

# An Economic Assessment of the Pou Herenga Tai Twin Coast Cycle Trail

Prepared for the  
Pou Herenga Tai Twin Coast Cycle Trail Trust

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# Summary

This report was prepared to identify the economic impact of the Pou Herenga Tai Twin Coast Cycle Trail (PHTTCCT). It is intended to help identify opportunities for barriers to increasing its contribution to the regional and local economy.

The original research design was modified as Covid 19 prevented a local business survey from being completed. Instead, a desk was prepared aiming to quantify the trail's economic impact. While subject to data and methodological qualification the analysis in this report provides "order of magnitude figures", They provide a starting point for discussion about further development and promotion.

Following an introduction to the methods (Section 2) a review of existing studies (Section 3) informs the assumptions made for the analysis. Its conclusions include:

- The New Zealand Cycle Trails collectively make a significant contribution to the national economy;
- The biggest gains come from the benefits to suppliers to trail users (the producer surplus), although the consumer surplus (the benefits to domestic users over and above the costs they incur) is also substantial;
- Accommodation is the sector most likely to benefit;
- The mix of markets will shape impacts – international visitors tend to spend more than domestic visitors; day visitors may spend more per day, but multi-day visitors spend more in total and spread it over a larger area and range of suppliers;
- The businesses benefiting most from the presence of a trail tend to be small;
- Longer established trails have higher benefits;
- The growth of benefits from higher patronage generally exceeds the growth of costs.

A national economic analysis of costs and benefits showed that PHTTCCT recorded a cost:benefit ratio just under 1.0 in 2015. With significant growth in patronage since then, it can be expected to be delivering a significant net benefit today.

The Economic Impact Assessment of the trail in 2019 indicates (subject to assumptions):

- 42,000 visits to the trail, 30,500 from outside Northland, of which 24,000 were by "trail tourists", people visiting Northland to use it (with 9,000 traversing the whole trail);
- Based on those visits, 42,000 visitor days (excluding locals);
- An estimated \$8.4m in spending by "trail tourists", of which \$5.7m is regional income (value added);
- Up to 40 full-time job equivalents in Northland supported by their spending;
- The economic impacts remain modest in the immediate area of the trail (possibly as low as 10 full-time job equivalents and \$300,000 in value added);
- The greatest impacts are likely to be experienced in the Bay of Islands.

The study indicates that the economic benefits of the trail by now exceed the historic cost of its development, and suggests that the marginal benefits of growth should well exceed the marginal costs of catering for it. Other conclusions include:

- Acknowledging that historical capital costs can be treated as “sunk”, the economic benefits of investment in improving and marketing the trail will be positive (from the point of view of effective management of economic resources).
- When compared with other trails and surveyed spending there is a need and opportunity for private investment in trail “add-ons” – tour packages, additional trail-related recreational and adventure activities , and on- and off-trail experiences.
- The trail appears to meet significant demand for day trip options ex-Opua. This is a healthy attribute that raises other issues:
  - The prospects for boosting patronage through extension to Paihia, Waitangi, and perhaps Haruru to further tap into the general tourist day user market, extending the length of stay among visitors to the Bay of Islands generally;
  - The opportunity to promote to a Bay of Islands-based market the prospect of multi-day tours, ideally across the entire trail;
  - Related to that, the need to create the capacity on the length of the trail, through to Horeke, to cater for and hold the interest of more overnight visitors, including increasing the provision of infrastructure and amenities, encouraging more investment in accommodation and catering, and supporting the development of additional attractions.

The study’s main contribution is to highlight the need and opportunities for further development to lift benefits accruing in the immediate vicinity of the trail. Doing so will not only boost the economy of the small towns and rural area through which it passes, but should also raise the profile, appeal, and popularity of the trail, and lift its overall subregional (mid-north) and regional contributions which, while significant, remain modest.

Given the impact of Covid-19 on the national economy and on tourism, in particular, the imperative of promoting domestic tourism as a component of recovery suggests that any initiative to boost the trail should, in the first instance, focus on how it might be positioned to lift its appeal in the New Zealand market.

# 1. Introduction

## 1.1. Purpose of the Pou Herenga Tai Twin Coast Cycle Trust

Pou Herenga Tai Twin Coast Cycle Trail (PHTTCC, or “the trail”) is one of 23 New Zealand recreational bike trails under the umbrella of Nga Haerenga, Cycleways of New Zealand (NHCNZ). The trail runs 84km from Opuia in the Bay of Islands to Horeke on the Hokianga Harbour.<sup>1</sup> Development commenced in 2010 with the last section completed in March 2019. It was developed by the Far North District Council (FNDC) with the help of central government funding.

A study on the economic benefits of the trail was commissioned by Pou Herenga Tai Twin Coast Cycle Trail Trust (“the Trust”). The Trust was established in 2018 to develop, maintain, operate, and promote the trail.

The Trust’s primary objectives were set out in the first Annual Report (to June 2019) as:

- *“To create jobs through the design, construction and maintenance of the cycle trail network;*
- *“To create a high-quality tourism destination and provide on-going employment and economic development opportunities for the regional economies; and*
- *“To maximise the range of complementary benefits that the cycle trail provides to a wide range of New Zealanders. This includes events, recreation, health and other benefits”.*

The benefits anticipated are (1) jobs provided to develop and maintain the cycleway (see Definitions); (2) jobs and income generated by visitor activity around the trail; and (3) the ongoing contribution to regional income and employment resulting from the number, length of stay, and spending of people who visit Northland or extend their stay to ride the trail.

## 1.2. Objectives

Acknowledging that the trail has only a short history, the objectives for this assessment were expanded to address its potential economic contribution, barriers to increasing it, and opportunities to increase the benefits that arise from it. The objectives were set out as:

- (1) Assessing and reporting on the current and potential economic impact of the PHTTCC;
- (2) Identifying barriers to growing visitor numbers and their economic contribution;
- (3) Providing input into the Planning Overlay for the trail currently under preparation by Barker and Partners as part of the Far North District Plan Review, by contributing to the Section 32 report that will underpin the Overlay objectives and policies.

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<sup>1</sup> The Mangungu Mission House is a further 3km on by road.

### **Modification Due to Covid-19 Pandemic**

While users of New Zealand trails may choose to complete a NHCNZ online questionnaire and their answers used to estimate economic impacts, it is difficult to secure robust information for an individual trail from this source. Instead, it was hoped that a survey of local businesses' experience on the ground would better inform an estimate of economic impact within the resources and timeframe for this study. To this end 400 questionnaires were distributed from Opuia and Paihia through to Horeke, including partners of PHTTCCT.

Unfortunately, the survey coincided with the onset of Covid-19 and the closing of the New Zealand borders and the subsequent Level 4 Alert restrictions.

Quite apart from the health risks faced by the community, this has been a damaging time for the economy at large, and particularly so for tourism business. Those that we hoped to hear from were - and continue to be - preoccupied with the question of survival. It is unrealistic and unfair to expect them to respond to our survey.

It was therefore decided to complete a comprehensive a desk study drawing on secondary sources and the NHCNZ user surveys to fulfil the commitment to an economic assessment, as described in this report.

It was also considered useful if, having done this, the consultant could pull together commentary from various sources to subsequently provide a gap analysis. Its purpose will be to inform initiatives to reboot the trail as a key component of Northland's tourism infrastructure when there are signs of market recovery, acknowledging that the focus will be on domestic visitors for the foreseeable future.

### **1.3. This Report**

Section 2 introduces the two main methods for assessing the economics of projects, especially projects that are publicly funded, whether by central government (the taxpayer) or by local government (the ratepayer). This is a section about economic methodology intended to place the study in context, and readers may choose to skip it.

Section 3 summarises some earlier studies of the economic impact of New Zealand cycle trails to provide background and inform the assumptions used in the current assessment.

Section 3 draws on these examples and data from the NHCNZ online questionnaire of PHTTCC users to develop a picture of patronage, indicate how much they might spend in the course of visiting the trail, and the impact this may have on the Northland economy.

## 2. About Economic Assessment

This section explains the two main methods for measuring the economic effects of investment in a cycle trail, the differences between them, and limits to their application. It can be skipped by readers more interested in the results of earlier New Zealand studies (Section 3) and the analysis of the Pou Herenga Tai Twin Coast Cycle Trail (Section 4).

### 2.1. Economic Analysis

There are two formal methods for analysing economic impacts. The first, economic analysis (EA) focuses on the efficient use of resources at a national level. It compares the resources consumed (measured usually by their market value) relative to the benefits generated by a project from inception to the end of its “economic life” (usually defined arbitrarily at around 25 or 30 years). It is important to note that in economic analysis labour is a resource to be consumed and is therefore treated as a cost. Transfers (taxes and subsidies, interest, and depreciation, for example) are not counted because they do not increase the underlying costs and benefits (although they may alter *who* pays and *who* benefits).

