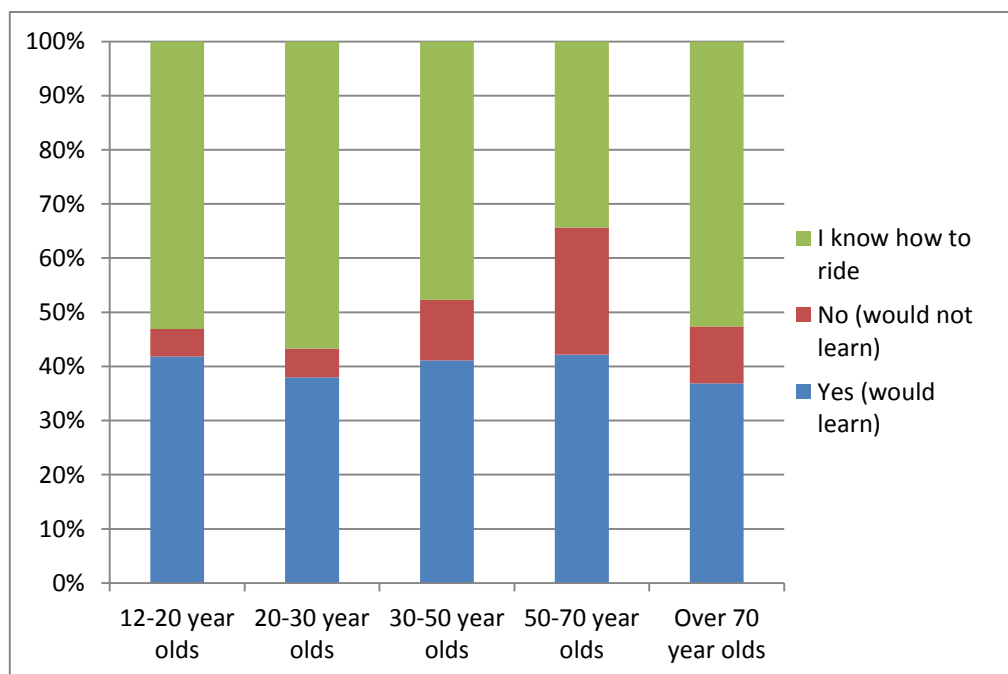


Graph 1.7 – Percentages of age groups & desire to learn to ride on Fiji roads

## 1.8 – COMPARISONS BY AGE – ABILITY TO RIDE A BIKE

| <u>Age &amp; Ability to ride a bike</u>         | <u>Yes</u> | <u>No</u>  | <u>I know how to ride</u> | <u>Total</u> |
|---|------------|------------|---------------------------|--------------|
| <b>12-20 year olds &amp; ability to ride:</b>   | <b>298</b> | <b>36</b>  | <b>378</b>                | <b>712</b>   |
| <b>20-30 year olds &amp; ability to ride:</b>   | <b>250</b> | <b>35</b>  | <b>373</b>                | <b>658</b>   |
| <b>30-50 year olds &amp; ability to ride:</b>   | <b>169</b> | <b>46</b>  | <b>196</b>                | <b>411</b>   |
| <b>50-70 year olds &amp; ability to ride:</b>   | <b>54</b>  | <b>30</b>  | <b>44</b>                 | <b>128</b>   |
| <b>Over 70 year olds &amp; ability to ride:</b> | <b>7</b>   | <b>2</b>   | <b>10</b>                 | <b>19</b>    |
| <b>Total</b>                                    | <b>778</b> | <b>149</b> | <b>1001</b>               | <b>1928</b>  |

Table 1.8 – Total figures of age groups & ability to ride a bike



Graph 1.8 – Percentages of age groups & ability to ride a bike

## RECOMMENDATIONS

While an average of over 73% of respondents said bicycles would ease their commute, only 7.7% expressed no interest in picking up the ability to ride a bicycle as a skill.

So with over 92% of respondents able to ride or expressing a desire to learn, the 17% with access to bicycles need to be serviced by the local market in both provision of proper equipment and provision of skill-building opportunities to become confident cyclists.

This skill development process requires a safe, controlled environment in which to practice riding. As a consequence, the updates to the Bicycle Act discussed over the previous year to allow for cycling on footpaths would help create an open space for low-speed, beginner cyclists to practice their skills.

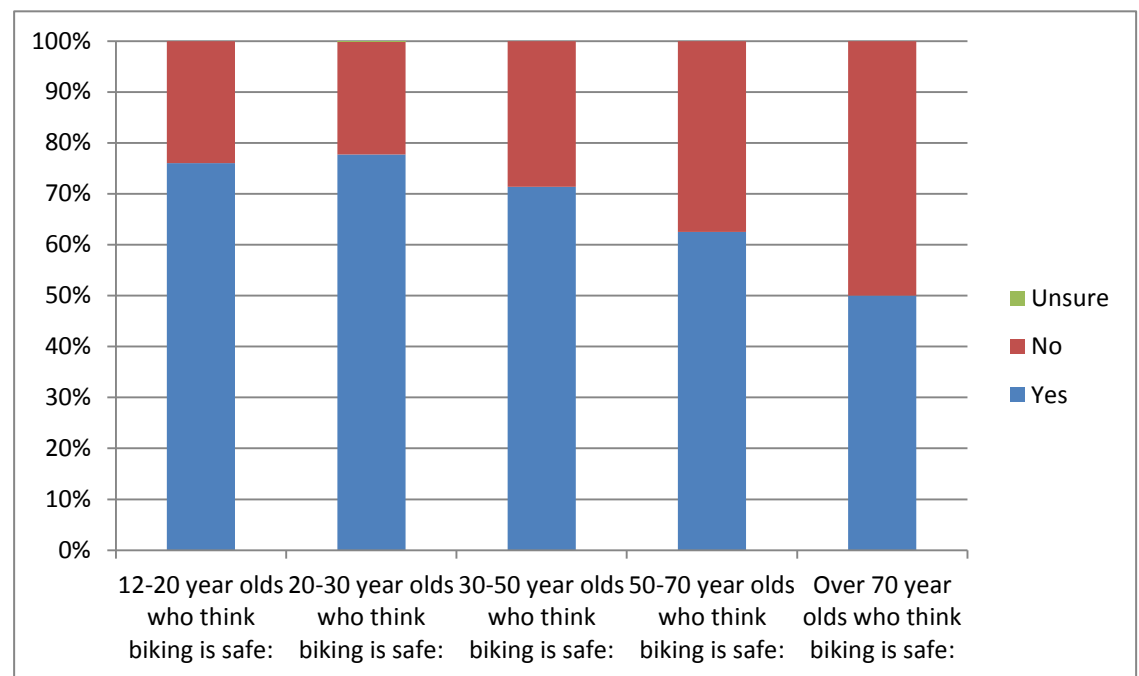
The inclusion of dedicated cycling infrastructure, particularly through installation of enclosed cycling lanes and shared footpath/cycle lanes will create an infrastructural setting where the majority of the population interested in taking up cycling as a commuter option will be able to safely build their confidence in doing so.

Additionally, it is worth noting over 50% of respondents consider themselves able to ride, so sourcing cyclists for riding training and support of new riders should not be difficult to take up in the coming years.

### 1.9 – COMPARISONS BY AGE – PERCEPTION OF BICYCLE SAFETY

| Age & Perception of Bicycle Safety          | Yes         | No         | Unsure   | Total       |
|---|-------------|------------|----------|-------------|
| 12-20 year olds who think biking is safe:   | 539         | 170        | 0        | 709         |
| 20-30 year olds who think biking is safe:   | 509         | 145        | 1        | 655         |
| 30-50 year olds who think biking is safe:   | 292         | 117        | 0        | 409         |
| 50-70 year olds who think biking is safe:   | 80          | 48         | 0        | 128         |
| Over 70 year olds who think biking is safe: | 10          | 10         | 0        | 20          |
| <b>Total</b>                                | <b>1430</b> | <b>490</b> | <b>1</b> | <b>1921</b> |

Table 1.9 – Total figures of age groups & perception of bicycle safety



Graph 1.9 – Percentages of age groups & perception of bicycle safety

### RECOMMENDATIONS

Nearly 3/4ths of respondents (74.4%) across all age groups deemed cycling to be a safe transport mode. However, this perspective was largely enforced by those respondents under the age 50. We see a 10% drop in perception of bicycle safety by those aged 50-70, and an even split between those aged 70 and older.

Further analysis of specific responses is required to determine the primary mode of transport for those who perceive cycling to be dangerous.

However, the response by the survey sample group at large runs counter to the individual stakeholder consultations held with the various LifeCycle Steering Committee members, who generally expressed concerns with the safety of additional cyclists in the land transport profile of traffic around Fiji.

These findings indicate the principle limiting factor for the public is not perception of safety. Thus, a combination of limiting factors such as price point of equipment, ability to confidently ride a bicycle, distance of commute, clear definition and promotion of rights & responsibilities of cyclists on the road, and prioritization of cycling infrastructure within road networks have thus far precluded greater uptake of cycling as a mode of transport.

If these areas of concern are addressed adequately, decreases in perceived danger should be noted in follow-up surveys

## 2.1 – COMPARISONS BY DISTANCE OF COMMUTE – BICYCLE OWNERSHIP

| <u>Distance of Commute &amp; Bicycle Ownership</u> | <u>Yes</u> | <u>No</u>   | <u>Total</u> |
|--|------------|-------------|--------------|
| Less than 5km                                      | 136        | 571         | 707          |
| 5-10km   | 108        | 489         | 597          |
| 10-20km  | 45         | 284         | 329          |
| More than 20km                                     | 38         | 226         | 264          |
| <b>Total</b>                                       | <b>327</b> | <b>1570</b> | <b>1897</b>  |

### RECOMMENDATIONS

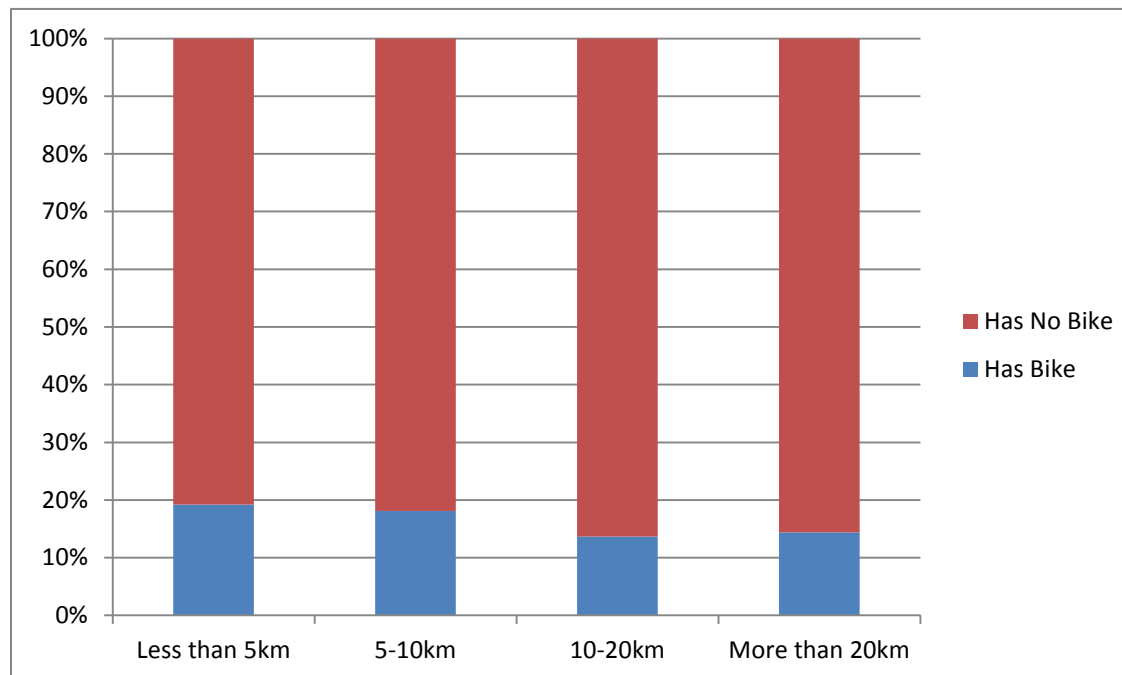
Bicycle ownership and distance of commute positively correlate, with those respondents undertaking a commute of less than 5km showing the highest incidence of bicycle ownership (41.5% of bicycles owned are by those within 5km of their commuter destination). Still fewer than 1 in 5 respondents in this segment owned bicycles, at only 19.2% of the group.

However, since 136 people with bicycles with a commute of below 5km self-identified, we should expect to see a larger share of these people than the nine (6.6%) individuals noted in the type of commute/distance of commute comparison (Table 2.2).

Also, with 107 (18%) of the 5-10km commuters owning bikes and only seven of those (6.4%) commuting by bicycle, the slightly higher incidence of bicycle ownership in the segments under age 30 must be mobilized and incentivized to make their commute by bicycle through other means, such as benefits of the proposed LifeCycle Enrollment Programme for card-carrying regular riders.

Inducing the current small population of bicycle owner to take advantage of market incentives to take to the roads by bicycle should provide an example to help inspire others to then purchase and ride bicycles.

Table 2.1 – Total figures of distance of commute & bicycle ownership

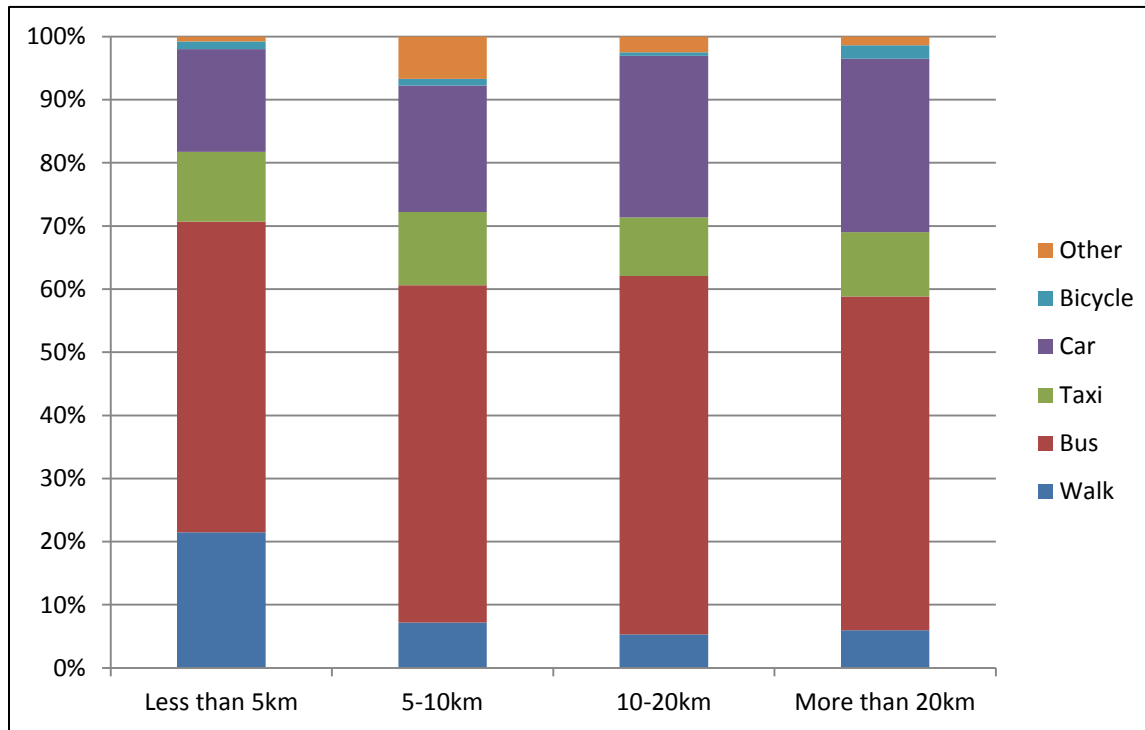


Graph 2.1 – Percentages of distance of commute & bicycle ownership

## 2.2 – COMPARISONS BY DISTANCE OF COMMUTE – TYPE OF COMMUTE

| <u>Distance of Commute &amp; Type of Commute</u> | <u>Walk</u> | <u>Bus</u>  | <u>Taxi</u> | <u>Car</u> | <u>Bicycle</u> | <u>Other</u> | <u>Total</u> |
|--|-------------|-------------|-------------|------------|----------------|--------------|--------------|
| <b>Less than 5km</b>                             | 161         | 369         | 83          | 122        | 9              | 6            | <b>750</b>   |
| <b>5-10km</b>                                    | 47          | 350         | 76          | 131        | 7              | 44           | <b>655</b>   |
| <b>10-20km</b>                                   | 19          | 202         | 33          | 91         | 2              | 9            | <b>356</b>   |
| <b>More than 20km</b>                            | 17          | 150         | 29          | 78         | 6              | 4            | <b>284</b>   |
| <b>Total</b>                                     | <b>244</b>  | <b>1071</b> | <b>221</b>  | <b>422</b> | <b>24</b>      | <b>63</b>    | <b>2045</b>  |

Table 2.2 – Total figures of distance of commute & type of commute



Graph 2.2 – Percentages of distance of commute & type of commute

### RECOMMENDATIONS

One of the first areas of inquiry suggested for future survey was the associated time of commute for each mode. If respondents are able to identify the amount of time it spends for them to travel to and from work/school each day, we'll be able to assess the productivity loss incurred in traffic by people travelling under each mode of transport.

It is particularly noteworthy the pedestrians segment drops from 21.4% to 7.1% between commutes of under 5km and commutes of 5-10km. The indication that over 5.3% of respondents are walking more than 10km and 5.6% walking over 20km represents another area of particular need to address. These individuals would be losing upwards of 6-8 waking hours per day in transit, which could be significantly reduced at minimal expense through adoption of cycling as mode of transport for commute.

Additionally, targeting the 76.5% taking motorized transport for commutes of under 5km would help alleviate an immense amount of "last mile" traffic congestion in Greater Suva area. Those choosing motorized modes of transport exceeds 85% between 5-10km, so localized emissions and fuel consumption could be significantly reduced if these commuters are able to switch to cycling.

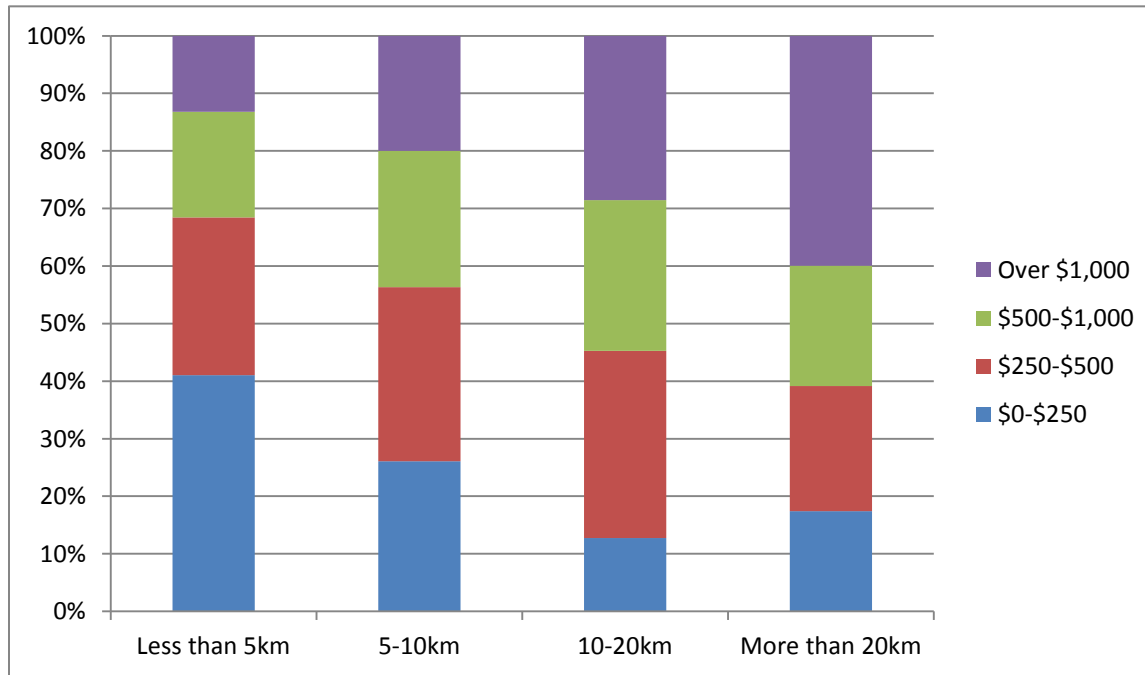
### 2.3 – COMPARISONS BY DISTANCE OF COMMUTE – ANNUAL TRANSPORT EXPENSES

| <u>Distance of Commute &amp; Annual Transport Expenses</u> | <u>\$0-\$250</u> | <u>\$250-\$500</u> | <u>\$500-\$1,000</u> | <u>Over \$1,000</u> | <u>Total</u> |
|--|------------------|--------------------|----------------------|---------------------|--------------|
| Less than 5km  | 280              | 187                | 125                  | 90                  | 682          |
| 5-10km   | 153              | 177                | 139                  | 117                 | 586          |
| 10-20km  | 42               | 107                | 86                   | 94                  | 329          |
| More than 20km   | 45               | 56                 | 54                   | 103                 | 258          |
| <b>Total</b>   | <b>520</b>       | <b>527</b>         | <b>404</b>           | <b>404</b>          | <b>1855</b>  |

### RECOMMENDATIONS

There is a significant correlation between increased transport costs in association with increased distance of commute. However, additional inquiry should be Made in future surveys to those traveling farther than 10km who happen to fall in the lower half of the expenditure categories to qualify their savings.