Difficulties are encountered in putting a value on intangible costs or benefits of a project for which there is no market. Analysts may seek to monetise such intangibles by developing proxy values through various estimation (and often disputed) methods and assumptions. There is also some debate over what value to place on costs and income projected over time given a “social preference” for early benefits and deferred costs. Discounting values progressively is usually used to emphasise on early rather than later costs and benefits.

**Note:** EA is distinguished from financial analysis (including feasibility studies) by its focus on productive or efficient resource use and not on the distribution of benefits. Financial analysis deals with returns to capital with the net benefit of an investment divided among profits (including dividends and retained earnings), interest, and taxes.

In addition, in financial analysis costs are not limited to the consumption of (finite) resources but include the costs of capital (either as returns forgone elsewhere or as interest charges). Whereas in EA the full capital cost of an asset is introduced into the analysis in the year it is acquired, in financial analysis it is depreciated as an annual cost over its productive life. Goodwill and patents impose costs in a financial analysis but do not feature in EA.

#### Economic Analysis of Projects: Benefit:Cost Analysis

Economic analysis aims to quantify net benefits over time, usually using a Cost:Benefit Analysis (CBA) framework. Costs (the value of resources used) include supplies purchased for developing and running an operation (materials and components, plant, premises, and labour), without distinguishing between capital and operating costs.



Benefits denote the value to users of the goods and services supplied, with value usually equated with market price, or what people are prepared to pay<sup>2</sup>. The economic return is determined by the difference between the costs and benefits (or the ratio of benefits to costs) over time. The net benefit may be negative (or the benefit:cost ratio below 1.0) when costs exceed the value of benefits.

EA is used to decide whether an investment is a wise use of resources. Labour (capacity, skills and expertise) is valued at the relevant wage. It is therefore important when labour or skills (or other resources) are scarce to favour projects which make the best use of them.

Capital items are entered at full cost into the analysis in the year they are acquired.

There are conventions for valuing costs and benefits that are not valued by the market, such as water pollution (a negative externality) or biodiversity gains (a positive externality). How dollar values are attached to externalities is usually arbitrary and often disputed. As a result, consideration of externalities (the impact of the investment outside its intended use) may be better considered at a later stage of the decision-making process provided the CBA demonstrates first that there are sound economic grounds for proceeding.

Hence, it may be decided not to go ahead with a project even if economic benefits exceed costs because of the damage to the environment it might do, or the negative impact on third parties (such as noise, excessive disruption of existing communities, and the like). Equally, proceeding when the CBA indicates a project will have a net cost (a B:C ratio of less than 1.0) would have a negative impact on productivity may be justified because of anticipated benefits to the environment or social gains.

## **2.2. Economic Impact Assessment**

### **Economic Impact Assessment and Economic Analysis (CBA)**

The second method often used for analysing economic impacts is Economic Impact Assessment (EIA), which determines the benefits of a project to a region without counting costs and benefits beyond its boundaries. In EIA, wages are a benefit because of the local income and jobs they create. Hence, taxpayer subsidy (paid for nationally) to build a cycleway generates local income (wages, salaries, and profits). Spending by trail users from outside the region also generates economic benefits that would not otherwise occur.

EIA deals only with a subset of the full costs of a project compared with an EA, and, unlike an EA, project spending (including wages) that remains within the target region is treated as a benefit, not a cost.

Consequently, EIA is best used to assess the contribution of an investment or project to a regional or local economy regardless of the efficiency or otherwise of its resource use (as

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<sup>2</sup> If the price is less than the value to the buyer, the difference is termed the consumer surplus and may be introduced to the analysis as a dollar value.

measured in a CBA). Ideally, though, it would only be called for where a project is first justified by EA to ensure that its contribution to a region does not impose a cost nationally.

If there are surplus resources (particularly labour) in a region, however, the question of economic efficiency or productivity may be over-ruled because of the social benefits from increasing opportunities for local enterprise, lowering unemployment, and consequently reducing welfare expenditure. In other words, the unmeasured social benefits may justify a project in a region which, when analysed in isolation in a CBA, may be termed uneconomic.

### **Economic Impact Assessment: Multiplier Analysis**

Multiplier analysis identifies the income and employment that might be expected to remain in an area once purchases from another region (or country) are taken out of the equation. Multipliers enable estimation of how much of the spending in question (for development and for use of the asset – the trail in this instance) remains in the local area as value added and how many people are employed there as a result.

The bulk of these benefits fall to the businesses and people providing goods and services to the development. Once developed, the benefits shift to the businesses and people providing goods and services to the users of the asset. These are the *direct impacts*.

The benefits do not stop there, however, with two types of downstream effect increasing the regional benefits. *Indirect impacts* comprise the income and jobs generated by the spending of the businesses supplying materials, goods, and services to the suppliers of the investment and subsequent services (in this case, the trail). *Induced impacts* are the result of local spending on goods and services by the workers and owners of business supplying the trail users and by the regional downstream business supplying them.

These indirect and induced impacts are calculated using multipliers. Multiplier effects tend to be strongest in large, developed, diverse, city economies with plenty of sources of local supply, and tend to be weakest in small rural towns with a limited economic base. However, the direct effects are likely to be more important to the latter, the small towns, where there are fewer opportunities for employment.

Multiplier analysis has limitations. For example, it is based on sector-level data from (often-dated) national surveys that have been “factored down” to reflect the regional or local mix of economic activities. It assumes that all businesses in a sector operate the same way with the same mix and cost of inputs regardless of size, age, where they are located, or their individual investment and production profiles. It assumes that there is no technical or price change in how goods are produced, transported, and sold over time, and that the source of inputs (local, national, overseas) does not change.<sup>3</sup>

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<sup>3</sup> Hence, reliance on dated surveys becomes a significant source of error, although many analysts seek to insert “superior” data into their models where they can identify it.

Consequently, EIA is best treated as indicative only and applied only where the resources, including labour, are available. In an economy operating at or close to capacity, it is of little value, at best, and misleading at worst.

### **2.3. Measuring the Economics of Cycle Trails**

Attempts to estimate the economic impact of cycle trails rely on data gathered from surveys of either trail users or surveys of affected businesses. Both suffer estimation problems.

Because individual trails offer multiple segments with uncontrolled access on a year-round basis, sampling users to find out about their behaviour, their attitudes and, especially, their spending presents several challenges:

- The logistical difficulty of accessing and surveying a representative sample of users and achieving a sufficiently large sample over time considering seasonal differences.
- Interpretation difficulties given a need to extrapolate results from small sample surveys to entire populations (i.e., all users) comprising individuals and groups;
- The difficulty of estimating unique user numbers given that people may use the trail multiple times and that counts are segment-specific;
- Analysis and interpretation difficulties that arise from survey design challenges, respondent recall issues (especially for expenditure), and by the fact that reference to a region or local area may be interpreted quite differently among respondents.

Surveys of businesses encounter other challenges:

- The difficulty of obtaining sufficient returns to estimate meaningful results over the trail area, especially of economic data (investment, turnover, and employment);
- The difficulty operators may have in estimating what share of their business is attributable to the presence of trail users.

Depending on survey data for assessment clearly creates uncertainty around the results of economic assessment.

Ideally, though, the convergence of results in different areas, at different times, and at different points in trail development will help identify trends and issues likely to affect individual trails like PHTTCCT. Further, while acknowledging the limitations of economic analyses, the process they call for of reviewing what evidence is available, considering carefully the assumptions required to make sense of it, and how data and assumptions might come together in a systematic way in analysis does offer some insights despite the approximate nature of any quantitative results.

On these grounds, the following section reviews several earlier analyses of the economic impacts of New Zealand trails.

### 3. Cycle Trails in New Zealand

This section outlines the economic benefits that a cycle trail can bring and what might influence them those benefits. It then outlines results from four prior analyses to help develop assumptions appropriate to the PHTTCCT. Two are based on surveys of users (Otago Central Rail and Hauraki Rail trails), one on a survey of businesses on the Otago Central Rail Trail. The fourth study was a formal Economic Analysis conducted using survey data from 22 trails in 2015 to determine the national economic benefit six years down the track from the Great Rides Initiative. Using the data from that study a comparison is undertaken of the performance of 20 of the trails. This demonstrates a wide range of Benefit:Cost ratios. For one group of trails, including PHTTCCT, the benefits had not yet matched the costs. However, the comparison across all trails suggests that the growth of benefits with increased patronage can be expected to easily exceed the growth in costs, ensuring a positive net benefit well within the economic life of individual trails.