Table 2.3 – Total figures of distance of commute & annual transport expenses



Graph 2.3 – Percentages of distance of commute & annual transport expenses

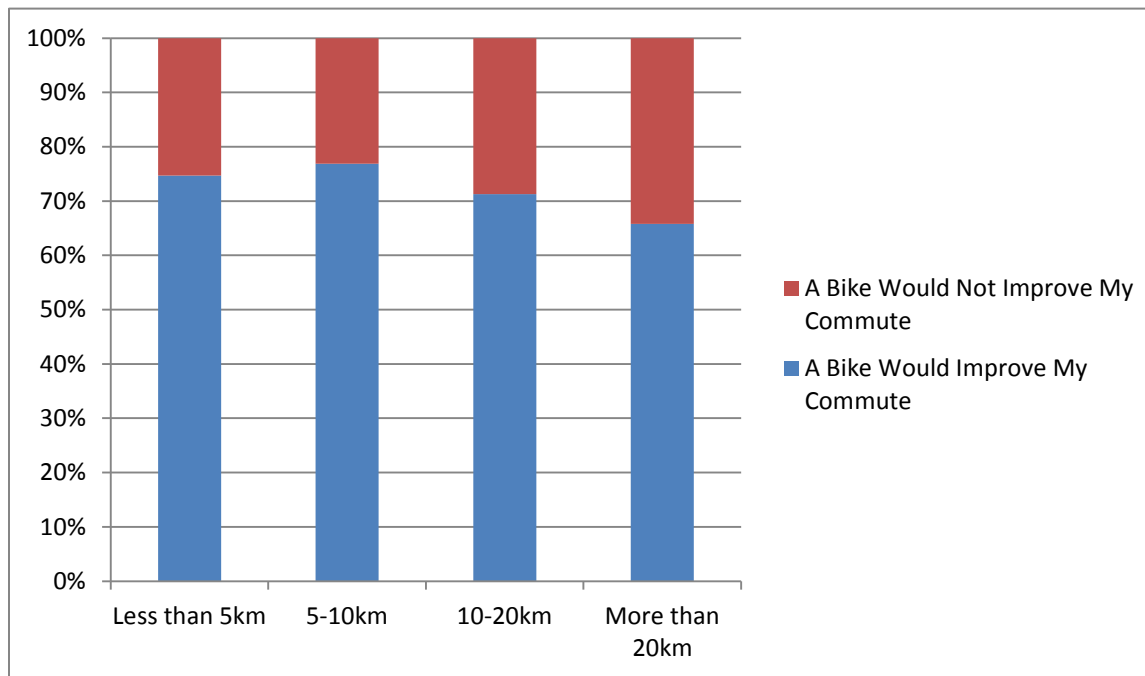
Collectively, cyclists and pedestrians account for 44 of respondents traveling over 10km (Table 2.2). The segment of respondents traveling over 10km claiming to spend under \$500 per annum, however, is 250 in total. Thus, only 17.6% of these respondents are attributing their cost savings to their pedestrian/cycling transport modes, and further inquiry is needed to determine the source of the savings (possibly cost sharing measures such as carpooling, multi-modal transport, etc.)

Conversely, the 207 travelling under 10km but spending over \$1,000 per year are easily attributable to those traveling by private car or taxi, and further justification of cost-benefit analysis determination and public awareness promotion are advised as a measure to help these commuters reduce their expenses and emissions.

## 2.4 – COMPARISONS BY DISTANCE OF COMMUTE – BICYCLE SUITABILITY

| <u>Distance of Commute &amp; Bicycle Suitability</u> | <u>Yes</u>         | <u>No</u>         | <u>Total</u>       |
|--|--------------------|-------------------|--------------------|
| Less than 5km  | 526                | 178               | 704                |
| 5-10km   | 456                | 137               | 593                |
| 10-20km  | 233                | 94                | 327                |
| More than 20km                                       | 173                | 90                | 263                |
| <b>Total</b>   | <b><u>1388</u></b> | <b><u>499</u></b> | <b><u>1887</u></b> |

Table 2.4 – Total figures of distance of commute & bicycle suitability



Graph 2.4 – Percentages of distance of commute & bicycle suitability

### RECOMMENDATIONS

Only in the instance of those respondents commuting over 20km do we see suitability of bicycles as an option for commute drop below 70% favorability.

It is worth noting the suitability is most favored by those with commutes of 5-10km at 76.8% of respondents.

The favorability rating was slightly higher for those with a commute under 5km than 10-20km commuters, which may possibly be attributed to the segment of older commuters utilizing private cars at greater distances who do not see the benefit in “reverting” to a bicycle once private motorized transport has been obtained.

These preferences require further study, particularly in reference to the passenger capacity of private vehicles and the role played in multiple destination commutes (ie, parents dropping students off at school prior to arriving at their offices, etc.)

## 2.5 – COMPARISONS BY DISTANCE OF COMMUTE – LAST BIKE RIDE

| <u>Distance of Commute &amp; Last Bike Ride</u> | <u>The past week</u> | <u>The past month</u> | <u>The past year</u> | <u>More than a year ago</u> | <u>Never</u> | <u>Total</u> |
|---|----------------------|-----------------------|----------------------|-----------------------------|--------------|--------------|
| Less than 5km                                   | 119                  | 70                    | 109                  | 261                         | 154          | 713          |
| 5-10km  | 85                   | 55                    | 84                   | 230                         | 144          | 598          |
| 10-20km   | 46                   | 40                    | 50                   | 128                         | 67           | 331          |
| More than 20km                                  | 34                   | 25                    | 39                   | 112                         | 54           | 264          |
| <b>Total</b>                                    | <b>284</b>           | <b>190</b>            | <b>282</b>           | <b>731</b>                  | <b>419</b>   | <b>1906</b>  |

Table 2.5 – Total figures of distance of commute & last bike ride

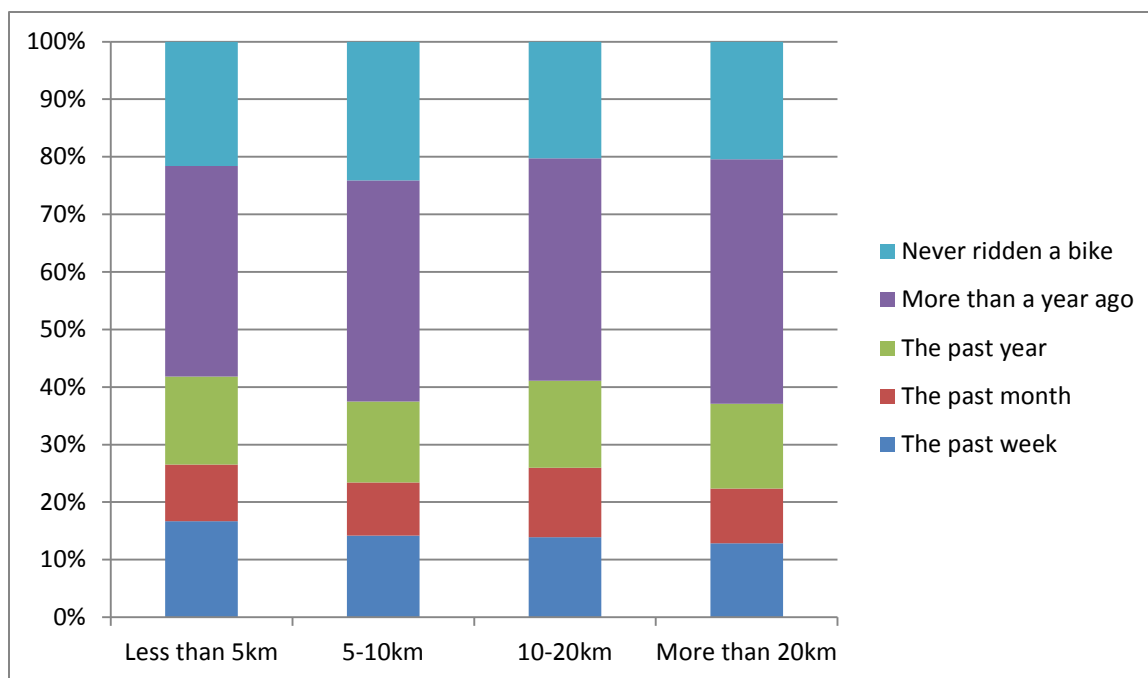


Table 2.5 – Percentages of distance of commute & last bike ride

### RECOMMENDATIONS

For all segments of respondents, with the exception of those in the 10-20km range, at least 60% have not ridden a bike in at least a year, if ever. In all segments, at least a third have not ridden a bicycle in over a year.

This indicates the availability of bicycles is insufficient for commuters traveling all distances to take up bicycles as an effective mode of transport for their commute.

Interestingly, 14.9% indicated they had ridden a bicycle in the previous week, which means there are active riders beyond the small share who commute on a daily basis, but not even the 17% who own bicycles are riding on a regular/daily basis.

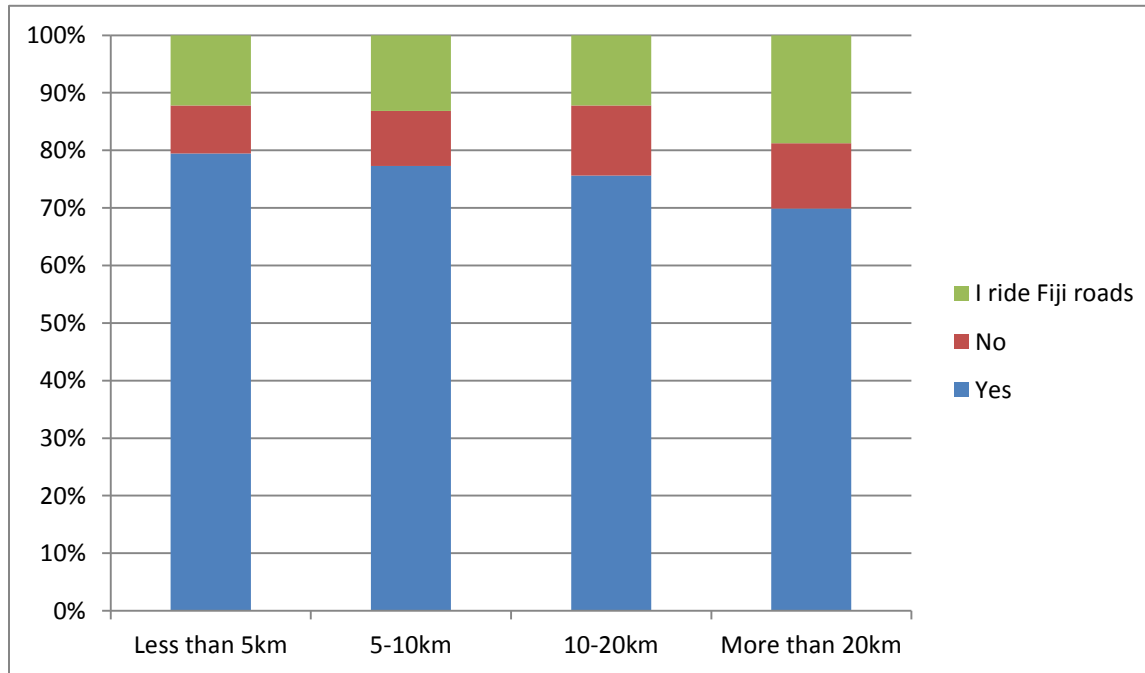
Engaging those with bicycles to register in the LifeCycle Enrollment Programme will help ensure we know which bikes are on the road and being used regularly.

Indication of requirement for service, repair, etc. should be incorporated into the process, and the LifeCycle Hotline was suggested as a resource for cyclists around the nation to utilize to help keep their bikes operable and ready to be used reliably for commuting purposes on a daily basis. This will require devoted attention by the lead agency/LifeCycle secretariat to be established as part of the project in the coming year of implementation.

## 2.6 – COMPARISONS BY DISTANCE OF COMMUTE – ANNUAL TRANSPORT EXPENSES

| Distance of Commute & Desire to learn to ride on Fiji roads | Yes         | No         | I ride Fiji roads | Total       |
|---|-------------|------------|-------------------|-------------|
| Less than 5km   | 560         | 59         | 86                | 705         |
| 5-10km  | 452         | 56         | 77                | 585         |
| 10-20km   | 248         | 40         | 40                | 328         |
| More than 20km  | 179         | 29         | 48                | 256         |
| Total   | <u>1439</u> | <u>184</u> | <u>251</u>        | <u>1874</u> |

Table 2.6 – Total figures of distance of commute & desire to learn to ride on Fiji roads



Graph 2.6 – Percentages of distance of commute & desire to learn to ride on Fiji roads

### RECOMMENDATIONS

Respondents indicate, regardless of the distance of commute, a clear majority would like the ability to confidently ride on Fiji roads.

As mentioned previously, the phrasing of this question is a limiting factor in identifying the number of cycling commuters. Since an average of 13.4% of respondents indicate they ride on the roads, totaling 251, it can be inferred these fall within the 327 total bicycle owners recorded by the survey (Table 1.3). However, this exceeds the 1.15% of bicycle commuters noted in Table 1.4, so this indicates that a number of casual cyclists not using their bicycles for daily commute are riding on Fiji's road infrastructure in spite of the lack of cycling-specific amenities.

This indicates a further demonstrated need for cycling amenities such as enclosed cycling lanes, painted lanes, signage, etc. to induce those cyclists casually riding Fiji roads to take up their commutes through cycling as a transport mode.

**2.7 – COMPARISONS BY DISTANCE OF COMMUTE – ABILITY TO RIDE A BIKE**

| <u>Distance of Commute &amp; Ability to ride a bike</u> | <u>Yes</u> | <u>No</u>  | <u>I know how to ride</u> | <u>Total</u> |
|---|------------|------------|---------------------------|--------------|
| Less than 5km   | 305        | 50         | 356                       | 711          |
| 5-10km  | 255        | 49         | 294                       | 598          |
| 10-20km   | 117        | 31         | 184                       | 332          |
| More than 20km  | 91         | 18         | 156                       | 256          |
| <b>Total</b>  | <b>768</b> | <b>148</b> | <b>990</b>                | <b>1906</b>  |

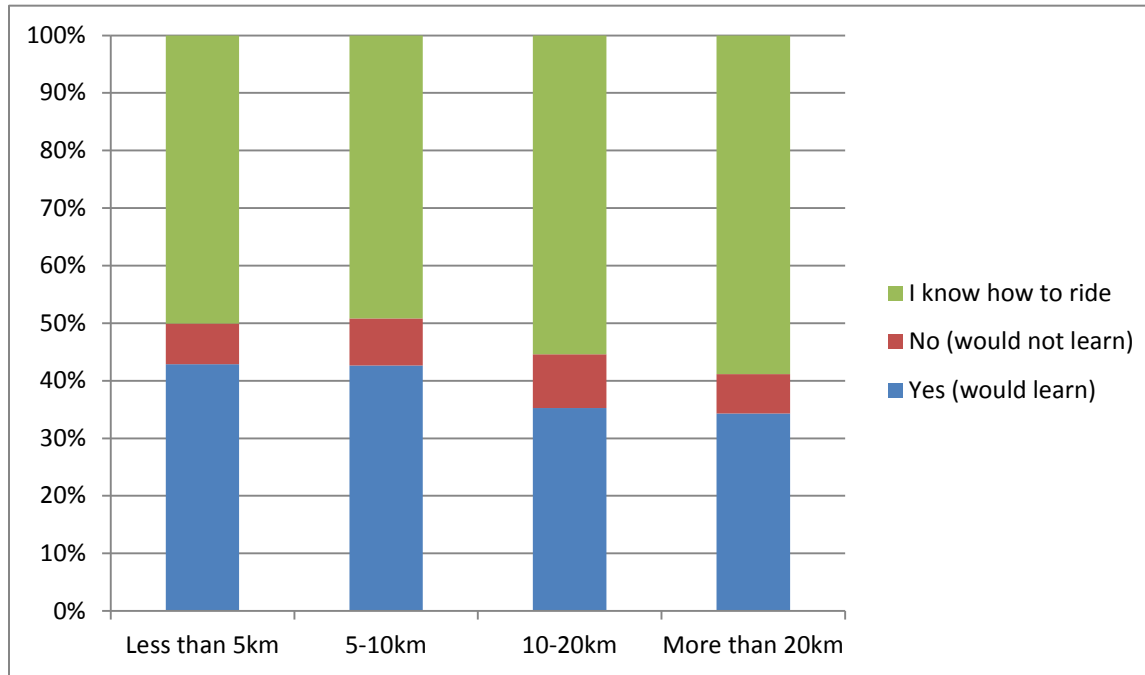
**RECOMMENDATIONS**

We see a slight decrease in ability to ride bicycle amongst respondents in the 5-10km and under 5km commuter range, despite these being the distances most suitable for cycling adoption.

However, the reduced capacity of these respondents to ride (approximately 50% of the total for under 5km and 5-10km commuters) is met with an increased interest in learning to ride (over 42% in both instances).

This may indicate those most in need of bicycles are those also most in need of the training to learn to ride them effectively, which can aid in minimizing the utilization of motorized transport for shorter commuting distances.

Table 2.7 – Total figures of distance of commute & ability to ride a bike

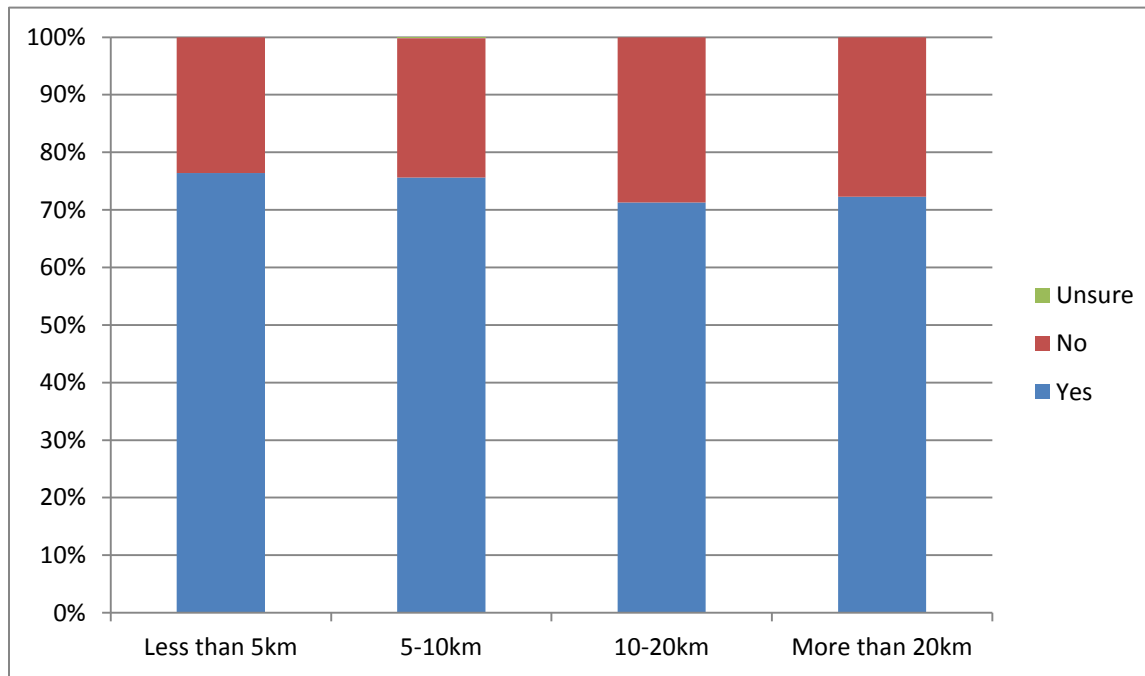


Graph 2.7 – Percentages of distance of commute & ability to ride a bike

## 2.8 – COMPARISONS BY DISTANCE OF COMMUTE – PERCEPTION OF BICYCLE SAFETY

| <u>Distance of Commute &amp; Perception of Bicycle Safety</u> | <u>Yes</u>         | <u>No</u>         | <u>Unsure</u>   | <u>Total</u>       |
|---|--------------------|-------------------|-----------------|--------------------|
| <b>Less than 5km</b>  | <b>538</b>         | <b>166</b>        | <b>0</b>        | <b>704</b>         |
| <b>5-10km</b>   | <b>450</b>         | <b>144</b>        | <b>1</b>        | <b>595</b>         |
| <b>10-20km</b>  | <b>236</b>         | <b>95</b>         | <b>0</b>        | <b>331</b>         |
| <b>More than 20km</b>   | <b>193</b>         | <b>74</b>         | <b>0</b>        | <b>267</b>         |
| <b>Total</b>  | <b><u>1417</u></b> | <b><u>479</u></b> | <b><u>1</u></b> | <b><u>1897</u></b> |

Table 2.8 – Total figures of distance of commute & perception of bicycle safety



Graph 2.8 – Percentages of distance of commute & perception of bicycle safety

### RECOMMENDATIONS

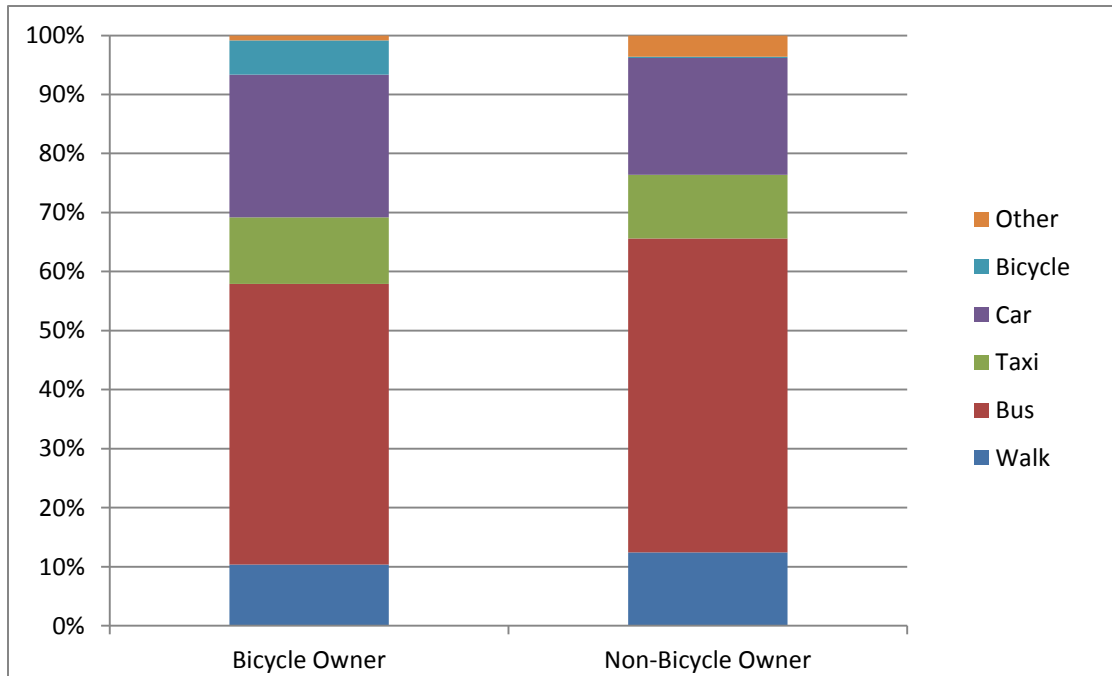
With only one respondent in the 5-10km commute range unsure of the safety of bicycles, opinions on the issue appear almost fully polarized based upon the respondent base.

Across all groups, perceptions of bicycle safety are noted by over 70% of the respondent base. As people venture further away from their commuting destinations, perceptions of danger increase toward 30%. The correlation between the distance of the commuters and the age of the commuters must be explored further, as it was previously shown the older segments of the population find cycling to be more dangerous. However, the small sample group of those aged over 70 is reflected in the minor variation between those respondents commuting distances, since all ages have been separated by commuter distances in this field.

### 3.1 – COMPARISONS BY BICYCLE OWNERSHIP – TYPE OF COMMUTE

| <b>Bicycle Ownership &amp; Type of Commute</b> | <b>Walk</b> | <b>Bus</b>  | <b>Taxi</b> | <b>Car</b> | <b>Bicycle</b> | <b>Other</b> | <b>Total</b> |
|--|-------------|-------------|-------------|------------|----------------|--------------|--------------|
| <b>Bicycle Owner</b>                           | 36          | 165         | 39          | 84         | 20             | 3            | <b>347</b>   |
| <b>Non-Bicycle Owner</b>                       | 213         | 914         | 185         | 340        | 4              | 62           | <b>1718</b>  |
| <b>Total</b>                                   | <b>249</b>  | <b>1079</b> | <b>224</b>  | <b>424</b> | <b>24</b>      | <b>65</b>    | <b>2065</b>  |

Table 3.1 – Total figures of bicycle ownership & type of commute



Graph 3.1 – Percentages of bicycle ownership & type of commute

### RECOMMENDATIONS

The main point of interest in this inquiry is the number of non-bicycle owners who profess to cycle as their main form of commute – four people (0.19% of respondents) made this declaration, which again leads toward further inquiry being needed on household ownership of bicycles and communal use. One of the only other explanations is confusion on the part of the respondents as to the nature of the question being asked.

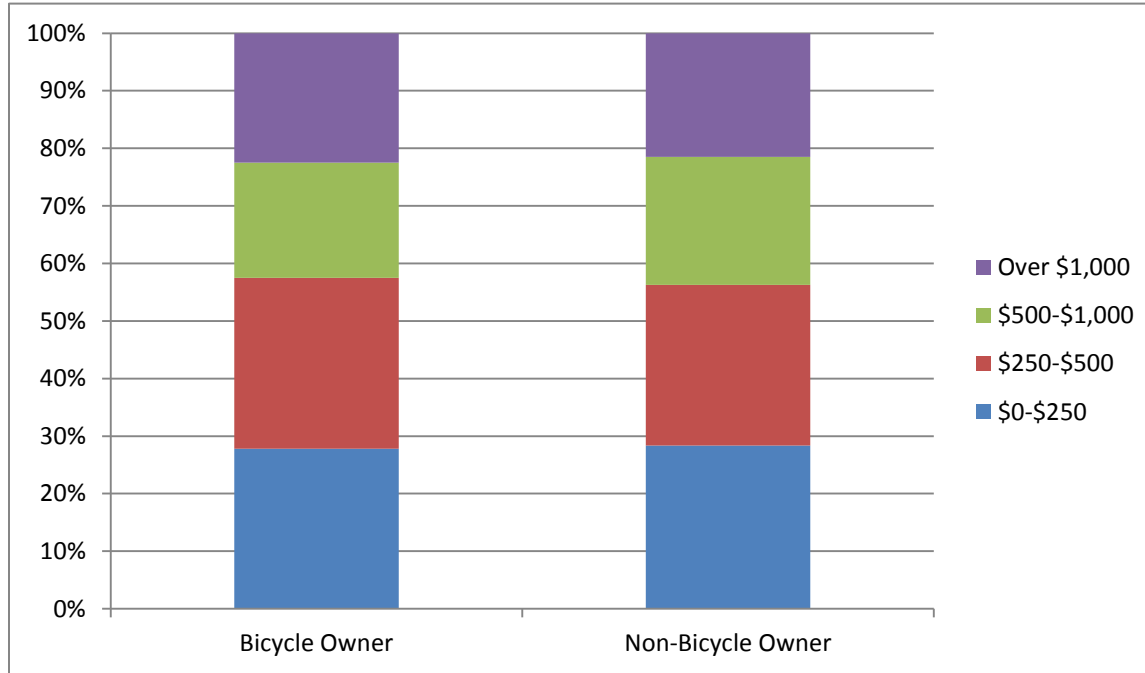
However, of broader statistical significance is the percentage of bicycle owners who currently elect to use other forms of transport (94.2%). This again indicates toward social & traffic-related impediments and infrastructural limitations as the main deterrents to use of bicycles for commuter purposes.

It is again possible there are people deeming themselves bicycle owners who are not the principle users of the bicycles, which will require inclusion of communal use questions in future surveys.

### 3.2 – COMPARISONS BY BICYCLE OWNERSHIP – ANNUAL TRANSPORT EXPENSES

| <b>Bicycle Ownership &amp; Annual Transport Expenses</b> | <b>\$0-\$250</b> | <b>\$250-\$500</b> | <b>\$500-\$1,000</b> | <b>Over \$1,000</b> | <b>Total</b> |
|--|------------------|--------------------|----------------------|---------------------|--------------|
| <b>Bicycle Owner</b>                                     | <b>89</b>        | <b>95</b>          | <b>64</b>            | <b>72</b>           | <b>320</b>   |
| <b>Non-Bicycle Owner</b>                                 | <b>439</b>       | <b>432</b>         | <b>344</b>           | <b>332</b>          | <b>1547</b>  |
| <b>Total</b>   | <b>528</b>       | <b>527</b>         | <b>408</b>           | <b>404</b>          | <b>1867</b>  |

Table 3.2 – Total figures of bicycle ownership & annual transport expenses



Graph 3.2 – Percentages of bicycle ownership & annual transport expenses

### RECOMMENDATIONS

Given the variation by up to nearly 33% in the distribution of costs across bicycle owners, of which only 20 have deemed themselves bicycle commuters, we do not see the potential savings for cyclists realized.

Distribution across the non-bicycle owners is less pronounced, with less than 25% variation between each segment.

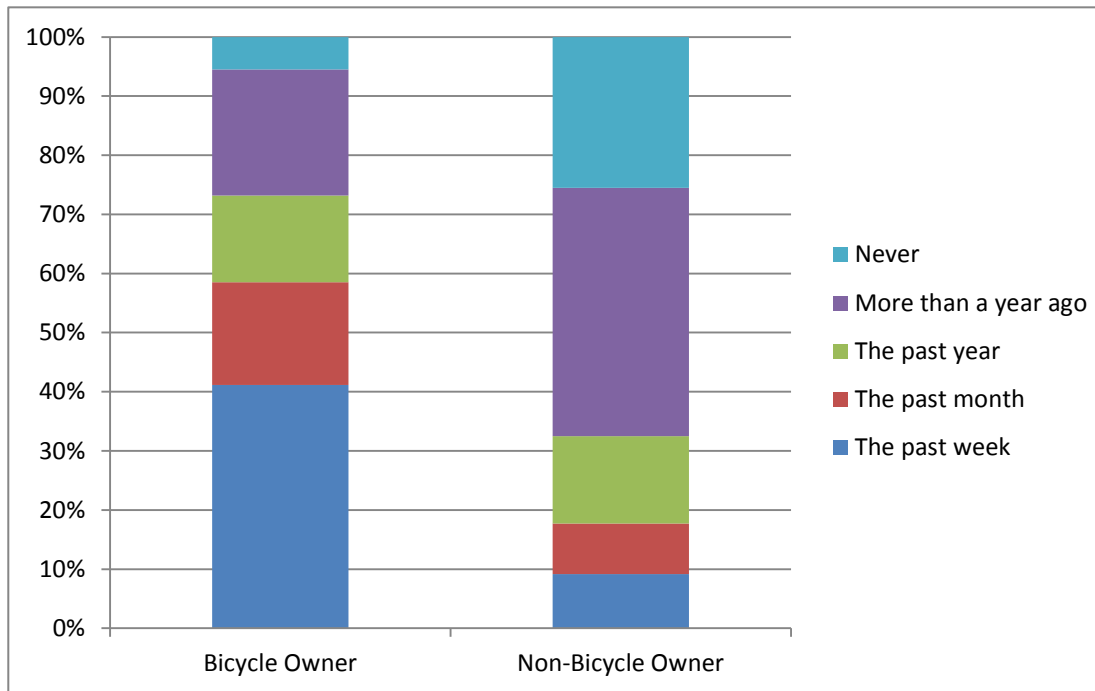
The variation in cost shows much stronger correlation with the distance traveled and the mode of commute, so understanding few of the respondents across these dimensions are using their bicycles (or lack bicycles to use) in commuting means manifold savings are not being attained by either segment of the survey sample group.

This leads to further reinforcement of the need for public awareness material on the savings incurred by using bicycles for daily land transport purposes.

### 3.4 – COMPARISONS BY BICYCLE OWNERSHIP – LAST BIKE RIDE

| <b>Bicycle Ownership &amp; Last Bike Ride</b> | <b>The past week</b> | <b>The past month</b> | <b>The past year</b> | <b>More than a year ago</b> | <b>Never</b> | <b>Total</b> |
|---|----------------------|-----------------------|----------------------|-----------------------------|--------------|--------------|
| <b>Bicycle Owner</b>                          | <b>135</b>           | <b>57</b>             | <b>48</b>            | <b>70</b>                   | <b>18</b>    | <b>328</b>   |
| <b>Non-Bicycle Owner</b>                      | <b>146</b>           | <b>136</b>            | <b>236</b>           | <b>669</b>                  | <b>407</b>   | <b>1594</b>  |
| <b>Total</b>                                  | <b>281</b>           | <b>193</b>            | <b>284</b>           | <b>739</b>                  | <b>425</b>   | <b>1922</b>  |

Table 3.4 – Total figures of bicycle ownership & last bike ride



Graph 3.4 – Percentages of bicycle ownership & last bike ride

### RECOMMENDATIONS

The underutilization of bicycles by those who own them becomes apparent when noting 5% of bicycle owners claim never to have ridden a bicycle. Household ownership and communal use may account for the majority of the discrepancies seen in this dimensional comparison.

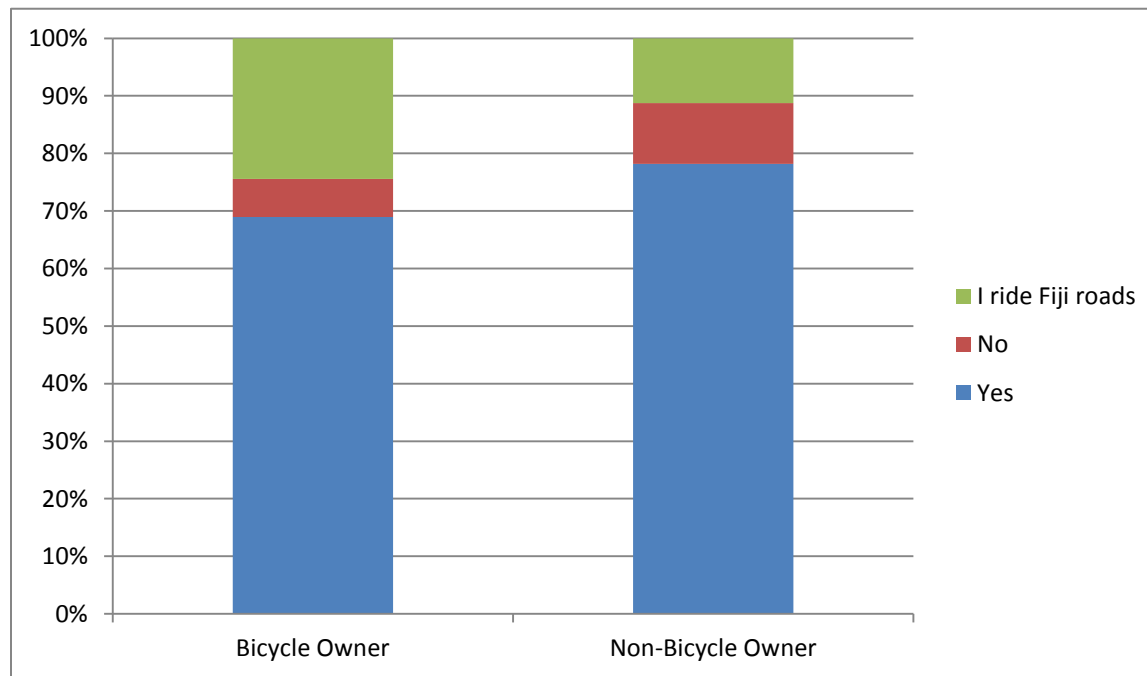
Otherwise indicative of the same disparities in attribution of ownership is the 146 respondents who claim not to own a bike, but have ridden one in the past week (9.2% of respondents). Including the prior month, this figure expands to 17.7% of respondents, which is proportionately higher than the average of bicycles owned amongst the entire survey sample group.

This indicates further research is needed to explore the interest and viability in a municipal/community bicycle sharing programme, wherein underuse of bicycles may be avoided by allocating equipment to those most in need and desirous of riding.

### 3.5 – COMPARISONS BY BICYCLE OWNERSHIP – DESIRE TO LEARN TO RIDE ON FIJI ROADS

| <u>Bicycle Ownership &amp; Desire to learn to ride on Fiji roads</u> | <u>Yes</u>  | <u>No</u>  | <u>I ride Fiji roads</u> | <u>Total</u> |
|--|-------------|------------|--------------------------|--------------|
| <b>Bicycle Owner</b>   | <b>220</b>  | <b>21</b>  | <b>78</b>                | <b>319</b>   |
| <b>Non-Bicycle Owner</b>   | <b>1228</b> | <b>166</b> | <b>177</b>               | <b>1571</b>  |
| <b>Total</b>   | <b>1448</b> | <b>187</b> | <b>255</b>               | <b>1890</b>  |

Table 3.5 – Total figures of bicycle ownership & desire to learn to ride on Fiji roads



Graph 3.5 – Percentages of bicycle ownership & desire to learn to ride on Fiji roads

### RECOMMENDATIONS

This dimensional comparison reveals one of the largest points of confusion in the survey and reasons for revision of the phrasing of the desire to ride Fiji roads question. Over 11.2% of non-bicycle owning respondents stated they currently ride Fiji roads, which means there is a large segment of the sample group borrowing bicycles for casual purposes, or the phrasing of the question was misunderstood.