#### 3.1. Understanding the Economic Benefits of a Cycle Trail

Economic benefits associated with developing a cycleway-based trail accrue through:

- (1) Investment and operating expenditure in *the cycleway* itself, its initial development and subsequent ongoing management and maintenance;
- (2) Investment and operating costs for associated *infrastructure* (carparks, toilets, etc); and
- (3) Investment and operation of associated *commercial activity*. This includes hospitality (food and beverage series), accommodation, and local activities (equipment hire, guided tours and entertainments, and package tours).

In effect, the cycleway, infrastructure, and associated commercial activity jointly define the trail, so that assessment needs to address the sum of their benefits.

Investment leads to survey, development, and construction jobs early in the life of a cycleway. While development jobs do not last, they create the assets that define the trail and attract users, generating long-term income and job gains from the spending of users.

The size of the long-term benefits depends on

- (1) The number of visitors the trail caters for;
- (2) Who they are: visitors bring money into the region whereas locals may have spent it in the area anyway<sup>4</sup>; visitors tend to spend more than locals; and international visitors tend to spend more than visitors from elsewhere in New Zealand;
- (3) The opportunities available for the visitors to purchase local goods and services.

The character of a trail will influence how many users come and how much they spend. This will reflect:

- Pavement design: length, sections, difficulty, surface quality;

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4 Although if they are encouraged to spend more than they otherwise would or if they would otherwise have spent it outside the region there is local benefit.

- Access: locality and ease of reaching it, points of entry, parking and terminal facilities;
- Trail quality: views, landscapes, points of interest;
- Trail amenities: toilets, water stops, on-route accommodation, signage and interpretation;
- Trail-related activities: the “add-ons”, including the availability hosted and guided cultural and environmental experiences, natural attractions (e.g., thermal pools, limestone caves), historical sites, additional recreational opportunities (kayaking, rafting, rock climbing, adventure courses), and hospitality and entertainment opportunities at centres on the trail.

The economic benefits of cycleways are not captured by their developers (taxpayers and ratepayers) but by local producers and suppliers, the providers of food and beverages, accommodation, sporting and outdoor gear, equipment hire, hosting and attractions.

### **3.2. Otago Central Rail Trail Business Survey (2008)**

The 2008 assessment of the impact of the Otago Central Rail Trail<sup>5</sup> (following an earlier 2005 study) was based on a survey of “*businesses established in communities on the fringes of the trail*”. A response rate of 36% yielded 109 completed questionnaires, 75 of which were from accommodation providers. Responses were divided between either large businesses with over \$250,000 or more turnover, or very small businesses with turnover of less than \$10,000. The respondents employed 552 full- and part-time staff in total with seasonal differences in part-time staff numbers (235 in the summer and 147 in the winter).

Some 30% of respondents reported that the trail had been very important to their decision to buy or start up their business, while 20% said it was unimportant. For 46% of respondents, trail users accounted for between 0 and 20% of turnover. A key conclusion was that a diversified sample meant that for many of the larger businesses (supermarket, service stations) the trail was of little impact.

The report did not differentiate between trail-dependent and less or independent businesses with respect to turnover or employment, but it is likely that accommodation providers, food and beverage suppliers (22) and tourist operators (13) are the most dependent and might be expected to have fewer staff and rely more on seasonal employees.

#### **Implications for PHTTCCT:**

- Most businesses benefiting significantly from the trail were small;
- A number of businesses set up specifically to service the trail users;
- Larger businesses (service stations, supermarkets) were unlikely to depend significantly on trail users;
- Accommodation is the sector most likely to benefit.

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<sup>5</sup> Jellum C and Reis A (2008) Otago Central Rail Trail: Economic Impact and Trends Survey. Otago Central Rail Trust

### 3.3. The Hauraki Rail Trail User Survey (2013)

The Hauraki assessment was based on a survey of 620 trail users. 21% came from the Thames-Coromandel Region and 12% from neighbouring Bay of Plenty. The majority were from Waikato (28%) and Auckland (30%). Fewer than 1% were from overseas.

The study illustrates some of the difficulties of assessing economic impact using a user survey. Provision needs to be made for over-counting users because of return rides. There is a need also to remove local cyclists given that their spending is a local transfer rather than a revenue gain to the area.

Having acknowledged these difficulties, the authors' derived a range of total expenditure by users for the year of between \$1.8m and \$2.8m, depending on the estimate of unique cyclists, or \$105/user/day (mid-point). The main contributor was accommodation (33%), followed by food (28%) and petrol (21%) (Table 1). The relatively high spending on petrol was attributed to the distance people travelled to get to the trail.

Table 1: Estimated Spending per Visitor, Hauraki Rail Trail (2012 \$)

	\$	%
Accommodation	\$35.0	33%
Food	\$28.2	27%
Petrol	\$22.7	22%
Shuttle Bus	\$5.5	5%
Bikehire	\$5.0	5%
Other	\$8.8	8%
	\$105.2	100%

Source: Ryan et.al. (2013), p.36

Bike hire and shuttle bus use together accounted for 5% of expenditure. Interestingly, escorted tours did not feature at all.

#### Implications for PHTTCCT:

- The importance of substantial nearby markets to demand (74% were staying at home on the night of completion of the trail);
- Accommodation still dominated local spending;
- Spending directly on cycleway services was limited;
- The estimated average daily spend per visitor was \$105 (\$113 in 2019 dollars).

### 3.4. Otago Central Rail Trail User Survey (2015)

This study was based on a survey of 224 respondents representing 662 users when group members are accounted for. It was undertaken in December 2014 and February and April 2015.<sup>6</sup> In contrast to the Hauraki trail, most users were non-local, with only 5% from Otago. 39% were from overseas while 40% were from the North Island.

With much higher international and long-distance domestic patronage, user spending was also higher than recorded in the Hauraki study (Table 2). The difference is captured in large part in package tours, an important component of patronage on the longer-established and longer trail (150km compared with Hauraki's 80km). Packages include accommodation, catering and equipment, reducing the apparent spend as identified on these items.

Table 2: Average Expenditure per Person, Otago Rail Trail (\$2015)

	\$/Person			\$/Person/Day			Total		
	Part of trail	Whole trail	Whole trail	Part of trail	Whole trail	Whole trail	Total	Total	
Package expenses	\$334	\$452	\$433	\$185	75%	\$116	70%	\$125	71%
Accommodation	\$24	\$38	\$35	\$13	5%	\$10	6%	\$10	6%
Food and beverages	\$48	\$117	\$106	\$27	11%	\$30	18%	\$30	17%
Retail shopping	\$10	\$7	\$7	\$5	2%	\$2	1%	\$2	1%
Entertainment	\$1	\$8	\$7	\$1	0%	\$2	1%	\$2	1%
Drop off/transfers	\$1	\$4	\$3	\$1	0%	\$1	1%	\$1	1%
Baggage transfers	\$0	\$1	\$1	\$0	0%	\$0	0%	\$0	0%
Bike hire	\$2	\$8	\$7	\$1	0%	\$2	1%	\$2	1%
Other	\$26	\$12	\$14	\$15	6%	\$3	2%	\$4	2%
<b>Total</b>	<b>\$446</b>	<b>\$647</b>	<b>\$615</b>	<b>\$247</b>	<b>100%</b>	<b>\$166</b>	<b>100%</b>	<b>\$177</b>	<b>100%</b>

Source: Calculated from Otago District Council (2015), p26

People who did not complete the trail – spending fewer days– spent more per day. This implies that returns can be increased, perhaps, by highlighting the more manageable trail sections, broadening the market to take in more people with less time (or physical capacity). On the other hand, users completing the trail are more likely to spend over a wider area more and on more activities, catering, accommodation, and other trail-related services.<sup>7</sup>

Surveyed spending figures were multiplied by estimated annual user numbers to derive total spending of \$6.9m associated with the trail. Of that, 2008/09 regional input-output tables indicated \$3.5m would accrue as value added and support around 81 jobs directly, most of which would have been in and around the trail and nearby towns. In addition, local purchasing by those businesses benefiting directly from users' spending and spending by

<sup>6</sup> Central Otago District Council (2015) Otago Central Rail Trail User Survey 2014-15

<sup>7</sup> These will be included in packages.

the staff of those businesses would generate another \$1.7m in value added and sustain 21 more jobs in Otago (p27), for a total regional impact of \$5.2m and 102 jobs<sup>8</sup>.

Spending figures were not given by visitor origin. However, differences in accommodation used indicate that international users tend to stay in more expensive lodgings than their domestic counterparts, with a preference for boutique and hotel accommodation (Table 3).