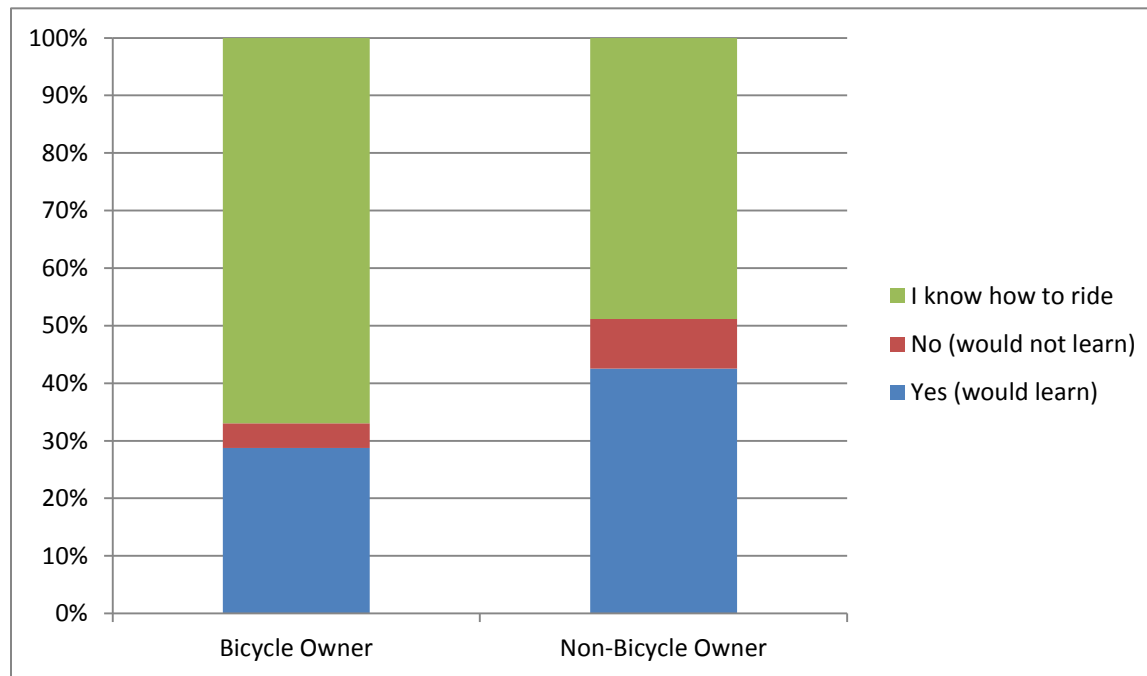
Additionally relevant is the low response rate of bicycle owners, with only 24.5% saying they currently ride Fiji roads. Over 68.9% stated they would like to learn to ride on Fiji roads safely, and over 78.1% of non-bicycle owners expressed the same interest, so even for those already equipped with equipment, there's a need for training and awareness of proper road cycling practices.

The fact this desire is more prominent amongst those without bicycles seems to indicate the need to distribute road riding manuals with the purchase of each new bicycle. This can be incorporated into the LifeCycle Enrollment Programme and executed through coordination between Fiji Government and all bicycle retailers.

### 3.6 – COMPARISONS BY BICYCLE OWNERSHIP – ABILITY TO RIDE A BIKE

| <u>Bicycle Ownership &amp; Ability to ride a bike</u> | <u>Yes</u>        | <u>No</u>         | <u>I know how to ride</u> | <u>Total</u>       |
|---|-------------------|-------------------|---------------------------|--------------------|
| <b>Bicycle Owner</b>                                  | <b>94</b>         | <b>14</b>         | <b>219</b>                | <b>327</b>         |
| <b>Non-Bicycle Owner</b>                              | <b>679</b>        | <b>137</b>        | <b>779</b>                | <b>1595</b>        |
| <b>Total</b>  | <b><u>773</u></b> | <b><u>151</u></b> | <b><u>998</u></b>         | <b><u>1922</u></b> |

Table 3.6 – Total figures of bicycle ownership & ability to ride a bike



Graph 3.6 – Percentages of bicycle ownership & ability to ride a bike

### RECOMMENDATIONS

While 67% of bicycle owners acknowledge their ability to ride bicycles, only 48.8% of those without bicycles have the skills necessary to deem themselves able to cycle.

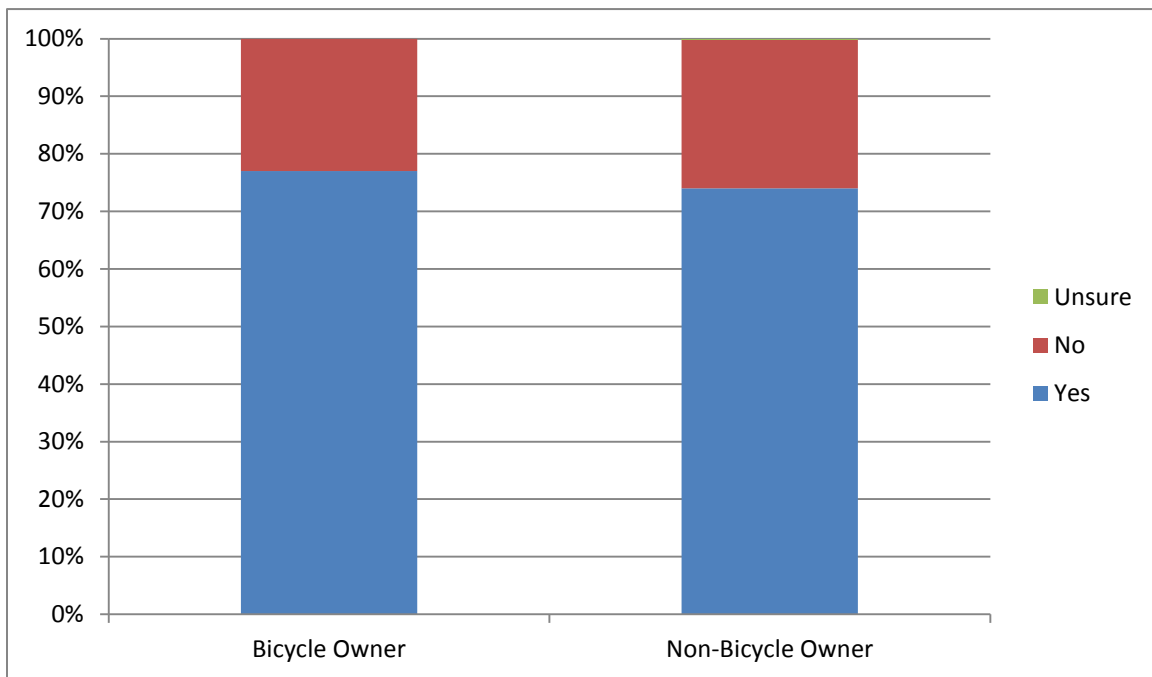
For the 14 bicycle owners expressing no interest in learning to ride, this hints toward household ownership and communal use once again.

The 42.6% of non-bicycle owners who expressed an interest in learning to ride, coupled with those who know how to ride but don't have bicycles represent a 91.4% segment of the population without bicycles who may be able to adopt cycling for their commutes. However, in accordance with the 77.3% (Graph 1.5) who indicated their interest in bicycles to ease their commute, it means there's a segment of the population as of yet unconvinced about the values of commuter cycling, despite their ability/interest in riding bicycles.

### 3.7 – COMPARISONS BY BICYCLE OWNERSHIP – PERCEPTION OF BICYCLE SAFETY

| <u>Bicycle Ownership &amp; Perception of Bicycle Safety</u> | <u>Yes</u>  | <u>No</u>  | <u>Unsure</u> | <u>Total</u> |
|---|-------------|------------|---------------|--------------|
| <b>Bicycle Owner</b>  | <b>251</b>  | <b>75</b>  | <b>0</b>      | <b>326</b>   |
| <b>Non-Bicycle Owner</b>                                    | <b>1176</b> | <b>412</b> | <b>1</b>      | <b>1589</b>  |
| <b>Total</b>  | <b>1427</b> | <b>487</b> | <b>1</b>      | <b>1915</b>  |

Table 3.7 – Total figures of bicycle ownership & perception of bicycle safety



Graph 3.7 – Percentages of bicycle ownership & perception of bicycle safety

### RECOMMENDATIONS

23% of bicycle owners find cycling to be unsafe, compared to 25.9% of those without bicycles, showing a small margin of increased understanding with experience riding.

This similarity in perspective is indicative of larger systemic threats on the road beyond having a bicycle and the ability to ride one instilling confidence. Both existing and new cyclists need to have their confidence in safe passage in commuter traffic assured.

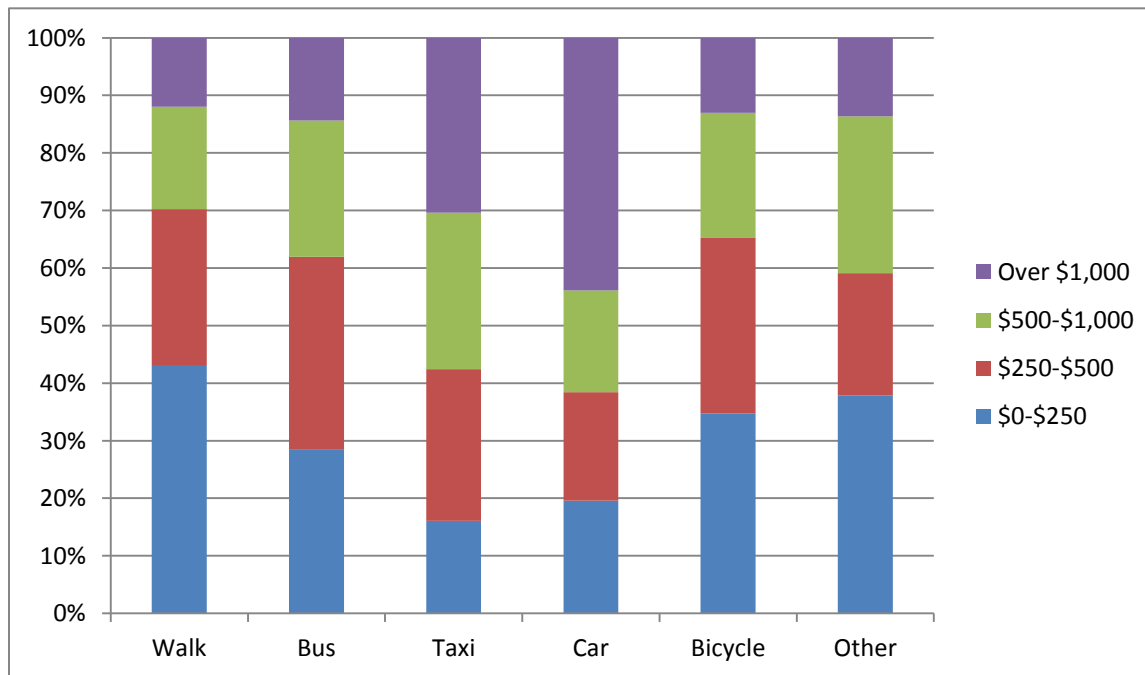
Further understanding of the modal share of different types of transport will provide us with details on the relative safety of bicycles compared to other modes (ie, one bicycle death compared to 23 pedestrian deaths thus far in 2015 must be measured relative to the number of kilometers travelled by the total number of individuals employing each transport mode).

Causes of road traffic fatalities must be analysed further as well to more effectively regulate the most dangerous modes of transport and practices of the operators.

#### 4.1 – COMPARISONS BY TYPES OF COMMUTE – ANNUAL TRANSPORT EXPENSES

| Type of Commute & Annual Transport Expenses | \$0-\$250  | \$250-\$500 | \$500-\$1,000 | Over \$1,000 | Total       |
|---|------------|-------------|---------------|--------------|-------------|
| Walk  | 104        | 66          | 43            | 29           | 242         |
| Bus   | 298        | 352         | 248           | 151          | 1049        |
| Taxi  | 36         | 59          | 61            | 68           | 224         |
| Car   | 82         | 79          | 74            | 184          | 419         |
| Bicycle                                     | 8          | 7           | 5             | 3            | 23          |
| Other                                       | 25         | 14          | 18            | 9            | 66          |
| <b>Total</b>                                | <b>553</b> | <b>577</b>  | <b>449</b>    | <b>444</b>   | <b>2023</b> |

Table 4.1 – Total figures of type of commute & annual transport expenses



Graph 4.1 – Percentages of type of commute & annual transport expenses

#### RECOMMENDATIONS

The primary feedback received on this comparison was the need to qualify the “Other” segment, as distribution across annual transport costs skewed heavily toward the lower end of the spectrum (37.9% spending under \$250 per annum).

Only three people who commute by bicycle (13%) responded they spend over \$1,000 per year in transport, which was only higher than pedestrians, of which 11.9% claimed to spend more than \$1,000. The costs of pedestrians require further qualification to assess how costs are being attributed, as all using pedestrian transport should be seated within the lowest cost segment (unless food is being included as a fuel cost).

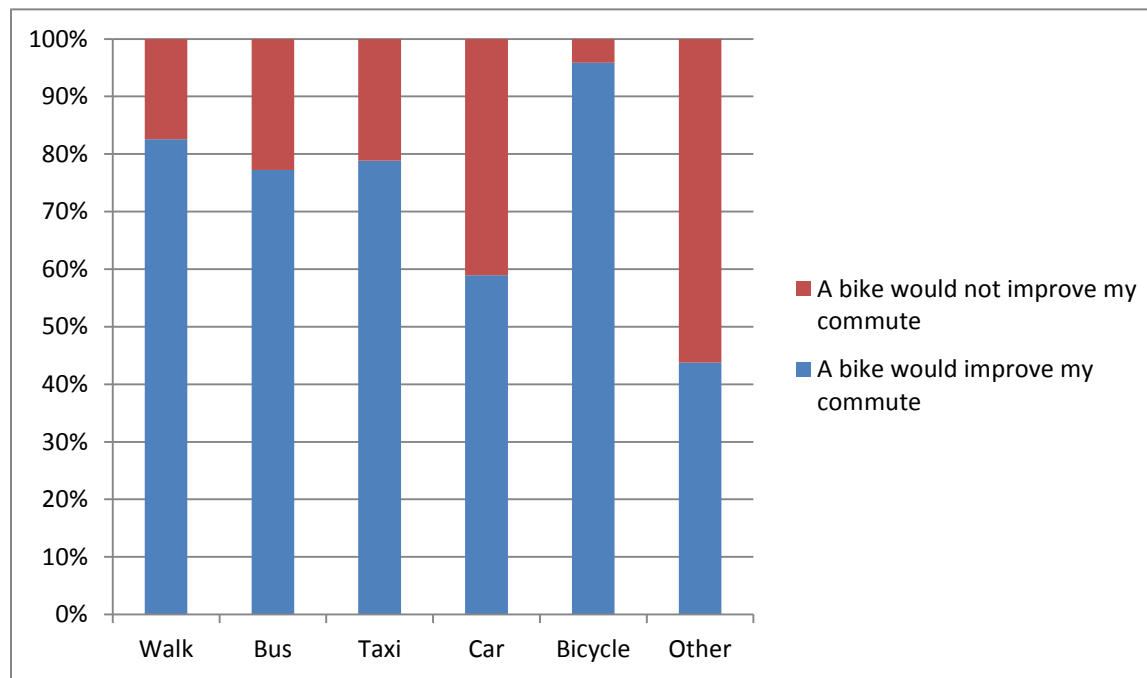
However, it is particularly clear the use of private cars incurs higher expenses, with over 43.9% of private car commuters spending over \$1,000 per annum on their commute. This is followed by Taxi commuters, of which 30.3% are spending over \$1,000 per annum.

These private car travelers, as it can be seen, are showing at least twice the incidence of spending over \$1,000 relative to any other mode of travel.

## 4.2 – COMPARISONS BY TYPES OF COMMUTE – BICYCLE SUITABILITY

| Type of Commute & Bicycle Suitability | Yes         | No         | Total       |
|---------------------------------------|-------------|------------|-------------|
| Walk                                  | 204         | 43         | 247         |
| Bus                                   | 834         | 246        | 1080        |
| Taxi                                  | 175         | 47         | 222         |
| Car                                   | 247         | 172        | 419         |
| Bicycle                               | 23          | 1          | 24          |
| Other                                 | 28          | 36         | 64          |
| <b>Total</b>                          | <b>1511</b> | <b>545</b> | <b>2056</b> |

Table 4.2 – Total figures of type of commute & bicycle suitability



Graph 4.2 – Percentages of type of commute & bicycle suitability

### RECOMMENDATIONS

In keeping with the financial commitments made to personal automotive transport, proportionately, are the least inclined to give up their current mode of all the defined types of travel, with only “other” coming in at under 50% recognition of bicycle suitability.

It should be noted all other modes are showing at least 75% recognition of the suitability of bicycles in easing commutes. 23 out of 24 cyclists acknowledged the benefits provided by their mode, and over 82% of pedestrians acknowledged the improvements bicycles could provide for their daily commute.

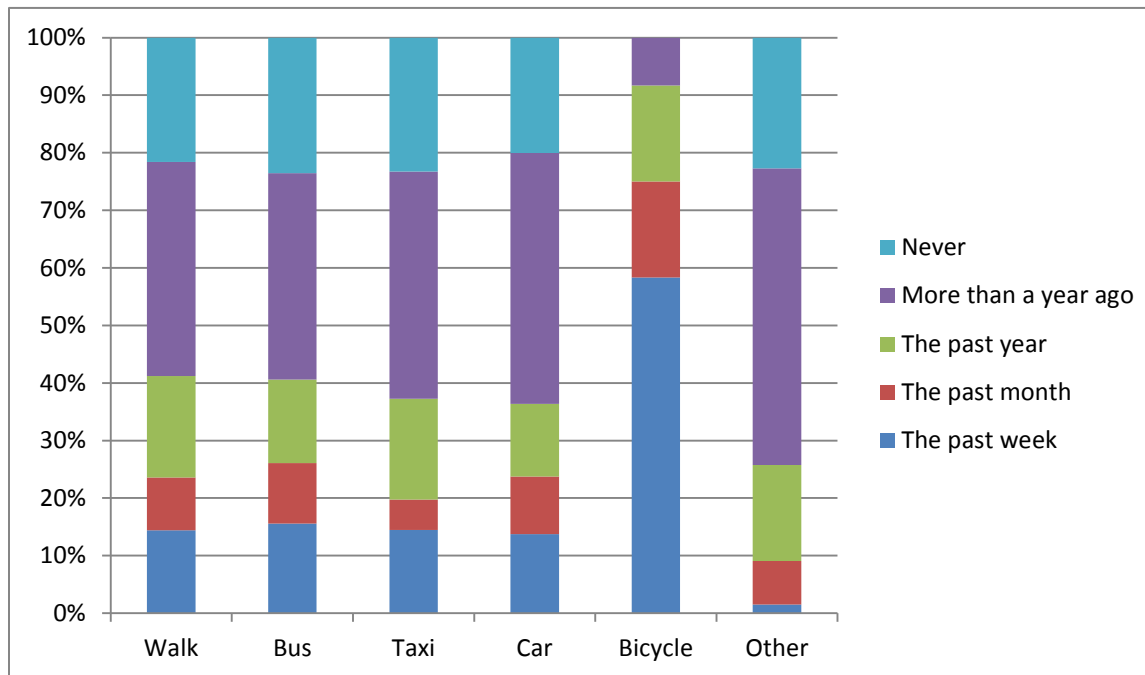
Distinction and qualifying data on “other” commuters is necessary to evaluate their distinct preference for their current mode and the relative benefits provided.

The majority of respondents, who commute by bus, were also showing an overwhelmingly positive response to the option of shifting to a bicycle for their commute, which would represent the largest shift toward active transport amongst the current commuter base.

### 4.3 – COMPARISONS BY TYPES OF COMMUTE – ANNUAL TRANSPORT EXPENSES

| Type of Commute & Last Bike Ride | The past week | The past month | The past year | More than a year ago | Never      | Total       |
|----------------------------------|---------------|----------------|---------------|----------------------|------------|-------------|
| Walk                             | 36            | 23             | 44            | 93                   | 54         | 250         |
| Bus                              | 169           | 114            | 157           | 389                  | 255        | 1084        |
| Taxi                             | 33            | 12             | 40            | 90                   | 53         | 228         |
| Car                              | 59            | 43             | 54            | 187                  | 86         | 429         |
| Bicycle                          | 14            | 4              | 4             | 2                    | 0          | 24          |
| Other                            | 1             | 5              | 11            | 34                   | 15         | 66          |
| <b>Total</b>                     | <b>276</b>    | <b>178</b>     | <b>266</b>    | <b>702</b>           | <b>409</b> | <b>1831</b> |

Table 4.3 – Total figures of type of commute & last bike ride



Graph 4.3 – Percentages of type of commute & last bike ride

### RECOMMENDATIONS

Fortunately, the statistical anomaly of respondents claiming to commute by bicycle while stating they've never ridden a bike did not occur. However, for two bicycle commuters, the claim they had not ridden a bike in over a year brings the respondents' understanding of primary mode of transport for commuting into question.

With the exception of bicycle commuters, however, it is clear that a majority of respondents have not ridden a bike in at least a year, if ever. When taken alongside the 1,073 respondents who have stated they know how to ride bicycles (Table 4.5), it becomes clear some of the 1,422 respondents who have ridden bikes previously would not deem themselves competent enough on bicycles to consider themselves able to ride.

This indicates a need for bicycle competency training to accompany an increase in market availability, so the establishment of training protocols, practice tracks and other controlled environments, cyclist rights & responsibilities, and public service materials are all integral in increasing rider confidence.

**COMPARISONS BY TYPES OF COMMUTE – ANNUAL TRANSPORT EXPENSES**

| <u>Type of Commute &amp; Desire to learn to ride on Fiji roads</u> | <u>Yes</u>  | <u>No</u>  | <u>I ride Fiji roads</u> | <u>Total</u> |
|--|-------------|------------|--------------------------|--------------|
| Walk   | 198         | 22         | 83                       | 303          |
| Bus  | 850         | 84         | 129                      | 1063         |
| Taxi   | 169         | 18         | 35                       | 222          |
| Car  | 289         | 64         | 69                       | 422          |
| Bicycle  | 16          | 0          | 8                        | 24           |
| Other  | 43          | 14         | 9                        | 66           |
| <b>Total</b>   | <b>1565</b> | <b>202</b> | <b>333</b>               | <b>2100</b>  |

**RECOMMENDATIONS**

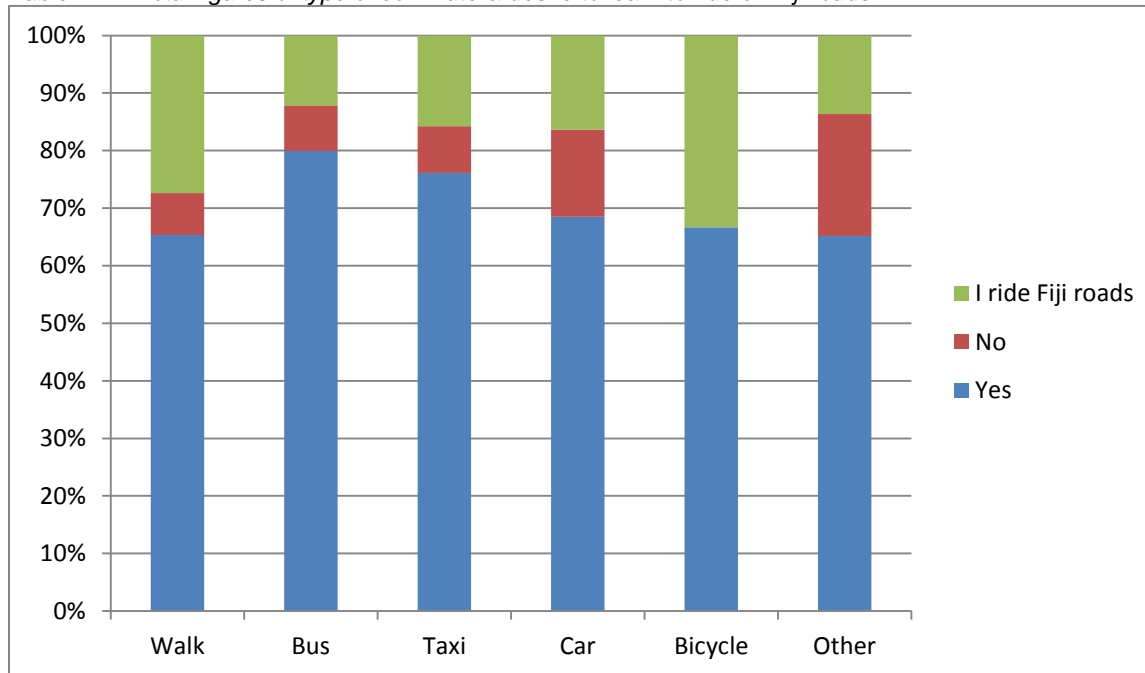
There are a number of respondents in each mode outside of cycling who responded they ride on Fiji roads, so clarification and rephrasing of this question is reinforced by this comparison as a necessary change for future survey questionnaires.

However, all cycling commuters expressed an interest in riding on Fiji Roads, so no reluctance was expressed by those who already deem themselves bike riders.

Across all modes, desire to learn to ride on the roads exceeds 65%, so ensuring proper material is disseminated with bicycle purchases to instruct and inform new cyclists of their rights & responsibilities on the road is a necessary inclusion to increase confidence and awareness.

In line with the discussion on provision of favorable life/health insurance packages for commuter cyclists, perhaps insurance providers might provide a proficiency test to determine competency and understanding of cycling road rules prior to approval of reduced rate plans and other benefits.

Table 4.4 – Total figures of type of commute & desire to learn to ride on Fiji roads



Graph 4.4 – Percentages of type of commute & desire to learn to ride on Fiji roads

#### 4.5 – COMPARISONS BY TYPES OF COMMUTE – ABILITY TO RIDE A BIKE

| Type of Commute & Ability to ride a bike | Yes        | No         | I know how to ride | Total       |
|--|------------|------------|--------------------|-------------|
| Walk                                     | 104        | 16         | 129                | 249         |
| Bus                                      | 491        | 65         | 527                | 1083        |
| Taxi                                     | 95         | 19         | 113                | 227         |
| Car                                      | 126        | 43         | 255                | 424         |
| Bicycle                                  | 7          | 2          | 14                 | 23          |
| Other                                    | 21         | 12         | 35                 | 68          |
| <b>Total</b>                             | <b>844</b> | <b>157</b> | <b>1073</b>        | <b>2074</b> |

Table 4.5 – Total figures of type of commute & ability to ride a bike

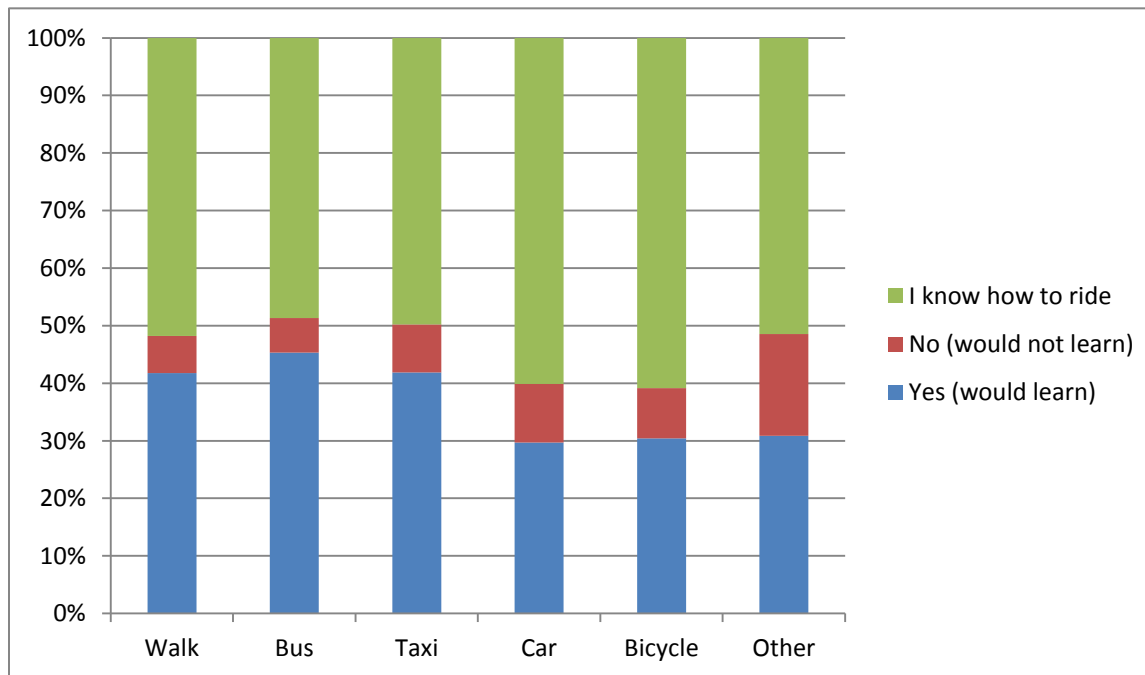


Table 4.5 – Percentages of type of commute & ability to ride a bike

#### RECOMMENDATIONS

Again, relative to other modes, the “other” commuters express the least interest or pre-existing competency in knowing how to ride bicycles.

The main anomaly noted here rests with the two cycling commuters who claim not to have any interest in learning to ride bicycles – however following examination of the individual responses, it appears these respondents both claim to have ridden in the past week, so there may be other areas of confusion to explore. Rephrasing of the question may be required in subsequent survey questionnaires.

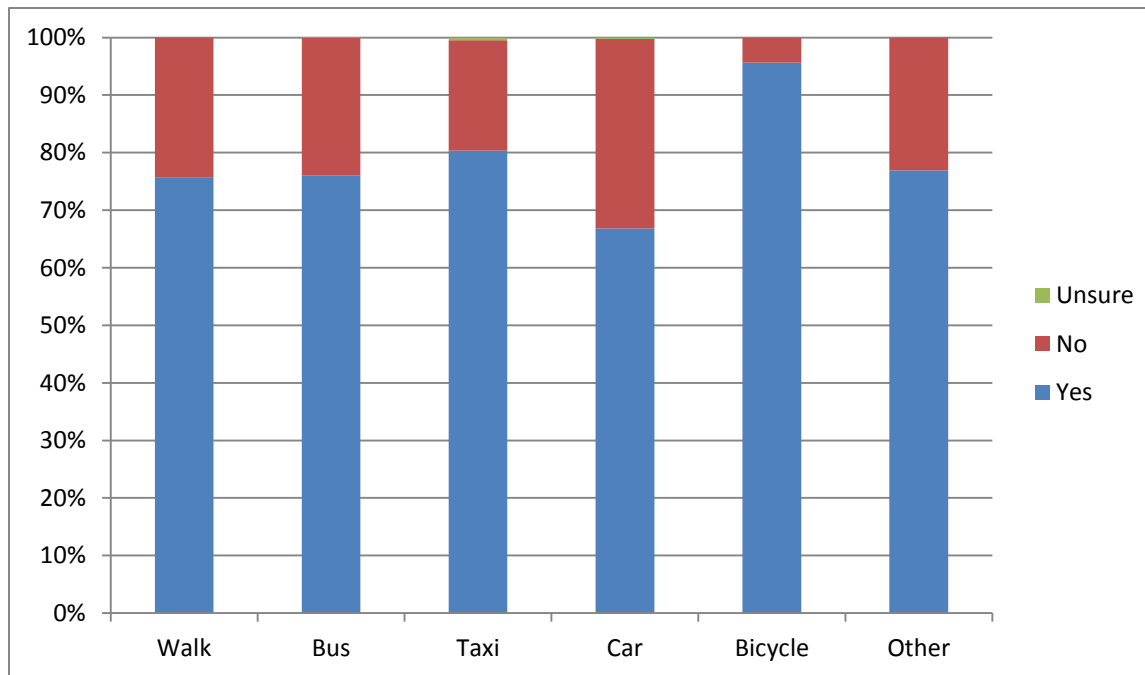
We do see a slight majority of respondents claiming to know how to ride, but with 51.7% respondents able to ride, and only 17% of respondents claiming to own bicycles (Graph 1.3), over a third of the respondents are not utilizing their cycling skills to reduce emissions and costs at an individual level.

This indicates, despite the skills being possessed, cost-reducing measures must be promoted to the public which emphasize the benefits of switching modes to cycling for commuter travel. These interventions should target, in particular, the 43.4% of the population spending over \$500 per annum on their commute.

**4.6 – COMPARISONS BY TYPES OF COMMUTE – PERCEPTION OF BICYCLE SAFETY**

| Type of Commute & Perception of Bicycle Safety | Yes         | No         | Unsure   | Total       |
|--|-------------|------------|----------|-------------|
| Walk   | 187         | 60         | 0        | 247         |
| Bus  | 824         | 258        | 1        | 1083        |
| Taxi   | 180         | 43         | 1        | 224         |
| Car  | 284         | 140        | 1        | 425         |
| Bicycle  | 22          | 1          | 0        | 23          |
| Other  | 50          | 15         | 0        | 65          |
| <b>Total</b>                                   | <b>1547</b> | <b>517</b> | <b>3</b> | <b>2067</b> |

Table 4.6 – Total figures of type of commute & perception of bicycle safety



Graph 4.6 – Percentages of type of commute & perception of bicycle safety

**RECOMMENDATIONS**

Those who already cycle show themselves to be the most confident in the safety of their transport mode.

Interestingly, the only segment viewing bicycles to be safe at a response rate of under 70% are those who travel by personal car (32.9% think bicycling is unsafe). The predilection towards assuming safety in automobiles may be biased in particular toward the safety of those passengers occupying the private vehicles, who are less inclined to be seriously injured in any road traffic accidents than exposed travelers such as pedestrians or cyclists.

However, the safety of bicycles expressed by the majority of respondents may be undermined by other factors such as

**5.1 – COMPARISONS BY ANNUAL TRANSPORT COSTS – BICYCLE SUITABILITY**

| <u>Transport Costs &amp; Bicycle Suitability</u> | <u>Yes</u>  | <u>No</u>  | <u>Total</u> |
|--|-------------|------------|--------------|
| \$0-\$250  | 392         | 133        | 525          |
| \$250-500  | 382         | 147        | 529          |
| \$500-\$1,000                                    | 308         | 99         | 407          |
| Over \$1,000                                     | 274         | 124        | 398          |
| <b>Total</b>                                     | <b>1356</b> | <b>503</b> | <b>1859</b>  |

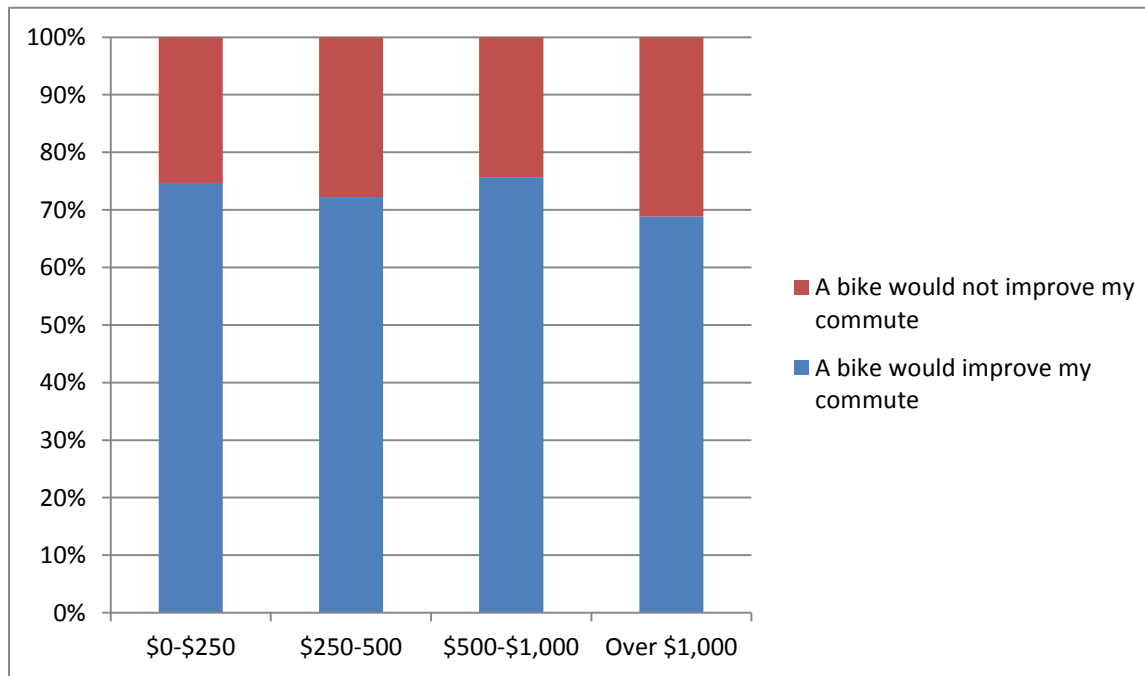
**RECOMMENDATIONS**

The highest rate of favorability was noted amongst those spending under \$250 per annum. This would possibly be composed of up to 26.5% pedestrians, as 104 pedestrians claimed they spend under \$250 per annum on their commute (Table 4.1 & Table 4.2).

The most significant area for reduction in sedentary, motorized transport modes according to total mode share would be in the segment of bus commuters, though proportionally, costs would be most greatly reduced per respondent by targeting taxi and personal car commuters.

It is interesting to note those least in favor of taking a bicycle are those spending the most on their commute (31.1% would not find bicycles suitable). This may encompass the 103 spending more than \$1,000 per year who also travel over 20km for their commute (Table 2.3).

Table 5.1 – Total figures of annual transport costs & bicycle suitability

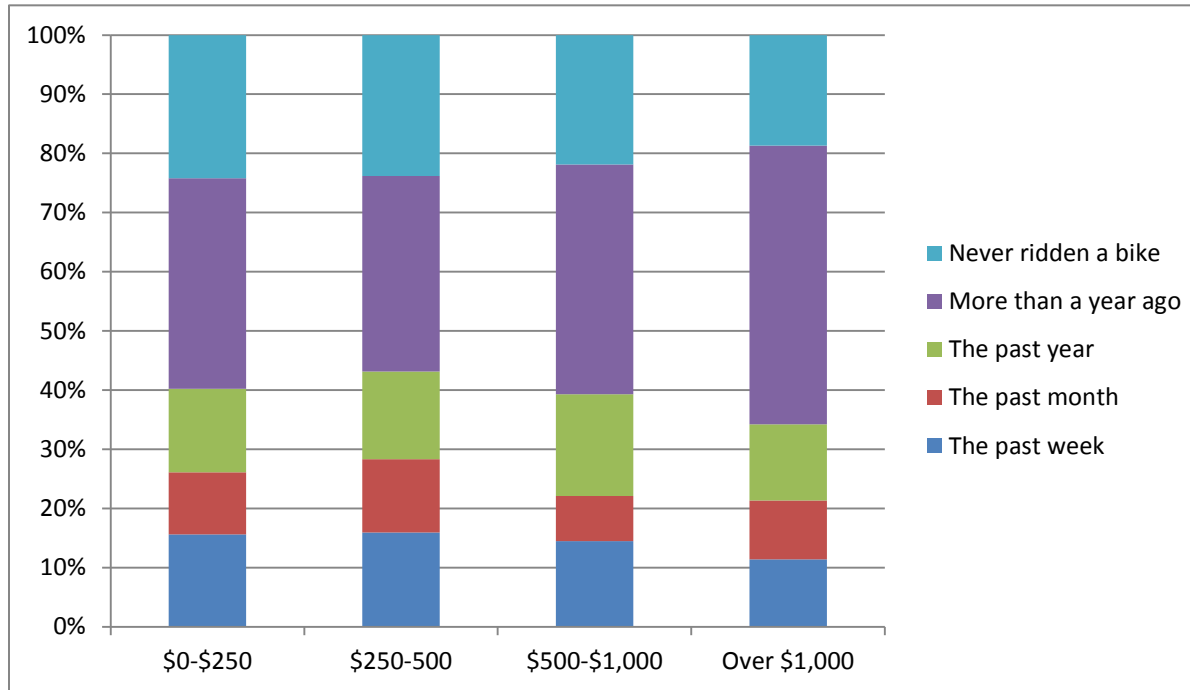


Graph 5.1 – Percentages of annual transport costs & bicycle suitability

## 5.2 – COMPARISONS BY ANNUAL TRANSPORT COSTS – LAST BIKE RIDE

| <u>Transport Costs &amp; Last Bike Ride</u> | <u>The past week</u> | <u>The past month</u> | <u>The past year</u> | <u>More than a year ago</u> | <u>Never</u>      | <u>Total</u>       |
|---|----------------------|-----------------------|----------------------|-----------------------------|-------------------|--------------------|
| <b>\$0-\$250</b>                            | <b>82</b>            | <b>55</b>             | <b>74</b>            | <b>187</b>                  | <b>127</b>        | <b>525</b>         |
| <b>\$250-500</b>                            | <b>85</b>            | <b>66</b>             | <b>79</b>            | <b>176</b>                  | <b>127</b>        | <b>533</b>         |
| <b>\$500-\$1,000</b>                        | <b>59</b>            | <b>31</b>             | <b>70</b>            | <b>158</b>                  | <b>89</b>         | <b>407</b>         |
| <b>Over \$1,000</b>                         | <b>47</b>            | <b>41</b>             | <b>53</b>            | <b>194</b>                  | <b>77</b>         | <b>412</b>         |
| <b>Total</b>                                | <b><u>191</u></b>    | <b><u>138</u></b>     | <b><u>202</u></b>    | <b><u>528</u></b>           | <b><u>293</u></b> | <b><u>1352</u></b> |

Table 5.2 – Total figures of annual transport costs & last bike ride



Graph 5.2 – Percentages of annual transport costs & last bike ride

### RECOMMENDATIONS

The correlation between transport costs and last bike ride were relatively evenly distributed, with the most statistically significant distinction being the 47% of respondents spending over \$1,000 reporting they haven't ridden a bicycle in over a year.