Table 3: Accommodation Used by International and Domestic Trail Users

	Domestic	International	Total
Boutique	24%	47%	31%
Motel	22%	26%	24%
Hotel	28%	9%	22%
Holiday Park	10%	10%	10%
Motor	4%	4%	4%
Backpackers	4%	2%	4%
Holiday Home	4%	0%	3%
Stay with	3%	0%	2%
Other	1%	2%	1%
N/A - live	0%	0%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Note: Based on 660 domestic and 220 international visitors

Source: Otago District Council (2015), p15

#### Implications for PHTTCCT:

- Users of segments spend more daily than those who complete the trail;
- However, the longer users stay the more they spend in total and the wider that spending is likely to be spread;
- Among international visitors a higher share use packages and there is a higher level of spending (as reflected in choice of accommodation).

### 3.5. Impact of the Great Rides Network (2016)

#### Costs

In 2011 the Government committed \$50m to develop the network of “Great Rides”, in partnership with local government. In 2016 it committed to an additional \$25m over four years, by which time it was estimated that local government, cycle trail trusts, and local communities had contributed an additional \$30 million.

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<sup>8</sup> A paper by D Bamford and R Balm indicated around 14,000 multi-day and 60,000 day trips annually by Otago trail users from 2010 to 2015 (“The Great Rides in the Central North Island”, Ruapehu Cycle Tourism Summit), claiming this accounted for \$12m in “direct benefits annually”. This aligns with the \$162 spending/person/day but not with the “direct benefits” which accrue in the form of local value added (identified as \$3.5m in the Otago study, p.27).



A “preliminary” Cost Benefit Analysis” (CBA) prepared for the Ministry of Business, Innovation and Employment (MBIE)<sup>9</sup> highlights the difficulty of assessing the economics of cycleway trails in terms of meaningful or direct measures of benefits and costs.<sup>10</sup>

The analysis was aggregated over 22 trails and costs and benefits derived for 2015 from a variety of sources. Capital costs (government-funded infrastructure and local capital) were estimated and annualised assuming a “useful” 10-year life. This time span is arbitrarily short for publicly funded fixed transport infrastructure, effectively overweighting short-term development costs against long-term use benefits over the “economic” life of the trail.

On the assumption that taxpayer funding lowers productivity elsewhere in the economy, net benefits were reduced by Treasury’s guideline, 20%.<sup>11</sup>

Maintenance-costs were derived for individual trails. Given the arbitrary estimation and averaging of the other costs, maintenance costs, too, were averaged over all trails despite demonstrably different physical conditions among them.

Not surprisingly, capital expenditure accounts for the bulk of costs (68%), with maintenance accounting for 25% (Table 4).

Table 4: Annualised Cost Estimates, 22 NZ Trails, 2015\$

Sources of Costs	\$m	Share
Annual Infrastructural Costs, Government-Funded	\$ 5.5	40%
Provision for Deadweight Losses from Taxation	\$ 1.1	8%
Annual Co-Funding Costs	\$ 3.8	28%
Annual Maintenance Costs	\$ 3.4	25%
Total Costs	\$ 13.9	100%

Source: Victorio (2016) p1

## Benefits

Benefits come from the income generated by commercial services provided to trail users and from the intangible benefits that would not have accrued without them.

Spending by international visitors that would not have taken place without the trails is estimated from survey data, with the cost of providing services to those visitors deducted to provide an estimate of net spending. Spending by visitors from overseas is estimated to account for 16% of benefits across all trails (Table 5).

<sup>9</sup> Victorio A (2016) Nga Haerenga The Great Rides of New Zealand Cycle Trails: Some Benefits in Relation to Costs, Report to the Ministry of Business, Innovation, and Employment:

<sup>10</sup> This is not a conventional cost:benefit analysis, which would model the trails from construction for 25 to 30 years, discounting the flow of costs and benefits annually prior to summing them. Discounting weights early costs and returns over later costs and returns. The higher the discount rate the greater the emphasis on early costs and returns. The limited data and timeframe available to the Victorio study called for the “short-hand” approach adopted using annual figures for 2015 and annualised capital spending.

<sup>11</sup> This discount can be considered to represent opportunity costs (the foregone alternative next-best use of the resources) or as a transfer that should sit outside the CBA.

Spending by domestic visitors is omitted on the grounds that it displaces spending that would have taken place elsewhere in the New Zealand economy.<sup>12</sup> However, like international spending, domestic spending contributes to the estimate of producer surplus and is used to estimate consumer surplus.

Table 5: Estimated Annual Benefits, 22 NZ Trails, 2015\$

<b>Sources of Benefits</b>	<b>\$m</b>	<b>Share</b>
Annual Revenues from International Visitors	\$ 17.9	
Provision for Servicing Costs at 55.23%	-\$ 9.9	
Net Annual Revenues from International Visitors	\$ 8.0	16%
Producer Surpluses	\$ 16.2	33%
Consumer Surpluses	\$ 13.2	27%
Reduced-Mortality Savings from Physical Activity:	\$ 9.3	19%
Health Costs Saved from Diseases Associated with	\$ 0.6	1%
Benefits from Commuting	\$ 2.2	4%
<b>Total Benefits</b>	<b>\$ 49.4</b>	<b>100%</b>
Costs	\$ 13.9	
<b>Net Benefit</b>	<b>\$35.50</b>	

Source: Victorio (2016) p1

The biggest gains appear to come from the producer surplus, estimated as the value added (wages, salaries, profits) by producers of goods and services from the extra demand created by the cycleways. For this purpose, only 33% of domestic spending was considered “additional”, the balance being displaced from elsewhere in the economy.

Consumer surpluses are based on the notion that goods and services yield more value to consumers than paid for.<sup>13</sup> Ideally, survey data is used to estimate “*willingness to pay*” for a service, the difference between that figure and the actual price representing “surplus” value to the consumer. Without data revealing this value on the trails, the study drew on two (US) studies that calculated elasticities of demand for cycling. These were used to estimate a surplus based on the difference from actual (surveyed) spending on each trail and an assumed theoretical maximum expenditure (\$3,000 for each trail).

Health benefits are less tangible as they are not “priced” by a market as such. Surrogate values were estimated for the study based on the reduced mortality associated with physical activity. Evidence was again derived from overseas experience and estimation of “unique” trail users, their frequency of use, and the reduced risk of dying resulting from the health improvements resulting.

<sup>12</sup> This is because the focus is on benefits accruing to New Zealand (and New Zealanders). The tourism sector may argue, though, that domestic tourism justifies support as a share of it comprise an import substitution activity; i.e., it substitutes for overseas travel spending by New Zealanders.

<sup>13</sup> The consumer surplus is not calculated for overseas visitors as it is taken to accrue at the place of residence rather than at the site of consumption.

Despite the inevitable shortcomings of high-level analysis and the generalised nature of the assumptions, the Victorio study demonstrates in a systematic manner that the benefits of trail development easily exceeded the costs in 2015, with a net national benefit of \$35.3m, and benefit:cost a ratio of 1:3.5 (delivering \$3.50 in benefits for every dollar in costs).

These figures are influenced by the underlying assumptions. However, even had individual benefits been substantially over-estimated and costs under-estimated, a B:C ratio of 1:3.5 indicates that trail development is a sound use of national resources.

For example, if the estimates of intangible health and mortality benefits (defined as social benefits) and are deducted as too uncertain, the estimated net national benefit in 2015 would be around \$23.5m, and the national programme of trail development and operation would have still achieved a B:C ratio of 1:2.7.

### 3.6. Comparing Trails

While the generalised assumptions developed by Victorio reduced differences among trails<sup>14</sup> their economic performances are compared here within those methodological and estimation constraints. Victorio's 2015 analysis across all trails has been replicated for the 20 individual trails for which enough data was available. Given the small figures derived for commuter and general health benefits, the potentially greater likelihood of error resulting, and their limited contribution overall, they were omitted from this analysis.

The exercise suggested that six trails had ratios of more than 1:5.0 (Rimutaka, Queenstown, Hawke's Bay, Tasman Great Taste, Queen Charlotte, and Otago Central Rail), confirming that each of them makes highly beneficial use of the resources employed<sup>15</sup>. On the other hand, eight trails had ratios of less than 1:1.5 (Alps to Ocean, St James, Waikato River, West Coast Wilderness, Twin Coast, Clutha Gold, Around the Mountain, and Timber Trail), suggesting a potentially inefficient use of resources<sup>16</sup>. The remainder sat between these two extremes so individually can be considered an economically "sensible".

Unsurprisingly, economic performance as measured here is closely associated with the number of visits: as more people use the trail, so the benefits go up (Figure 1 ). An exponential curve best describes this relationship between visitor numbers and the benefit:cost ratio ( $R^2= 0.5$ ). As more people use trails, that revenues increase more rapidly than costs (the cost per user reduces), something to be expected of largely "passive" infrastructure (with limited or no mechanical or electrical equipment and limited maintenance requirements).

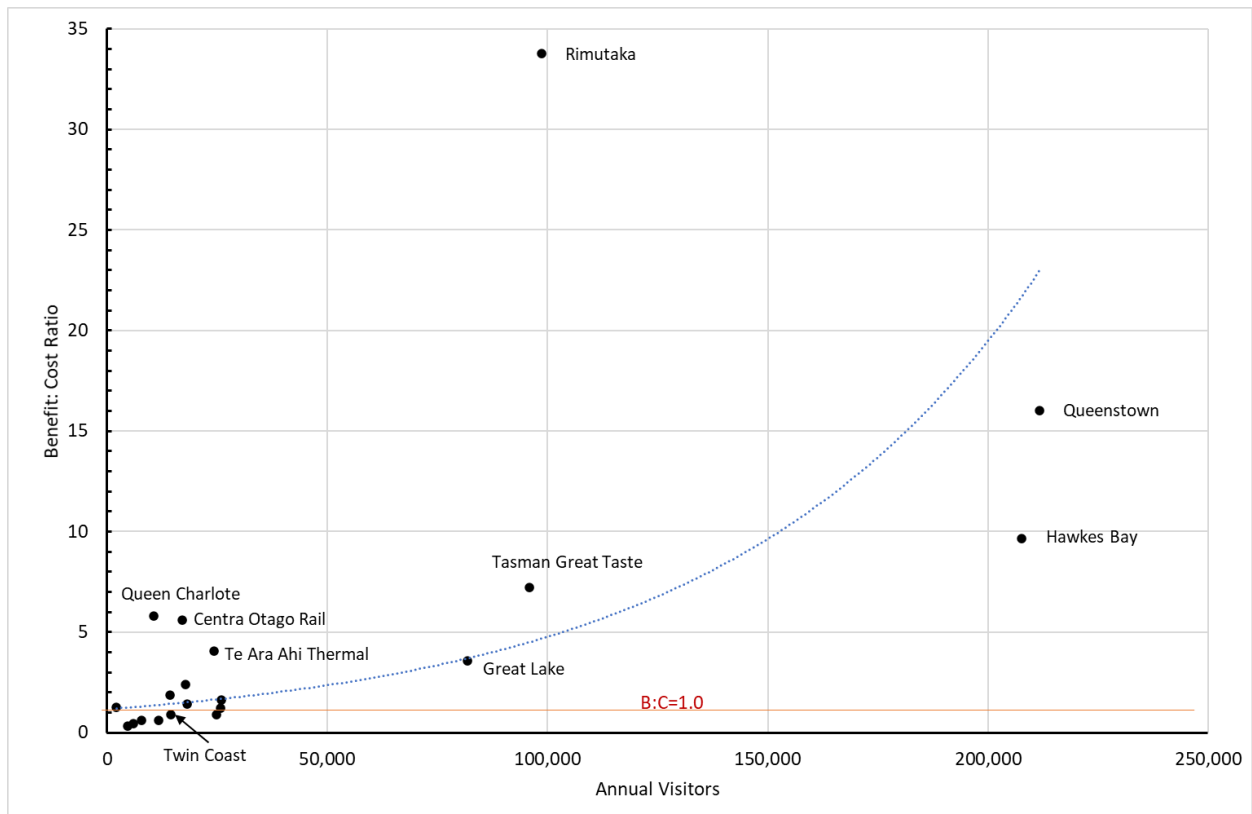
Figure 1 Trail Use and Economic Performance, 2015

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<sup>14</sup> For example, assuming 13.5% of all visitors would be from overseas obscures the substantial differences between South Island with their dependence on tourists and North Island trails with their larger domestic markets.

<sup>15</sup> It should be noted that these are among the oldest trails so that ten years of annualised capital costs can be expected to be low relative to use and benefits.

<sup>16</sup> This assumes that measurement and estimation errors could reduce benefits by up to a third.



Source: Calculated using Victorio (2016) data

Confirming this interpretation, correlation of total annualised costs and visitor numbers across the trails showed no relationship at all ( $R^2=0.02$ )<sup>17</sup>. In contrast, the relationship between net benefits and visitor number is particularly strong ( $R^2=0.99$ ). Simply put, growth in numbers provides a boost in benefits well ahead of its impact on costs.

### Implications for PHTTCCT

- Nationally, cycle trail development represents a sound use of resources;
- This is reflected in high B:C ratios among several long-established tracks in different circumstances, and modest positive ratios among others.
- While several trails, including PHTTCCT, had low B:C ratios in 2015, growing user numbers should easily reverse that situation<sup>18</sup>;
- The national picture indicates that producer surplus contributes more to benefits than the consumer surplus, meaning that local benefits can be further boosted by increasing the local offering of goods and services to users.

<sup>17</sup> The analysis was repeated for costs/kilometre: again, there is no relationship ( $R^2=0.04$ )

<sup>18</sup> This prospect would be evident in a full CBA over the economic life of each trail, more so if the value of intangible benefits could be estimated reliably at this level.

## 4. The Twin Coast Cycle Trail Economic Analysis

This section first compares some key economic results for the Pou Herenga Tai Twin Coast Cycle Trail in 2015 with all trails and concludes that annual benefits are likely to now comfortably exceed annual costs.

The balance of the section presents an Economic Impact Assessment of the trail drawing mainly on the 2019 Nga Haerenga NZ Cycle Trails user survey results. The section sets out the assumptions and calculations used to estimate patronage and spending. These suggest as many as 35,000 visitors spent close to 60,000 days on the trail in 2019. As described in the concluding part of the section, their spending in the region may have approached \$12m. This would have generated around \$8m in direct and indirect value added and supported up to 200 jobs in Northland. Given the economic profile of the small towns on the trail the bulk of the benefits would have accrued in the Bay of Islands.

### 4.1 The Cycleway

The PHTTCCT is one of twenty-three Great Bike Rides in New Zealand today, overseen by Nga Haerenga NZ Cycle Trails (

NZCT). The Central Government initiative to stimulate regional growth, economic development, tourism, and employment led the Far North District Council in 2009 to submit a business case for government funding to construct the cycleway.

At that time, the cost was estimated at \$13.2m. Central Government contributed \$4.1m in 2010, used to deliver Phase 1. In 2014 \$6.9m was estimated to be needed for completion. In mid-2015, MBIE agreed to contribute \$3m and Northland Regional Council a further \$900k, suggesting around \$8.3m committed or spent by 2015 (in 2015 dollars).

The Trail comprises four segments:

1. Kaikohe to Okaihau (14km)
2. Kaikohe to Kawakawa (34 km)
3. Okaihau to Horeke (28 km)
4. Kawakawa to Opuia (11 km)

Development has been in three phases:

- Phase 1 comprised 49.9km completed;
- Phase 2 comprised 31.8km as recently completed;
- Phase 3 consists of 6.6 km to be developed to permanent status from Taumarere to Opuia. Planning, detailed design, consents, Kiwirail lease, and implementation are yet to be realised for this section.

The last section (Okaihau to Horeke) opened in March 2019. The total length of approximately 84km is extended to 87km if the 3km of sharing the road between Horeke and Mangungu Mission Station is included.

## 4.2 Costs and Benefits, 2015

The 2015 cost:benefit analysis described in Section 3.5 suggests that focusing on the producer surplus is an important means of boosting the tangible and sustainable economic benefits of the trail, over and above simply increasing user numbers. This in turn means ensuring that the local businesses exist to take advantage of the presence and spending of visitors. In addition, if the depth of services and activities available increases, it can be expected that the number of visitors will follow in a virtuous cycle.

With around 14,500 users in 2015, the Victorio study indicates that the PHTTCCT had a cost:benefit ratio of close to 0.9, meaning that at that stage of development it was not yet economically efficient (a ratio of 1.0 would mean the benefits are equal to the costs). This can be put down to low user numbers and relatively high costs (Table 6). Growth in user numbers since should have reversed this situation, as costs should not have increased as rapidly as the benefits from additional users.

Table 6:Key Indicators PHTTCCT, 2015

	Visitors	Costs \$/Km	Benefit: Cost
All trails	907,709	\$4,582	4.04
Mean	46,111	\$5,320	4.94
Median	17,984	\$5,076	1.71
PHTTCCT	14,517	\$9,325	0.87

The maintenance costs estimated for 2015 (\$2,864/km compared with an average of \$2,166/km across all trails) were second highest only to the Central North Island Mountains to Sea Trail (Table 7). The short period of operation and partial development of the trail at that time. May account for significantly higher than average capital costs.