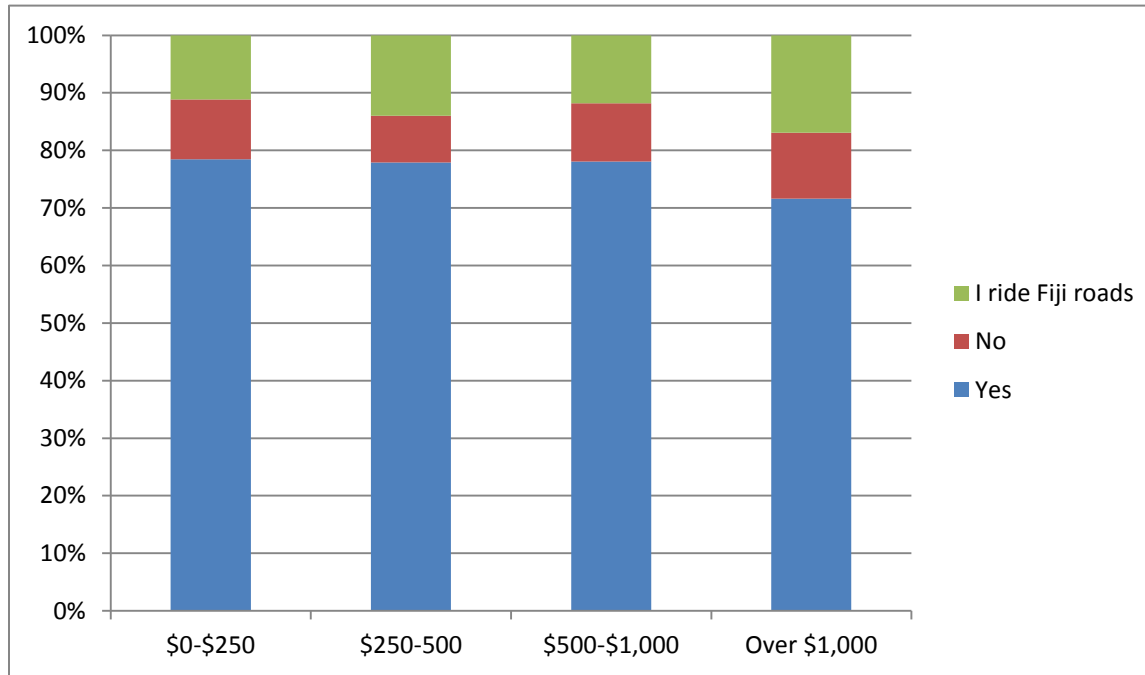
This indicates a significant portion of the respondents have forgone pursuing lower cost forms of transport and have taken up more resource-intensive modes of commuting over their travel history.

Impressing upon the personal car commuters and taxi commuters the savings available through bicycle commuting may lead to a reintroduction of active transport to their commute if they are inclined to prioritize the cost and pollution reductions.

**5.3 – COMPARISONS BY TRANSPORT COSTS – DESIRE TO LEARN TO RIDE ON FIJI ROADS**

| <u>Transport Costs &amp; Desire to learn to ride on Fiji roads</u> | <u>Yes</u>  | <u>No</u>  | <u>I ride Fiji roads</u> | <u>Total</u> |
|--|-------------|------------|--------------------------|--------------|
| \$0-\$250  | 408         | 54         | 58                       | 520          |
| \$250-500  | 412         | 43         | 74                       | 529          |
| \$500-\$1,000  | 310         | 40         | 47                       | 397          |
| Over \$1,000   | 288         | 46         | 68                       | 402          |
| <b>Total</b>   | <b>1418</b> | <b>183</b> | <b>247</b>               | <b>1848</b>  |

Table 5.3 – Total figures of annual transport costs & desire to learn to ride on Fiji roads



Graph 5.3 – Percentages of annual transport costs & desire to learn to ride on Fiji roads

**RECOMMENDATIONS**

Transport costs did not display a strong correlation with desire to ride on Fiji's roads, with opinions varying no more than 10% across all respondent segments.

However, those spending over \$1,000 were slightly less inclined to switch modes and commit additional resources toward learning to ride on Fiji roads safely and begin cycling.

This may indicate a commitment to the investment in the current mode employed by the respondent, particularly in the event of personal car ownership being the primary mode of transport.

It may also be indicative of a slightly stronger preference toward convenience and comfort which would dictate the prioritization of more resource-intensive modes of travel.

**5.4 – COMPARISONS BY TRANSPORT COSTS – ABILITY TO RIDE A BIKE**

| <u>Transport Costs &amp; Ability to ride a bike</u> | <u>Yes</u> | <u>No</u>  | <u>I know how to ride</u> | <u>Total</u> |
|---|------------|------------|---------------------------|--------------|
| \$0-\$250   | 227        | 40         | 261                       | 528          |
| \$250-500   | 217        | 40         | 276                       | 533          |
| \$500-\$1,000                                       | 155        | 34         | 219                       | 408          |
| Over \$1,000  | 151        | 30         | 228                       | 409          |
| <b>Total</b>  | <b>750</b> | <b>144</b> | <b>984</b>                | <b>1878</b>  |

**RECOMMENDATIONS**

We can observe over 50% of all respondents in the \$250-500, \$500-1,000, and +\$1,000 segments noting they are already able to ride bicycles.

The slightly lower response rate from those spending under \$250 per annum on their commute (49.4%) might be indicative of financial limitations which have precluded the respondents from having the expendable income to devote towards purchasing bicycles and learning to ride. It is also worth noting over 42% of respondents spending under \$250 per annum were interested in learning to ride, which is higher than any other segment of the sample group.

This means bringing in a bicycle at a price point under \$500 may isolate a small percentage (2.3%) of the population from picking up the practice unless appropriately subsidized or supplied through a hired purchase/incremental payment structure.

Table 5.4 – Total figures of annual transport costs & ability to ride a bike



Graph 5.4 – Percentages of annual transport costs & ability to ride a bike

**5.5 – COMPARISONS BY TRANSPORT COSTS – PERCEPTION OF BICYCLE SAFETY**

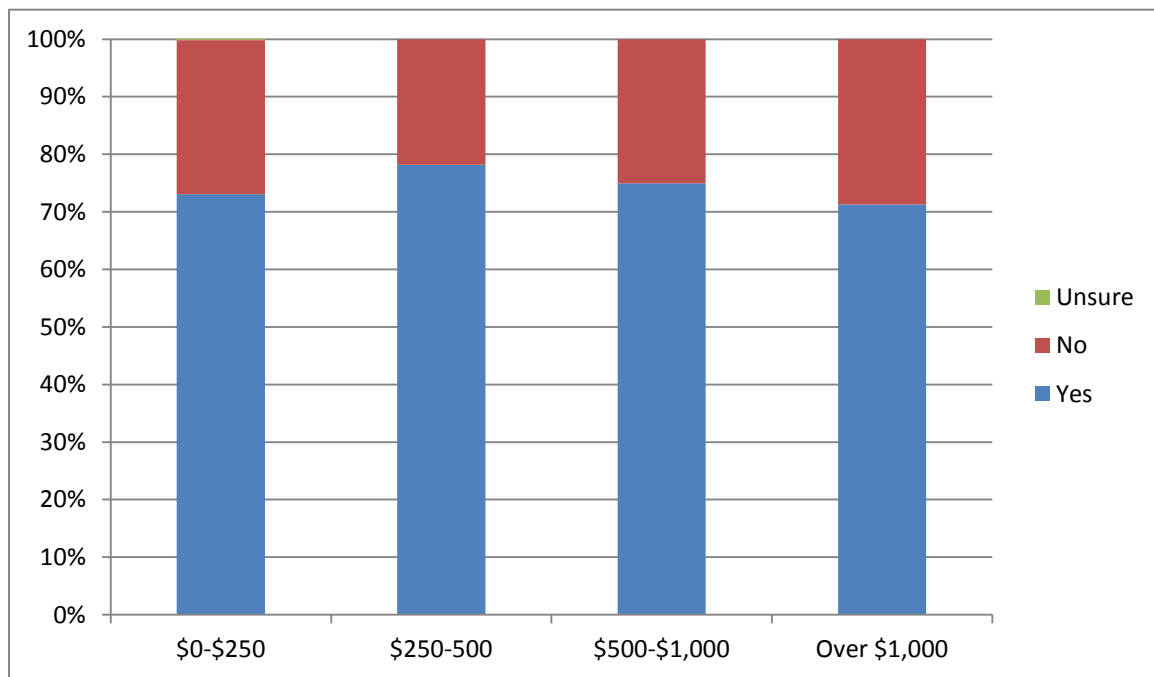
| <b>Transport Costs &amp; Perception of Bicycle Safety</b> | <b>Yes</b>  | <b>No</b>  | <b>Unsure</b> | <b>Total</b> |
|---|-------------|------------|---------------|--------------|
| <b>\$0-\$250</b>  | <b>382</b>  | <b>140</b> | <b>1</b>      | <b>523</b>   |
| <b>\$250-500</b>  | <b>416</b>  | <b>116</b> | <b>0</b>      | <b>532</b>   |
| <b>\$500-\$1,000</b>                                      | <b>302</b>  | <b>101</b> | <b>0</b>      | <b>403</b>   |
| <b>Over \$1,000</b>                                       | <b>293</b>  | <b>118</b> | <b>0</b>      | <b>411</b>   |
| <b>Total</b>  | <b>1393</b> | <b>475</b> | <b>1</b>      | <b>1869</b>  |

**RECOMMENDATIONS**

All respondent groups expressed similar levels of perception in regard to bicycle safety, with all segments showing between 70-80% favorability.

However, the segment spending under \$250 and the segment spending over \$1,000 showed slightly lower confidence in the safety of bicycling. Further examination of the parameters for bicycle safety will need to be included in subsequent survey questionnaires along with qualifying follow-up questions to define comfort levels with current infrastructure and the role people see for cyclists on Fiji roads.

Table 5.5 – Total figures of annual transport costs & perception of bicycle safety

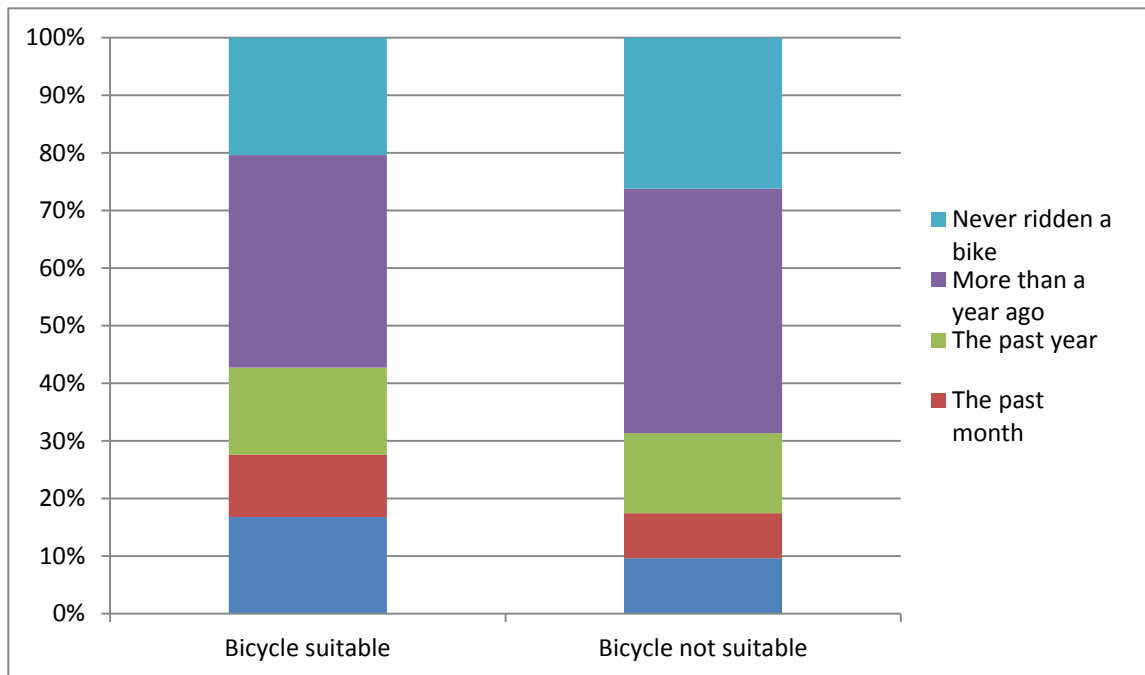


Graph 5.5 – Percentages of annual transport costs & perception of bicycle safety

### 6.1 – COMPARISONS BY BICYCLE SUITABILITY – LAST BIKE RIDE

| <u>Bike Suitability &amp; Last Bike Ride</u> | <u>The past week</u> | <u>The past month</u> | <u>The past year</u> | <u>More than a year ago</u> | <u>Never</u> | <u>Total</u> |
|--|----------------------|-----------------------|----------------------|-----------------------------|--------------|--------------|
| <b>Bicycle suitable</b>                      | <b>235</b>           | <b>152</b>            | <b>212</b>           | <b>517</b>                  | <b>286</b>   | <b>1402</b>  |
| <b>Bicycle not suitable</b>                  | <b>49</b>            | <b>40</b>             | <b>71</b>            | <b>217</b>                  | <b>134</b>   | <b>511</b>   |
| <b>Total</b>                                 | <b>284</b>           | <b>192</b>            | <b>283</b>           | <b>734</b>                  | <b>420</b>   | <b>1913</b>  |

Table 6.1 – Total figures of bike suitability & last bike ride



Graph 6.1 – Percentages of bike suitability & last bike ride

### RECOMMENDATIONS

As might be expected, those respondents most recently on bicycles show more favorable responses pertaining to the suitability of bicycles for improving commutes. 82.7% of those riding in the last week found bicycles to be suitable for improving their commutes, 79.1% of those who've ridden in the past month, 74.9% of those who've ridden in the past year, 70.4% of those who've ridden before, but more than a year ago, and 68.1% of those who've never ridden before imagine bicycles would improve their commute.

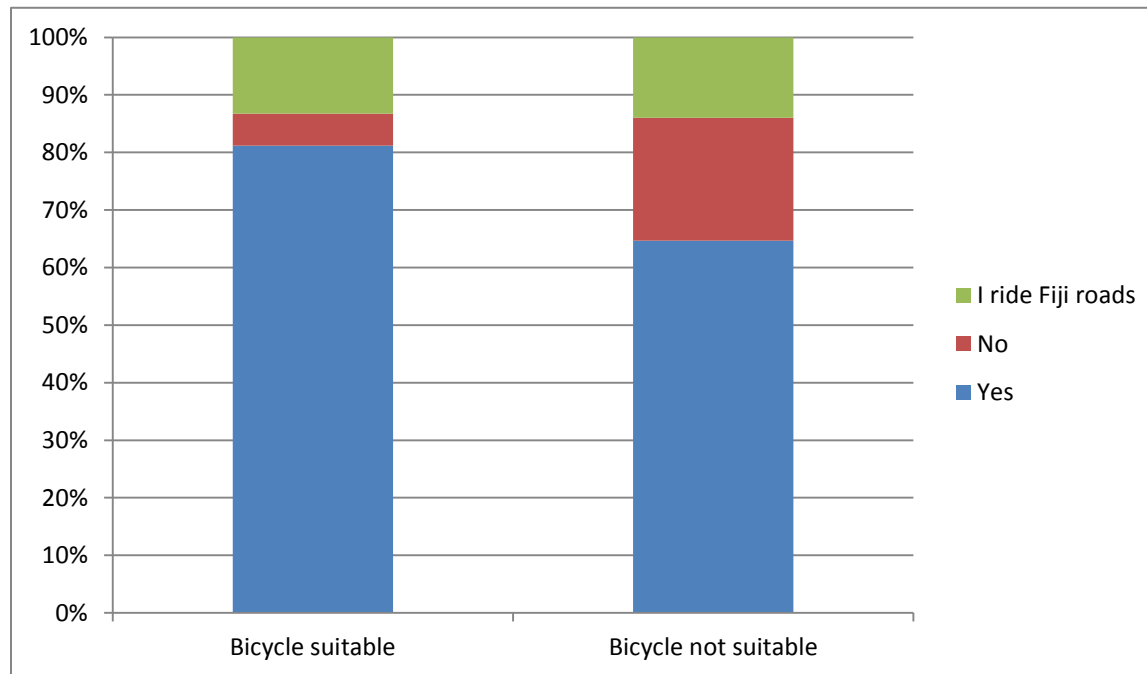
Thus, the correlation between riding most recently and acknowledging the benefit of bicycles can be seen as positive. This indicates the more recently people have experience with bicycles, the more inclined they are to find them suitable for meeting their present commuter needs.

Introductory bicycle courses and test rides on bicycles could be provided by retailers to re-engage those who have not cycled recently and rekindle their enjoyment and confidence in their ability to meet their daily transport requirements through cycling.

## 6.2 – COMPARISONS BY BIKE SUITABILITY – DESIRE TO LEARN TO RIDE ON FIJI ROADS

| <b><u>Bike Suitability &amp; Desire to learn to ride on Fiji roads</u></b> | <b><u>Yes</u></b>  | <b><u>No</u></b>  | <b><u>I ride Fiji roads</u></b> | <b><u>Total</u></b> |
|--|--------------------|-------------------|---------------------------------|---------------------|
| <b>Bicycle suitable</b>  | <b>1116</b>        | <b>77</b>         | <b>182</b>                      | <b>1375</b>         |
| <b>Bicycle not suitable</b>  | <b>328</b>         | <b>108</b>        | <b>71</b>                       | <b>507</b>          |
| <b>Total</b>   | <b><u>1444</u></b> | <b><u>185</u></b> | <b><u>253</u></b>               | <b><u>1882</u></b>  |

Table 6.2 – Total figures of bike suitability & desire to learn to ride on Fiji roads



Graph 6.2 – Percentages of bike suitability & desire to learn to ride on Fiji roads

### RECOMMENDATIONS

Overwhelmingly, those respondents who stated bicycles would be a suitable means of improving their commute displayed an inclination towards wanting to ride on Fiji roads – 59.3% of the total respondents, and 81.1% of those who see bicycles as a means for improving their commute expressed a desire in learning to ride in traffic.

Again, the clarification of what “riding Fiji roads” entails is required in further survey questionnaires. However, projecting upon the responses of the sample group, it is apparent there is a large segment of the population ready and willing to adopt bicycles for their commute if provided with adequate supply of reliable equipment and the guidelines for safe road use as cyclists.

### 6.3 – COMPARISONS BY BIKE SUITABILITY – ABILITY TO RIDE A BIKE

| <b>Bike Suitability &amp; Ability to ride a bike</b> | <b>Yes</b> | <b>No</b>  | <b>I know how to ride</b> | <b>Total</b> |
|--|------------|------------|---------------------------|--------------|
| <b>Bicycle suitable</b>                              | <b>603</b> | <b>69</b>  | <b>728</b>                | <b>1400</b>  |
| <b>Bicycle not suitable</b>                          | <b>169</b> | <b>81</b>  | <b>263</b>                | <b>513</b>   |
| <b>Total</b>   | <b>772</b> | <b>150</b> | <b>991</b>                | <b>1913</b>  |

Table 6.3 – Total figures of bike suitability & ability to ride a bike

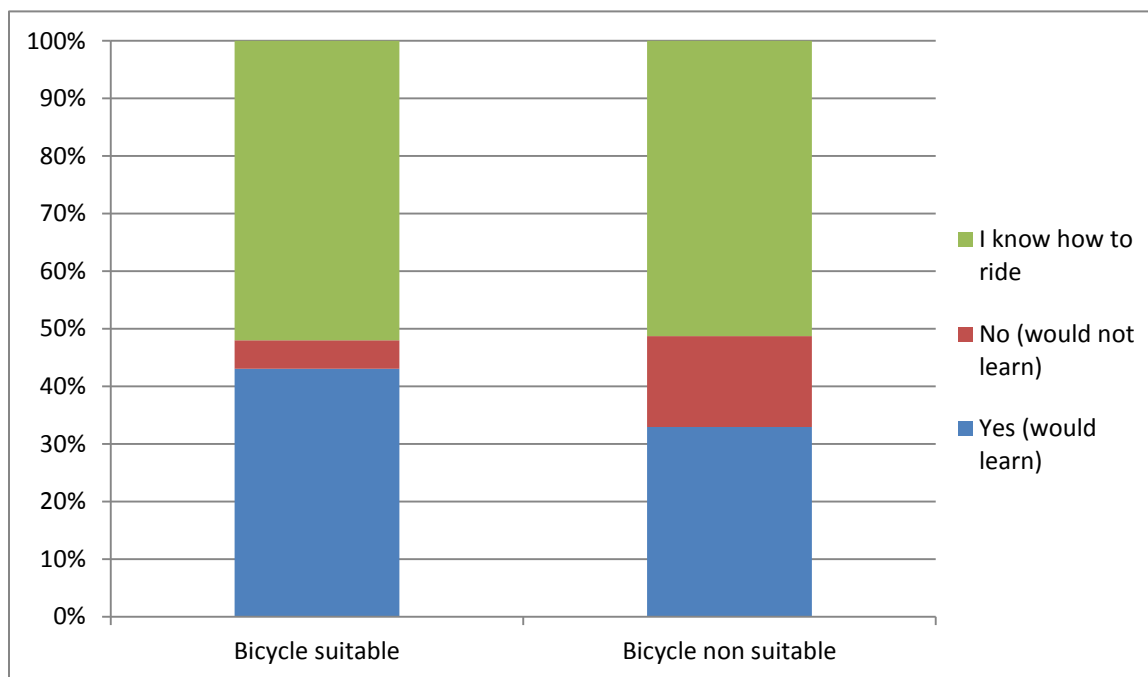


Table 6.3 – Percentages of bike suitability & ability to ride a bike

### RECOMMENDATIONS

It is worth noting there were 69 respondents (3.6%) who said bicycles would be suitable for improving their commute, but are nonetheless not interested in learning to ride bicycles.

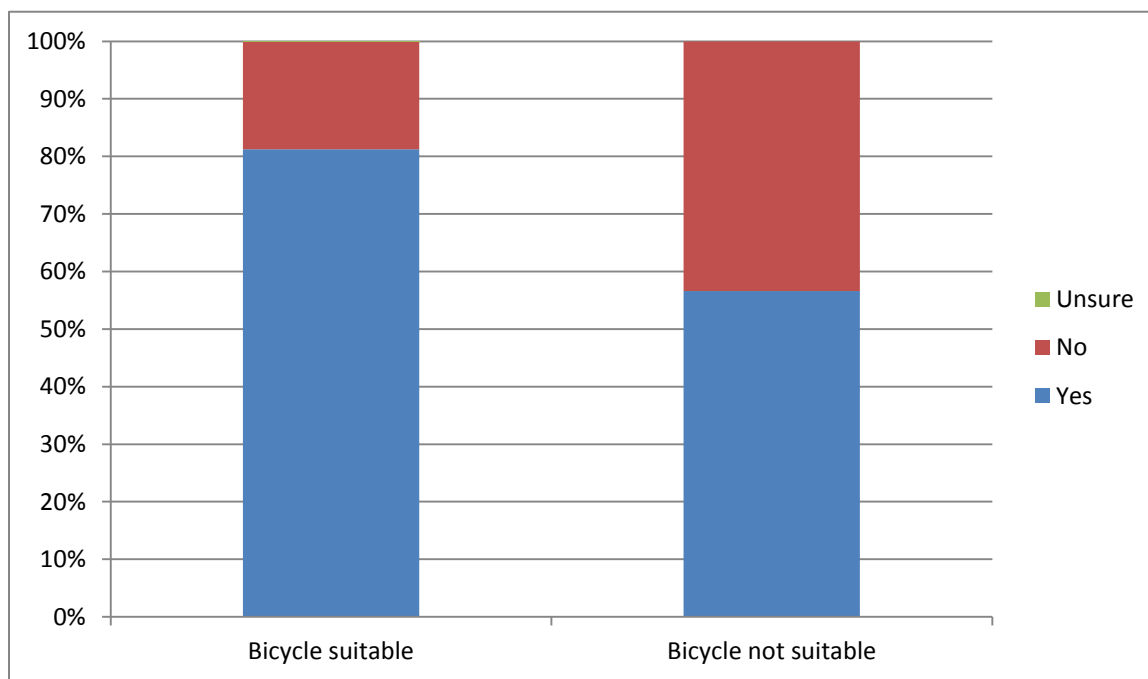
However, 8.8% stated even though bicycles may not be suitable for improving their commutes, they would be inclined to learn to ride if given the opportunity, which means there's room for increasing recreational cycling capacity – this may not directly reduce emissions, traffic congestion, or national & per capita fuel costs, but encouraging this adoption of bicycles should increase health and fitness and reduce NCD burdens for those who learn to ride. Only 4.2% of respondents expressed no interest in learning to ride or commuting by bicycle. Combined with the 13.7% of the population already confident in their ability to ride a bicycle but disinclined to incorporate cycling into their commute, only 17.9% of the total respondent population falls outside the parameters of inclusion in any cycling development and advocacy activities. 82.1% expressed either an ability to ride/commute, an interest to learn, or both. Extrapolating from these figures to the entirety of Fiji's population<sup>4</sup>, it would involve the expansion of the cycling population to include 727,775 bicycles to meet the market interest expressed.

<sup>4</sup> <http://data.worldbank.org/indicator/SP.POP.TOTL>

#### 6.4 – COMPARISONS BY BIKE SUITABILITY – PERCEPTION OF BICYCLE SAFETY

| <u>Bike Suitability &amp; Perception of Bicycle Safety</u> | <u>Yes</u>  | <u>No</u>  | <u>Unsure</u> | <u>Total</u> |
|--|-------------|------------|---------------|--------------|
| <b>Bicycle suitable</b>                                    | <b>1131</b> | <b>260</b> | <b>1</b>      | <b>1392</b>  |
| <b>Bicycle not suitable</b>                                | <b>292</b>  | <b>224</b> | <b>0</b>      | <b>516</b>   |
| <b>Total</b>   | <b>1423</b> | <b>484</b> | <b>1</b>      | <b>1908</b>  |

Table 6.4 – Total figures of bike suitability & perception of bicycle suitability



Graph 6.4 - Percentages of bike suitability & perception of bicycle suitability

#### RECOMMENDATIONS

13.6% of respondents stated bicycles would be suitable to improve their commute, but they currently do not find bicycles to be a safe mode of travel.

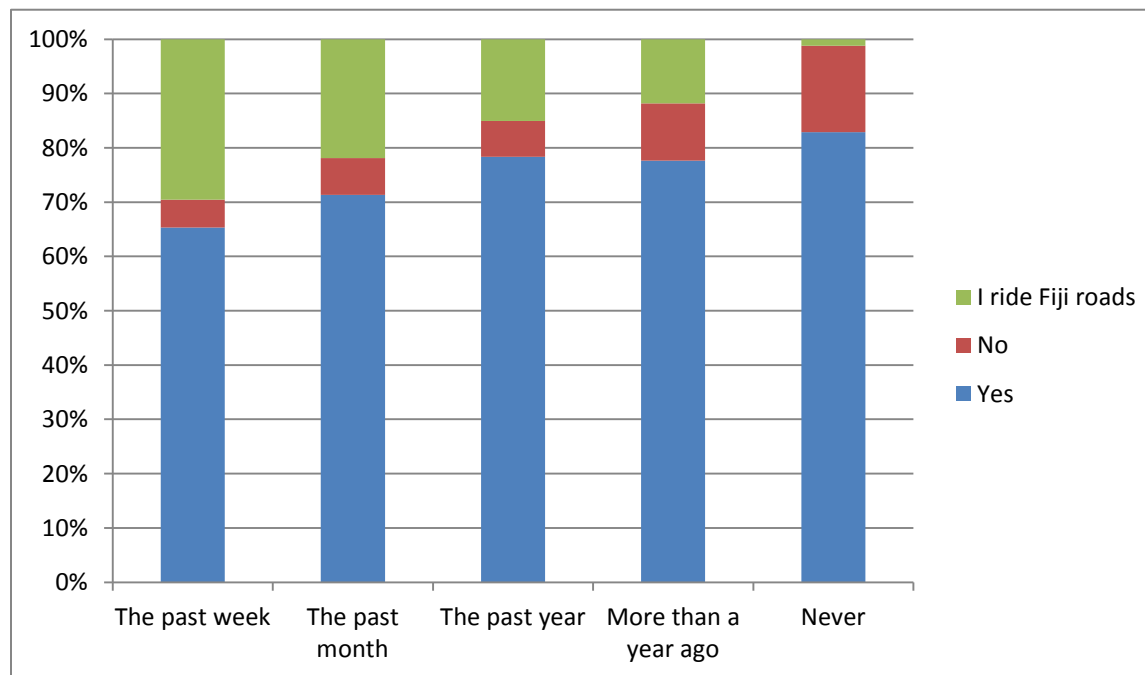
This indicates the segment whose opinion has been most commonly expressed during stakeholder consultations. This is also the segment for which infrastructural developments and regulation & enforcement improvements would be necessary to induce bicycle adoption for commute transport. This would equate to approximately 120,795 citizens if extrapolated to the entire national population.

A cost-benefit analysis is recommended to assess the degree to which the costs involved in infrastructure improvement, regulatory revision, and enforcement training to improve the safety profile for cyclists and pedestrians would be offset by the savings in fuel imports. Further coordination with FRCA will be required to arrange the necessary statistical figures and conduct analysis.

## 7.1 – COMPARISONS BY LAST BIKE RIDE – DESIRE TO LEARN TO RIDE ON FIJI ROADS

| <u>Last Bike Ride &amp; Desire to learn to ride on Fiji roads</u> | <u>Yes</u>         | <u>No</u>         | <u>I ride Fiji roads</u> | <u>Total</u>       |
|---|--------------------|-------------------|--------------------------|--------------------|
| <b>The past week</b>  | <b>179</b>         | <b>14</b>         | <b>81</b>                | <b>274</b>         |
| <b>The past month</b>   | <b>137</b>         | <b>13</b>         | <b>42</b>                | <b>192</b>         |
| <b>The past year</b>  | <b>224</b>         | <b>19</b>         | <b>43</b>                | <b>286</b>         |
| <b>More than a year ago</b>                                       | <b>566</b>         | <b>77</b>         | <b>86</b>                | <b>729</b>         |
| <b>Never</b>  | <b>349</b>         | <b>67</b>         | <b>5</b>                 | <b>421</b>         |
| <b>Total</b>  | <b><u>1455</u></b> | <b><u>190</u></b> | <b><u>257</u></b>        | <b><u>1902</u></b> |

Table 7.1 – Total figures of last bike ride & desire to learn to ride on Fiji roads



Graph 7.1 – Percentages of last bike ride & desire to learn to ride on Fiji roads

### RECOMMENDATIONS

Those more recently on bicycles are, again, more inclined to already ride Fiji roads, with 29.6% of those who road in the last week stating their current road use. For those who rode in the last month, this decreased to 21.9%, then 15% for those who have ridden in the past year, 11.8% for those who've ridden more than a year ago, and around 1.2% for those who claim never to have ridden (which may be discounted as a statistical anomaly and should be addressed in revision of the question for future survey questionnaires).

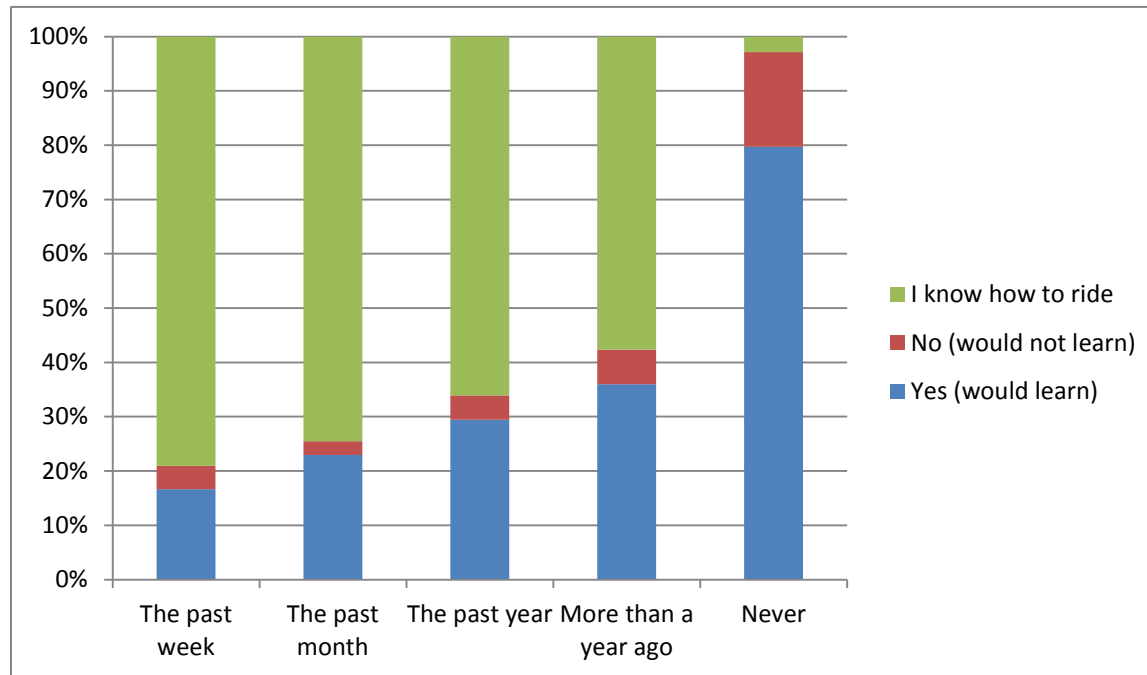
However, those who have never ridden expressed the largest interest in learning to ride on Fiji roads, with over 82.8% showing desire to learn. Those who've ridden in the past year or more than a year ago were both 78.3% and 77.6% inclined to learn to ride Fiji roads. Those who'd ridden in the last month and week dropped to 71.4% and 65.3%, respectively, largely due to the increased portion of each group already riding on Fiji roads.

This indicates a present interest even amongst those respondents unfamiliar with cycling, and increased presence on the road for those who ride more frequently.

## 7.2 – COMPARISONS BY LAST BIKE RIDE – ABILITY TO RIDE A BIKE

| <u>Last Bike Ride &amp; Ability to Ride a Bike</u> | <u>Yes</u> | <u>No</u>  | <u>I know how to ride</u> | <u>Total</u> |
|--|------------|------------|---------------------------|--------------|
| The past week                                      | 47         | 12         | 223                       | 282          |
| The past month                                     | 45         | 5          | 146                       | 196          |
| The past year                                      | 85         | 13         | 191                       | 289          |
| More than a year ago                               | 267        | 47         | 428                       | 742          |
| Never  | 338        | 74         | 12                        | 424          |
| <b>Total</b>                                       | <b>782</b> | <b>151</b> | <b>1000</b>               | <b>1933</b>  |

Table 7.2 – Total figures of last bike ride & ability to ride a bike



Graph 7.2 – Percentages of last bike ride & ability to ride a bike

### RECOMMENDATIONS

Somehow, 12 respondents claimed to know how to ride bicycles despite also claiming never to have ridden before. This accounts for 0.6% of the sample group, and should summarily be discounted – revision of questions and qualification of “knowing how to ride” would benefit response accuracy in subsequent survey questionnaires.

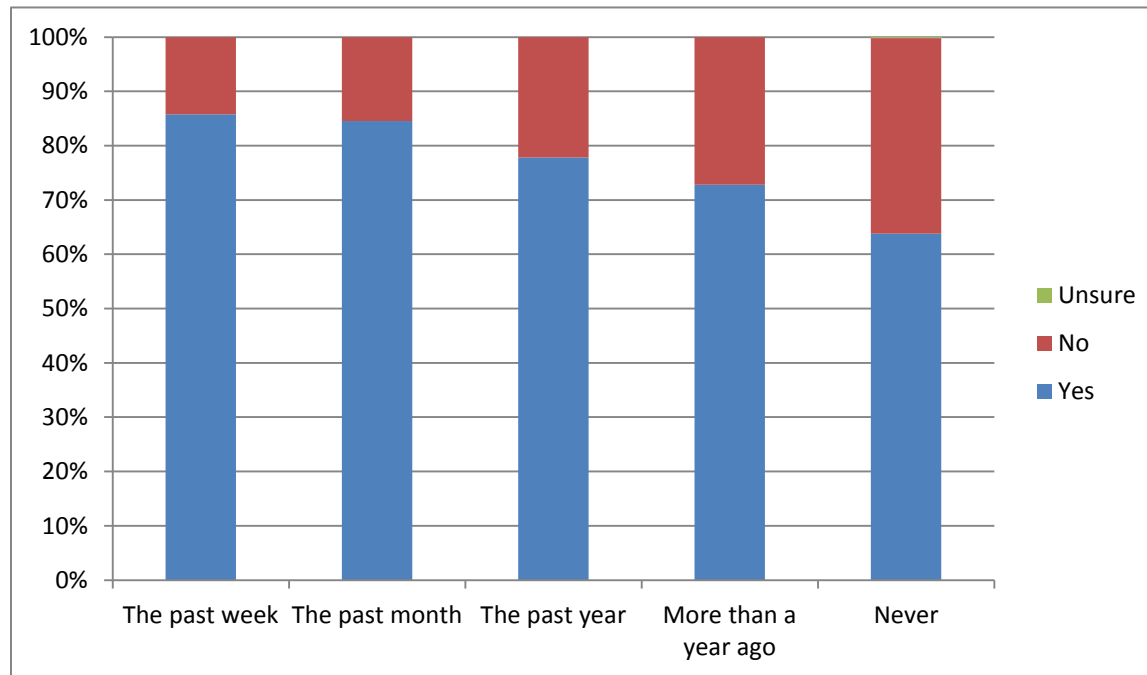
It is particularly valuable to see the 79.7% of those respondents who claim never to have ridden bicycles expressed an interest in learning, while only 17.5% expressed no desire to learn. Again, the potential market for both equipping and training cyclists from amongst the working age population of Fiji broaches over 80% based upon the sample group interviewed.