Table 7:Shares of Costs PHTTCCT, 2015

	Capital Cost/km	Maintenance/ Km	Cost/Km
All Trails	\$3,274	\$1,308	\$4,582
Mean	\$4,053	\$1,266	\$5,320
Median	\$3,995	\$1,308	\$5,076
PHTTCCT	\$6,461	\$2,864	\$9,325

Quite apart from low visitor numbers, the limited benefits recorded reflect a relatively small share of overseas visitors and limited producer surplus. It can be expected that international visitor numbers increased with the introduction of cruise ship stopovers in the Bay of Islands. However, these are both issues to consider in initiatives to lift the economic performance of the trail relative to other trails (Table 8).

While the results of this analysis are indicative only, qualified by the data constraints associated with the original study, they paint a picture of a trail in the early stages of

development, when significant capital costs were still being incurred and the flow of visitors – and therefore benefits – was still low. The national analysis and reference to the performance of other trails suggest that the benefits should have increased significantly as the profile of the trail has grown and as it moved towards completion. Depending on the number of users, today it can be expected to be yielding annual benefits in excess of costs.

Table 8: Sources of Benefits, PHTTCCT 2015

	Net Overseas Revenues	Producer Surpluses	Consumer Surpluses	Reduced-Mortality Savings	Total
All trails	17%	31%	19%	17%	83%
Average	14%	34%	31%	22%	100%
Median	10%	31%	28%	22%	100%
PHTTCCT	8%	26%	41%	25%	100%

The Victorio study indicates that boosting the positive impacts of a trail does not simply mean boosting numbers. It also means ensuring that local businesses are in the position to take advantage of users' presence. A low producer surplus compared with the collective average suggests a need for substantial investment in local goods and services to enhance the user experience of PHCCTTC and thereby generate more regional income and jobs.

### 4.3 Economic Impact Assessment

#### Framework

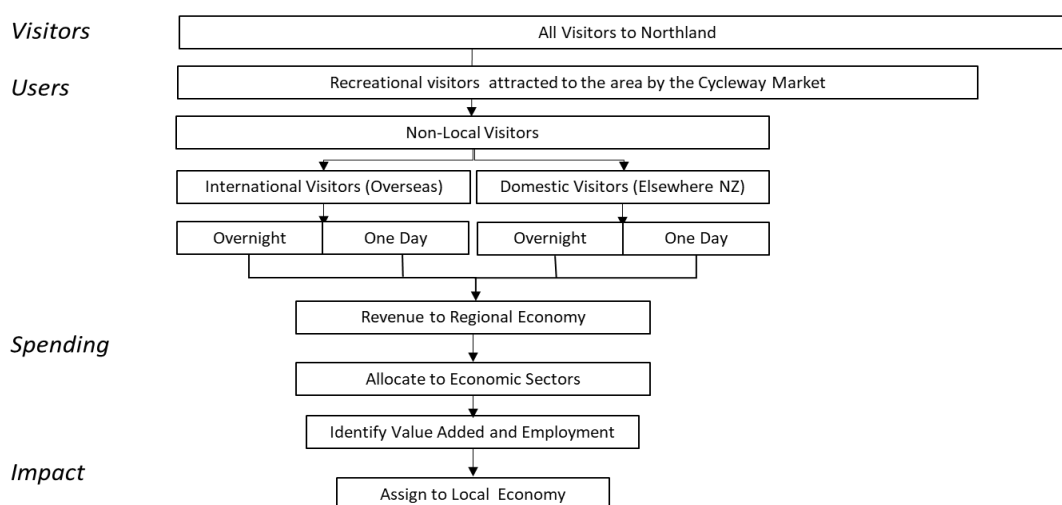
This section estimates the economic impact on the Northland region of PHTTCCT in 2019. This shifts the emphasis from the question of economic efficiency to the issue of how activity on the trail benefits the region and the local community.

The economic impact of users is estimated by working through the sequence in Figure 2. The analysis described here follows these steps based on data from several sources. This means that the results must be interpreted cautiously.

The main source is survey data collected by NHNZCT across all trails using a voluntary, self-completion, web-based questionnaire. Low response rates and respondent self-selection mean that the results do not necessarily represent all visitors. They may well over-represent "serious" or committed rather than casual or occasional users, a bias that could result, for example, in higher estimates of average time on the trail and spending than is the case.

For this reason, the PHTTCCT figures has been compared with the all -trails benchmark and, where available, across two years.

Figure 2 Estimating the Economic Impact of User Spending



The results of following the sequence outlined in Figure 2 are presented in Table 9, leading to an estimate \$8.4m in spending brought into Northland by the trail. How this is calculated is explained in the following sections.<sup>19</sup>

Table 9: Estimating Trail User Numbers and Spending

	Step	Item	YE 31 May '19	Assumption
Estimating Tourists	1	Count	95,000	
	2	Multi-Day Trips	5,000	5%
		Less one-way Station Counts	15,000	3
	3	Single-Day Trips	37,500	50%
	4	All Trips	42,500	
	5	Less Local Trips	-12,000	29%
		<b>Total Trips</b>	<b>30,500</b>	
		6	Visited for Trail	24,000
Estimating Time on Trail	7	International (8%)	3,000	11%
	8	Other New Zealand (65%)	21,000	89%
		<b>Total Trail Tourists</b>	<b>24,000</b>	
	9	International Multi-Day Trip	1,000	37%
	10	Domestic Multi-Day Trip	8,000	37%
	11	International - One Day Trip	2,000	
	12	Domestic - One Day Trip	13,000	
13	International Nights	3,000	3.0	
14	Domestic Nights	24,000	3.0	
		Total Nights, Multi-day Trips	27,000	
	15	<b>Total Days</b>	<b>42,000</b>	<b>2</b>
Estimating Spending		<b>Spending Multi-Day Trips</b>		
	16	International Expenditure	\$598,000	\$199
	17	Domestic Expenditure	\$4,813,000	\$201
		<b>Spending Day Trips</b>		
18	International Expenditure	\$399,000	\$199	
		<b>Total Expenditure</b>	<b>\$8,417,000</b>	

<sup>19</sup> In this analysis, all significant figures are rounded to the nearest thousand ('000) in recognition of the arbitrary nature of the assumptions applied and consequently the approximate nature of the results.



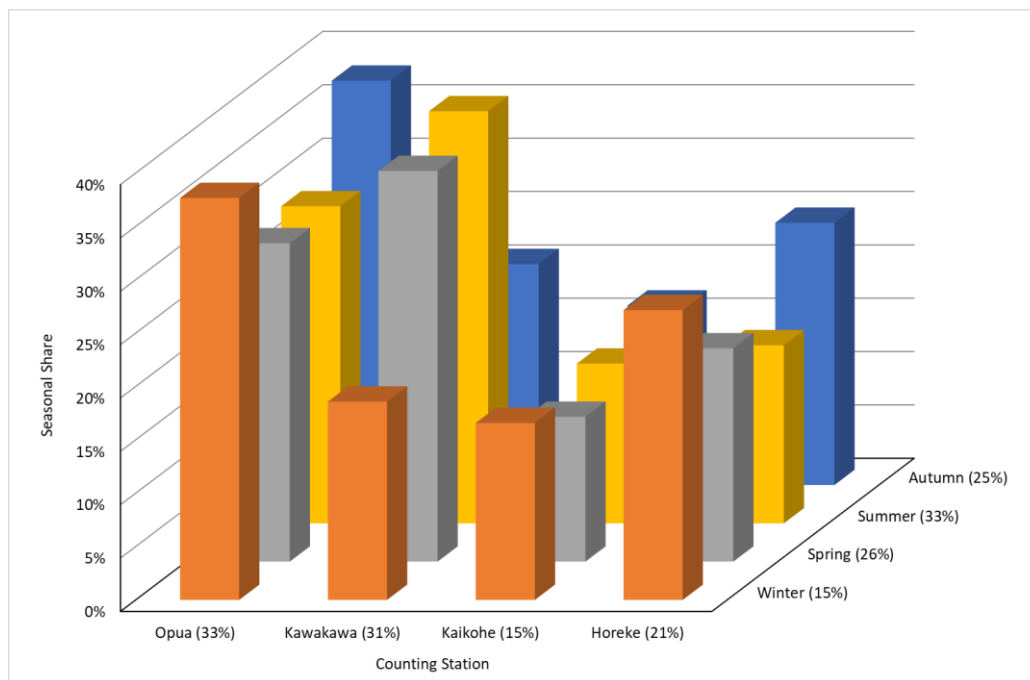
## User Visits

User numbers are calculated using eco-counter movements recorded across four of the six stations on the trail, giving 123,000 counts in the year ending May 2019<sup>20</sup>. The challenge is to estimate unique visits from these counts. (Given the approximate nature of this exercise, all figures are rounded to the nearest thousand).

For this purpose, we have omitted counts from two minor stations and included only the trail origin destination points (Opua and Horeke) and the two intermediate towns, Kawakawa and Kaikohe. Seasonal counts have been presented for these station for the year ending 29 February 2020.<sup>21</sup> They indicate a summer and autumn bias, most pronounced at Opua and (Figure 3).

The counts reveal uneven trail use, weighted towards the first section, Opua to Kawakawa, reflecting proximity to the resort centre of Paihia in the Bay of Islands.

Figure 3 Visitor Counts, YE May 31 2019



When calculating unique visits from this data, allowance needs to be made for users travelling through more than one counter (in effect “way stations”). While omitting Okaihau and Moerewa avoids this in part, Kawakawa and Kaikohe act as way stations for through-riders and as origins and destinations in their own right (i.e., riders may commence or complete their use of the trail at these intermediate points). To allow for this, the count for each of these two has been halved, bringing the total count down by 28,000 to 95,000.

<sup>20</sup> For the purpose of this analysis no attempt has been made to distinguish cyclists from pedestrians as spending profiles are likely to be determined by time on the trail rather than by mode.

<sup>21</sup> Although March and April figures were made available these have been substantially depressed by the impact of Covid19.

Clearly, only a minority of visits take in the entire, or even the majority, of the trail. The Opuia-Kawakawa segment compared with Kawakawa-Kaikohe suggest that no more than 15% of users might complete the full trail. Given that Kaikohe is also a suitable starting point for visitors seeking to ride only half the trail (to the east or west), this is likely to be well on the high side. In fact, the counts for the minor stations, Moerewa and Okaihau, suggest that only 10% might proceed west beyond Kawakawa, with 24% simply completing the first segment, with the majority heading back to Opuia, and 7% west of Kaikohe to Horeke.

Based on these figures, we assume that only 5% of visits take in the full trail and use this to estimate 5,000 overnight visits “on the trail” (5,000, *Step 2*, Table 9). These people will be counted over all four stations, thereby inflating our implied trip numbers by 15,000. Subtracting this from the balance, leaves 75,000 counts.

However, apart from being counted on the way stations, for which accommodation is made above, all trips will be counted twice, once at the origin and once at the destination (which may be the same location). To provide for this, the balance (75,000) after accounting for overnight trips is halved to provide an estimate of day-visitors (37,500, *Step 3*, Table 9). Added to overnight visitors gives a total of 42,000 visitors (rounded) in the year.

In EIA spending by local users is not considered to contribute to the local economy as the people involved are not bringing income into the region. Provision is made for this by reference to the NZCT survey which showed that 25% of users were “local” in 2019 and 32% in 2020. The mid-point of 29% is adopted to subtract the number of local trips (*Step 5*) from the single-day visitor count.

The NZCT survey also asks whether users have visited the region mainly to cycle the trail.<sup>22</sup> The share of PHTTCCT respondents claiming to have done so in 2019 was 80% and 81% in 2020. For present purposes we assume the former figure and apply it to single day visitor trips, reducing the number relevant to the EIA by 20% (*Step 6*) to 24,000.<sup>23</sup>

The remaining trips have been divided between overseas and New Zealand visitors (from outside Northland) based on respondents in the NZCT 2019 survey (8% international travellers, which increases to 11% of visitors when local users are excluded, *Steps 7 and 8*).

## Visitor Days

Most survey data gathered on spending relates to the visitor spend per day. For this reason, the number of days on the trail needs to be estimated from the number of visitors. Again, we turn to the results of the NZCT survey to do this.

The survey asks how long users spend on the trail. For present purposes, anything less than one day is counted as a day trip. A surprisingly high 55% claimed two or more days in

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<sup>22</sup> While we follow this convention, the prospect that people stay an extra night to ride the trail suggests that an extra day’s regional spending should be attributed to it.

<sup>23</sup> While estimation methods vary, it is likely that user numbers in 2019 were two thirds more than estimated by Victorio in 2016, and well over double if we include local visitors and visitors who did not come into the region specifically to ride the trail..

2019. The share fell to 37% in 2020. In light of the pattern of use suggested in Figure 3 we adopt the lower figure, and apply it to both domestic and international visitors to get an idea of the number of multi-day visits (9,000, *Steps 9 and 10*), the balance being single day trips (15,000, *Steps 11 and 12*).

Users were asked how long they spent on the trail, with 2.8 nights average in 2019 and 3.1 in 2020. Based on this it was assumed that multi-day visitors were in the area (although not necessarily on the trail) for three days on average, leading to an estimate of 27,000 days spent by multi-night visitors (*steps 13 and 14*).<sup>24</sup> Added to the estimate for single-day users (23,000 – one day is assumed to equate to one night stayed in the area) this gives 42,000 days spent on the trail by 24,000 visitors.

## Visitor Spending

Several survey-based estimates of spending by trail users have been considered to (Table 10). However, survey-based estimates are beset by problems:

- Respondent bias (as discussed above): if the more enthusiastic and active trail users tend to complete questionnaires the results may not represent “average” users;
- The tendency to “telescope”, which leads respondents to include transactions that occurred before arriving at the trail in their spending estimates;
- Accuracy of recall, a growing problem with credit and debit card use and with distinguishing individual and group spending;
- Ambiguity in, for example, definitions (e.g., terms like “local”); understanding where a given region begins and ends, and defining nights spent (i.e., do we include the night before and the night after?).

Given these issues, the use of survey data can only be justified on the following grounds:

- By assuming compensating errors: i.e., inaccurate answers offset each other across respondents, leading to convergence approaching “the truth” from aggregation;
- Achieving comparable results in different surveys, so that they jointly tend towards similar outcomes, allowing a degree of confidence in common conclusions;
- Adopting a conservative approach on the grounds that the identified sources of respondent error are more likely to over- than under-estimate spending.

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<sup>24</sup> One or two of the 3 nights will be spent off the trail (at commencement or termination of a visit) and may well be in accommodation elsewhere in Northland. As a result, a third night should also contribute to the regional economic impact.

Table 10: User Spending Estimates

	Current \$	2019 \$
<b>Hauraki 2011 \$</b>		
International Multi-day	\$153	\$168
International Day	\$50	\$55
International Mid-Point	\$101	\$111
Domestic Multi-Day	\$164	\$180
Domestic Mid-Point	\$109	\$119
<b>Central Otago Rail Trail 2013</b>		
Multi-Day	\$247	\$265
Day Visitors	\$166	\$178
Total	\$177	\$190
<b>Victorio 23 Trails 2016</b>		
International Average	\$187	\$197
International Median	\$163	\$172
Domestic Median	\$151	\$159
<b>Victorio PHTTCCT Derived 2016</b>		
International	\$154	\$163
Domestic	\$112	\$119
<b>GetSmart Survey 2019 PHTTCCT</b>		
International	\$218	\$221
Domestic	\$221	\$224
Total	\$221	\$223
<b>Get Smart Benchmark (All Trails) 2019</b>		
International	\$193	\$195
Domestic	\$249	\$252
<b>Total</b>	<b>\$228</b>	<b>\$231</b>

Table 10 contains estimates of user spending from different studies, converted to third quarter 2019 dollars using the CPI. Questionnaires and collection protocols vary between surveys while the Victorio figures are composites derived from surveys covering seven trails.

The five sources that separate domestic from international users gave rise to the following estimates of spending per day (in 2019 dollars):<sup>25</sup>

<b>International</b>	
High	\$265
Low	\$111
Midpoint	\$188
<b>Average</b>	<b>\$177</b>
<b>Domestic</b>	
High	\$252
Low	\$111
Midpoint	\$182
<b>Average</b>	<b>\$178</b>

The Otago Central Rail Trail survey did not distinguish between international and domestic users and indicated spending of \$265 for multi-day visitors and \$178 for single day visitors.

The NZCT 2019 figures appear high relative to other sources. This may simply reflect growth in on-trail spending. For present purposes it was decided to estimate daily spending for TTCCT as the mid-point between its 2019 figures and the average across the other five sources. This gives \$199/international visitor/night and \$201/domestic visitor/night (*Steps 16 and 17, Table 9*). Applying these figures to our estimates across the four categories of user (*Steps 18 to 19*) leads to an estimate of total regional spending by people from outside Northland coming into the region to use the trail of \$8.4m in 2019.

By way of sensitivity testing, adopting the five studies average daily spend estimates provides a low total expenditure figure of \$7.5m (-11%). Taking the NZCT survey for the high estimate, the figure would be to \$9.4m (+11%).

<sup>25</sup> The low daily spend for the Hauraki Rail Trail is treated as an outlier based on a very high level of local usage, as indicated by the contrast with the figure for international visitors.

## The Distribution of Spending.

The next step in the EIA is to identify the sectors into which the spending falls. For this, we draw on the NHNZCT survey question on how much respondents spent in different categories (Table 11). Accommodation is the largest category, followed by local transport (presumably mainly between the trail and lodgings). Domestic visitors appear to spend relatively more on hospitality, international visitors relatively more on activities.