There are small segments who claim to have ridden bicycles in the previous week (4.3%), month (2.6%), and year (4.5%) but not know how to ride. This segment increases to 6.3% for those who haven't ridden in over a year, so this may be due to confusion over phrasing of the question, but may also be attributable to those respondents having ridden, but not feeling comfortable enough with their cycling skills to consider themselves able to ride a bicycle.

### 7.3 – COMPARISONS BY LAST BIKE RIDE – PERCEPTION OF BICYCLE SAFETY

| <u>Last Bike Ride &amp; Perception of Bicycle Safety</u> | <u>Yes</u>  | <u>No</u>  | <u>Unsure</u> | <u>Total</u> |
|--|-------------|------------|---------------|--------------|
| The past week  | 241         | 40         | 0             | 281          |
| The past month   | 164         | 30         | 0             | 194          |
| The past year  | 221         | 63         | 0             | 284          |
| More than a year ago                                     | 538         | 201        | 0             | 739          |
| Never  | 273         | 154        | 1             | 428          |
| <b>Total</b>   | <b>1437</b> | <b>488</b> | <b>1</b>      | <b>1926</b>  |

Table 7.3 – Total figures of last bike ride & perception of bicycle safety



Graph 7.3 – Percentages of last bike ride & perception of bicycle safety

### RECOMMENDATIONS

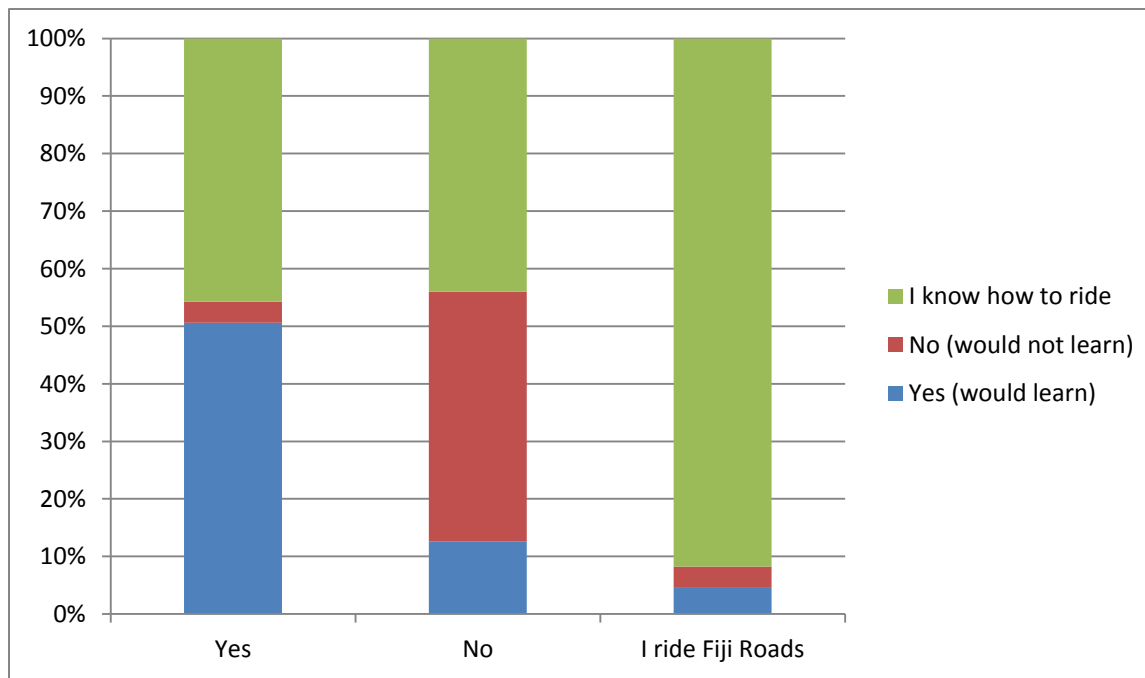
There is a direct correlation between how recently respondents last rode a bicycle and how safe they perceive bicycle riding to be – for those who have never ridden, 35.9% believe bicycling to be unsafe. For those who've ridden in the last week only 14.2% deem it to be unsafe.

This indicates the increased frequency of bicycle rides and provision of opportunities for the entire population to ride will increase perceptions of bicycle safety and reinforce confidence in riding skills. This capacity for mobility independence will be reflected in an increase in the mode share of bicyclists and should indicate subsequent reductions in traffic congestion, incidence of NCDs, fuel costs, and road traffic accidents.

## 8.1 – COMPARISONS BY DESIRE TO RIDE FIJI ROADS – ABILITY TO RIDE A BIKE

| <u>Desire to learn to ride Fiji Roads &amp; Ability to Ride a Bike</u> | <u>Yes</u> | <u>No</u>  | <u>I know how to ride</u> | <u>Total</u> |
|--|------------|------------|---------------------------|--------------|
| <b>Yes</b>   | <b>737</b> | <b>54</b>  | <b>666</b>                | <b>1457</b>  |
| <b>No</b>  | <b>24</b>  | <b>83</b>  | <b>84</b>                 | <b>191</b>   |
| <b>I ride Fiji Roads</b>   | <b>12</b>  | <b>9</b>   | <b>234</b>                | <b>255</b>   |
| <b>Total</b>   | <b>773</b> | <b>146</b> | <b>984</b>                | <b>1903</b>  |

Table 8.1 – Total figures of desire to learn to ride on Fiji roads & ability to ride a bike



Graph 8.1 – Percentages of desire to learn to ride on Fiji roads & ability to ride a bike

### RECOMMENDATIONS

38.7% of all respondents are interested in both learning to ride a bike and learning the rules and responsibilities of riding on Fiji roads.

Conversely, only 4.4% expressed no interest in learning to ride or riding on Fiji roads, and another 4.4% said they know how to ride, but are not interested in learning to ride on Fiji roads for commuting purposes.

Anomalously, 9 respondents (0.47%) said they are not interested in learning to ride, but already ride Fiji roads. This discrepancy may be remedied by rephrasing of the question on riding Fiji roads in subsequent survey questionnaires.

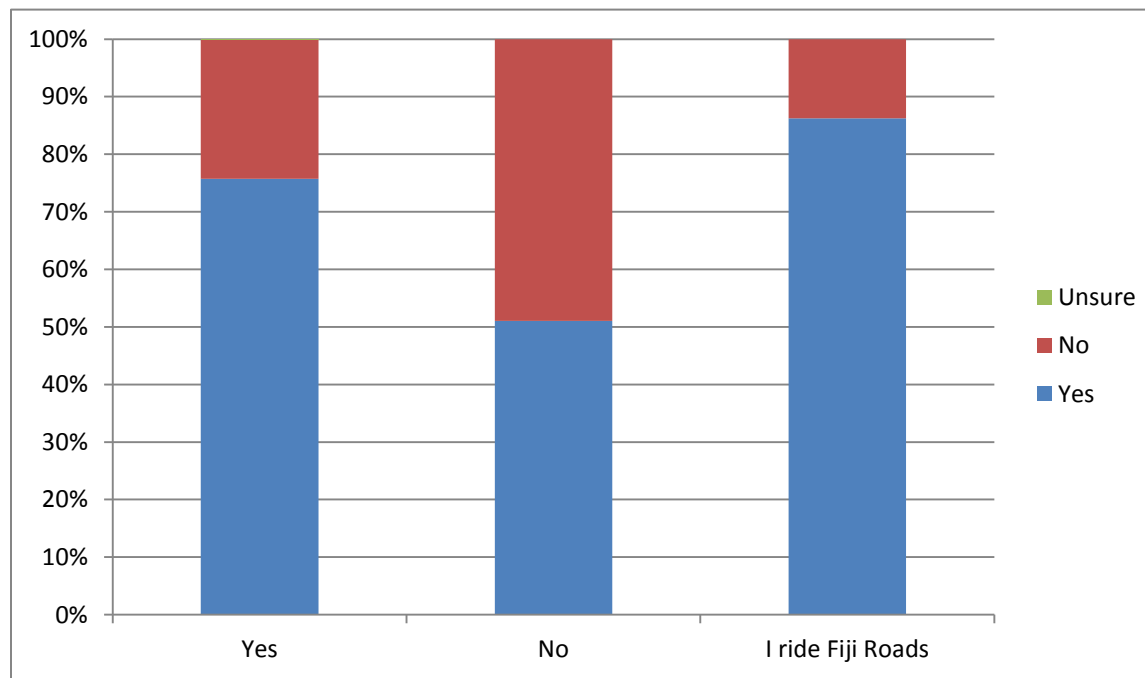
Most relevant is the segment of respondents that expressed their ability to ride or interest to learn to ride and also equip themselves to ride bicycles on Fiji roads (76.6%).

It is recommended road rules and bicycle proficiency training are instituted at primary level education to create universal mobility independence and road safety awareness at early ages, catching the largest possible segment of the rising population. However, training materials and public awareness campaigning on where to obtain bicycles and training manuals must be supplied to help reach the potential of the older population segments and capture their interest in commuting by bicycle.

## 8.2 – COMPARISONS BY DESIRE TO RIDE FIJI ROADS – ANNUAL TRANSPORT EXPENSES

| <u>Desire to learn to ride Fiji Roads &amp; Perception of Bicycle Safety</u> | <u>Yes</u>  | <u>No</u>  | <u>Unsure</u> | <u>Total</u> |
|--|-------------|------------|---------------|--------------|
| Yes  | 1098        | 351        | 1             | 1450         |
| No   | 96          | 92         | 0             | 188          |
| I ride Fiji Roads  | 219         | 35         | 0             | 254          |
| <b>Total</b>   | <b>1413</b> | <b>478</b> | <b>1</b>      | <b>1892</b>  |

Table 8.2 – Total figures of desire to learn to ride on Fiji roads & perception of bicycle safety



Graph 8.2 – Percentages of desire to learn to ride on Fiji roads & perception of bicycle safety

### RECOMMENDATIONS

For those who claim to ride Fiji roads (13.4% of the respondents), 86.2% find cycling to be a safe mode of transport.

In addition, a majority of respondents (58%) perceive bicycling to be a safe mode of transport and expressed an interest in learning to ride on Fiji roads.

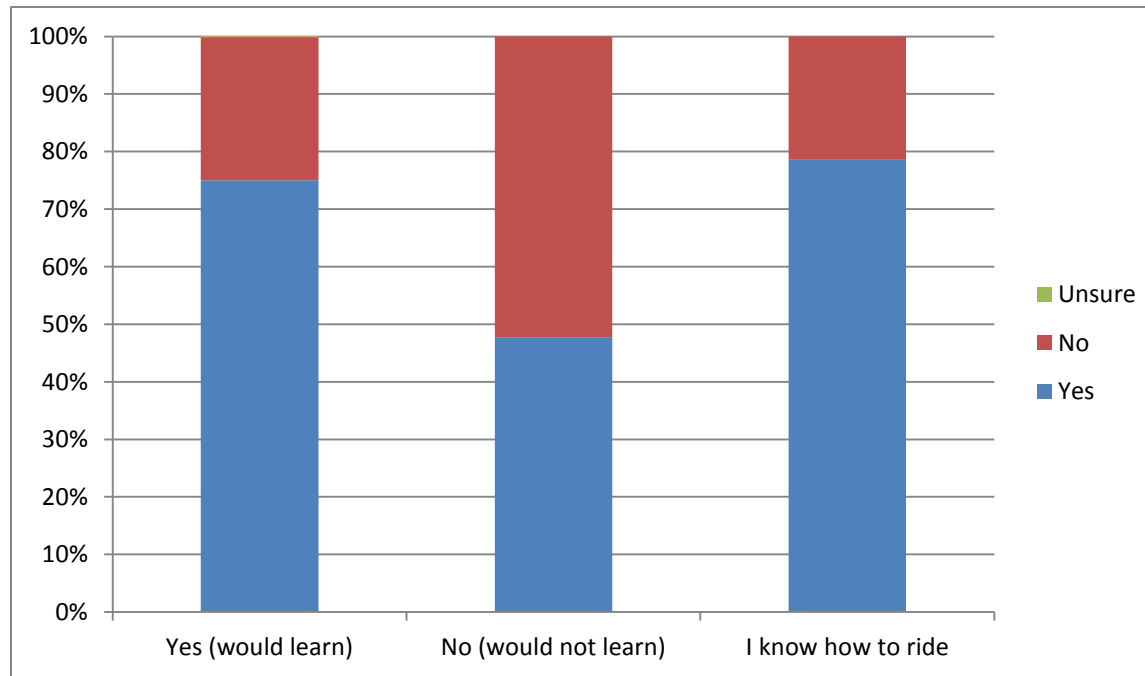
There are another 18.6% of total respondents who currently deem bicycling to be unsafe, but expressed an interest in learning to ride.

This indicates a recognition the dangers of cycling perceived by the sample group are also seen as an obstacle that can be overcome. It will take infrastructural improvements to provide a clear path towards safe cycling in a literal sense, and training protocols and well-publicized standards and practices to create a widespread public understanding of the role bicycles play on Fiji roads (ie, instructing those learning to ride to bike along with motorized traffic as opposed to riding against the flow of traffic, which combines speed and reduces potential reaction time for all road users)

**9.1 – COMPARISONS BY ABILITY TO RIDE BIKE – PERCEPTION OF BICYCLE SAFETY**

| <u>Ability to Ride a Bike &amp; Perception of Bicycle Safety</u> | <u>Yes</u>  | <u>No</u>  | <u>Unsure</u> | <u>Total</u> |
|--|-------------|------------|---------------|--------------|
| Yes  | 581         | 193        | 1             | 775          |
| No   | 72          | 79         | 0             | 151          |
| I know how to ride   | 785         | 214        | 0             | 999          |
| <b>Total</b>   | <b>1438</b> | <b>486</b> | <b>1</b>      | <b>1925</b>  |

Table 9.1 – Total figures of ability to ride a bike & perception of bicycle safety



Graph 9.1 – Percentages of ability to ride a bike & perception of bicycle safety

**RECOMMENDATIONS**

Those who already know how to ride a bicycle demonstrate a much higher perception of safety (78.6%) than those who do not consider themselves able to ride (29.4%).

This is, again, indicative of a gap in capacity which may be resolved through providing widespread opportunity for the workforce population to receive experience on bicycles, first in controlled environments, and then in road use settings.

These road use experiences can be approached by identifying the best potential cycling routes based upon the GSTS recommendations and FRA's capital development plans. Finding low-traffic routes and concentrating new cyclists in groups (through scheduled commuter rides, Critical Mass events, etc.), confidence and ability can be built en masse with a new generation of cycling commuters. Even amongst the respondents unable to ride and perceiving cycling to be unsafe, 10% of the total sample group is interested in learning to ride, so the will must be met with the opportunity to make changes toward healthier, more sustainable active transport modes.

**MOST USED TERMS FOR BICYCLE INFRASTRUCTURE RECOMMENDATIONS\***

| <b>COUNT OF ALL WORDS</b> |              |
|---------------------------|--------------|
| <b>WORD</b>               | <b>Total</b> |
| RD                        | 572          |
| GRANTHAM                  | 398          |
| REWA                      | 325          |
| NASESE                    | 285          |
| ROAD                      | 273          |
| ST                        | 261          |
| STREET                    | 94           |
| SUVA                      | 73           |
| QUEEN                     | 62           |
| ELIZABETH                 | 57           |
| DRIVE                     | 54           |
| RATU                      | 50           |
| TO                        | 47           |
| PRINCESS                  | 40           |
| LAUCALA                   | 35           |
| KINGS                     | 33           |
| DOVI                      | 33           |
| AND                       | 32           |

|          |    |
|----------|----|
| NAUSORI  | 31 |
| BACK     | 31 |
| LAMI     | 29 |
| THE      | 24 |
| SEAWALL  | 24 |
| BAY      | 24 |
| HIGHWAY  | 23 |
| SEA      | 22 |
| AREA     | 22 |
| MAIN     | 22 |
| KINOYA   | 21 |
| VATUWAQA | 20 |
| QUEENS   | 19 |
| WALL     | 18 |
| NASINU   | 18 |
| ALONG    | 18 |
| POINT    | 17 |
| TAMAVUA  | 16 |
| NABUA    | 16 |
| NADERA   | 16 |

|             |    |
|-------------|----|
| FLETCHER    | 16 |
| VALELEVU    | 15 |
| NARERE      | 14 |
| ROUTE       | 14 |
| ROADS       | 13 |
| MILES       | 13 |
| YASI        | 12 |
| NAKASI      | 12 |
| SAMABULA    | 12 |
| CUNNINGHAM  | 12 |
| NADAWA      | 12 |
| PARK        | 11 |
| SUVANAUSORI | 11 |
| TOWN        | 11 |
| CORRIDOR    | 11 |
| IS          | 11 |
| ALL         | 11 |
| MARA        | 11 |
| NAILUVA     | 11 |
| FROM        | 10 |

**\*Rewa & Grantham were provided as response examples, which likely induced bias, and the two examples are thus disproportionately represented in the survey responses. All responses appearing fewer than 10 times in frequency have been omitted.**

## REFERENCES

1. Fiji Islands Land Transport Act (LTA), (1998). Act No. 35 of 1998, [9th November 1998]. Enacted by the Parliament of the Fiji Islands: Suva, Fiji. Retrieved from [http://www.paclii.org/cgi-bin/sinodisp/fj/legis/num\\_act/lta1998180/lta1998180.html?stem=&synonyms=&query=land%20transport%20act](http://www.paclii.org/cgi-bin/sinodisp/fj/legis/num_act/lta1998180/lta1998180.html?stem=&synonyms=&query=land%20transport%20act)
2. Fiji Roads Authority (FRA) Decree, (2012). Decree No. 2 of 2012, [5<sup>th</sup> January, 2012]. Enacted by the President of the Republic of Fiji, Epeli Nailatikau: Suva, Fiji. Retrieved from [http://www.paclii.org/cgi-bin/sinodisp/fj/promu/promu\\_dec/frad2012226/frad2012226.html?stem=&synonyms=&query=Fiji%20Roads%20Authority](http://www.paclii.org/cgi-bin/sinodisp/fj/promu/promu_dec/frad2012226/frad2012226.html?stem=&synonyms=&query=Fiji%20Roads%20Authority).
3. Land Transport Authority. (2012). *The Official Fiji Road Code*. Fiji Land Transport Authority: Suva, Fiji.
4. Groff, S., Yao, X., Guild, R., Ling, D., & Phelps, R. (2013). Republic of Fiji: Transport Sector Planning and Management. Project Number: 47233-001, Policy and Advisory Technical Assistance (PATA) November 2013. Retrieved from <http://www.adb.org/sites/default/files/project-document/79458/47233-001-tar.pdf>.
5. Ministry of Strategic Planning, National Development and Statistics. (2014). A Green Growth Framework For Fiji: Restoring the Balance in Development that is Sustainable for Our Future. Ministry of Strategic Planning, National Development and Statistics. August 2014. Retrieved from <http://www.spc.int/pafpnet/attachments/article/475/GREEN%20GROWTH%20FRAMEWORK.PDF>.
6. Richardson, J. (2015). Greater Suva Transportation Strategy 2015-2030. Suva, Fiji. Fiji Roads Authority FRA Reference: FRA 13-13, August, 2014. Retrieved from <http://www.fijiroads.org/sites/default/files/GSTS%20REPORT%202015-2030.pdf>.