Table 11: The Distribution of Visitor Spending by Sector

	International	Domestic
Accommodation	31%	35%
Food & Beverage Services	16%	21%
Transport	19%	14%
Activities	20%	11%
Retail and Other	11%	11%
Fuel	3%	9%
Total	100%	100%

This distribution (Table 11) enables the allocation of our estimated spending (Table 9) among business sectors (Table 12), indicating the revenue Northland companies received servicing trail users. These figures provide the grounds for estimating economic impacts.

Table 12: Estimated Spending by Origin of User and Sector (\$m)

	Overnight Visitors		Day Visitors		Total
		\$	%	\$	
Accommodation	\$0.18	\$1.69	\$0.12	\$0.91	\$2.91
Food & Beverage Services	\$0.10	\$1.00	\$0.06	\$0.54	\$1.69
Transport	\$0.12	\$0.65	\$0.08	\$0.35	\$1.20
Activities	\$0.12	\$0.52	\$0.08	\$0.28	\$0.99
Retail and Other	\$0.07	\$0.55	\$0.05	\$0.30	\$0.96
Fuel	\$0.02	\$0.41	\$0.01	\$0.22	\$0.66
Total	\$0.60	\$4.81	\$0.40	\$2.61	\$8.42

## The Regional Impacts

The contribution of spending by trail users to the regional economy depends on how much remains within the region, the income this creates, and jobs it supports. The direct effects refer to the income received by businesses (or sectors) receiving revenue directly from trail visitors, net of the costs of their inputs. The wage, salary, and profit shares of local revenue add to regional production in the form of value added (also a measure of GDP). The jobs in the businesses supported by this income are also counted as a direct effect.

When businesses serving trail users themselves purchase inputs within the region (components, materials, goods, and services) they create further local income (and therefore jobs) in the businesses supplying them. These are the indirect effects of spending by users.

Finally, much of this direct and indirect income will be spent by the households receiving it with local retailers and service providers. This creates induced effects – income and jobs from household spending that results directly and indirectly from trail visitor spending.

However, at each stage of the supply chain through which indirect effects work, a share of the spending goes out of the region to purchase goods, components, and services from elsewhere in New Zealand or overseas. If most inputs are brought in from outside, the indirect effects in the region will be low. This is the case for Northland with only limited production activity in the regional economy.

To calculate the direct and indirect effects of visitor spending regional multipliers are first calculated for the sectors in which spending takes place (Table 12). The multipliers are derived from comprehensive surveys of the sales and purchases that link sectors in the relevant supply chains. Because of their cost, these surveys are conducted only occasionally and at national level. Multipliers are calculated based on surveyed transactions among all sectors of the economy for a given year. They can be then calculated for an individual region by adjusting them to reflect the mix and capacity of sectors within that region and updated as additional national data becomes available.

Multipliers for indicating the impact of inter-sector transactions in Northland were calculated by specialist economic consultancy Insight Economics in 2017. They have been provided to this study for those sectors that dominate visitor spending. The results are presented in Table 13 (for value added) and Table 14 (for jobs).

The direct impact of \$4.18m in direct value added is around 50% of estimated expenditure by trail users in 2019 (Table 13) and amounts to 0.7% of estimated tourism value added for Northland (\$592m<sup>26</sup>). The indirect and induced effects are modest, bringing the regional value added figure (or contribution to Northland's GDP) to \$5.66m. Limited indirect effects reflect significant purchasing leakage from the region (a large share of business inputs purchased elsewhere in New Zealand or overseas)..

Jointly accommodation and hospitality (food and beverage services) account for 53% of the estimated contribution. Activities (on and off the trail) contribute little, just 11%.

Table 13: Regional Economic Impact of the Trail - Northland Value Added (\$m)

	Direct	Indirect	Induced	Total	Shares
Accommodation	\$1.45	\$0.25	\$0.17	\$1.88	33%
Food & Beverage services	\$0.77	\$0.26	\$0.12	\$1.15	20%
Transport	\$0.52	\$0.14	\$0.07	\$0.73	13%
Activities	\$0.38	\$0.17	\$0.08	\$0.64	11%
Retail and Other	\$0.61	\$0.04	\$0.08	\$0.72	13%
Fuel	\$0.45	\$0.05	\$0.05	\$0.55	10%
Total	\$4.18	\$0.92	\$0.56	\$5.66	100%

The economic activity identified is estimated, in turn, to support the equivalent of 140 full time jobs directly and approaching 20 indirectly (totals have been rounded in Table 14).

<sup>26</sup> <https://ecoprofile.infometrics.co.nz/Northland%2bRegion>

Almost two thirds of jobs are in accommodation and food and beverages, indicating both the significance of spending in these sectors and their lower incomes relative to the other sectors. The limited depth of the Northland economy is reflected in the small number of indirect jobs associated with supporting the businesses and households serving trail users.

Table 14: Regional Economic Impact of the Trail – Northland Jobs

	Direct	Indirect	Induced	Total	Shares
Accommodation	43	2	2	47	34%
Food & Beverage Services	38	2	1	41	30%
Transport	3	1	0	4	3%
Activities	10	2	1	13	9%
Retail and Other	16	1	1	18	13%
Fuel	14	0	1	15	11%
Total (Rounded)	120	10	10	140	100%

### The Local Contribution

Multiplier analyses cannot be undertaken with confidence for areas smaller than regions. Instead, to identify the possible contribution of the trail to the local area, the shares of Northland’s 2019 employment<sup>27</sup> in the local area were used to apportion the estimated value added and jobs among the six sectors. The “local area” was defined in three ways, using aggregations of Statistics NZ Statistical Area (SA2) area classifications:

- *The trail area*, covering the following statistical areas: Okaihau, Ohaeawai-Waimate North, Kaikohe, Moerewa, Kawakawa, Opua (Far North District);
- *The Bay of Islands*, covering Paihia, Russell, Haruru, Kerikeri Central, Kerikeri South;
- *The Mid-North*, combining the two preceding areas.

Allocating income and activity according to shares of regional employment probably underestimates the *local share*, as it does not sufficiently weight purchases from suppliers close to the trail. While the bulk of catering and accommodation services are likely to be purchased in the Bay of Islands, the local figures can be considered the minimum contribution (Table 15).

Acknowledging the likelihood of underestimation, the income and job figures do suggest a potential lack of businesses offering accommodation, catering, and activities on the trail itself. Even doubling the estimated \$300,000 in value added (\$0.29m) and 10 full time jobs in the immediate area would suggest a limited contribution to the local community<sup>28</sup>. The analysis confirms the need to pursue additional business opportunities, especially in the hospitality sectors, if the full benefits of the trail’s presence are to be realised locally.

<sup>27</sup> Based on the Statistics New Zealand business Demography database.

<sup>28</sup> That is not to underplay the importance of a modest contribution which may be a key to local business viability in an area where demand is already limited. The threshold and survival and growth effects for businesses primarily serving local demand are not identified by multiplier analyses.

Table 15: The Local Economic Impact of the Trail

<b>Value Added (\$m)</b>	Trail	Bay of Islands	Total Mid-North
Accommodation	\$0.03	\$0.62	\$0.65
Food & Beverage services	\$0.05	\$0.22	\$0.27
Transport	\$0.08	\$0.54	\$0.62
Activities	\$0.04	\$0.06	\$0.10
Retail and Other	\$0.05	\$0.12	\$0.17
Fuel	\$0.04	\$0.06	\$0.10
<b>Total</b>	<b>\$0.29</b>	<b>\$1.62</b>	<b>\$1.91</b>
<b>Jobs (FTE)</b>	Trail	Bay of	Mid-North
Accommodation	1	15	16
Food & Beverage services	2	8	10
Transport	0	3	3
Activities	1	1	2
Retail and Other	1	3	4
Fuel	1	2	3
<b>Total (Rounded)</b>	<b>10</b>	<b>30</b>	<b>40</b>

## The Labour Market

Boosting patronage and thereby the regional benefits of the trail will be assisted by further investment in a variety of accommodation types. These include bed and breakfast facilities, which offer flexibility in the sector, the ability to raise capacity progressively without over-investment and variety to trail users, and more formal accommodation (motels, lodges, and hostels). This and the expansion of catering and other services in the immediate area assumes, however, that the labour market exists to support it. If the number of people unemployed is an indicator of “spare capacity”, this is certainly the case (Table 16).

Table 16: Unemployment in Far North District, 2013 and 2018

	<b>2013</b>	<b>2018</b>
<b>Trail</b>	516	675
<b>Bay of Islands</b>	291	309
<b>Mid North Total</b>	807	984
<b>Rest of Far North District</b>	1,896	2,403

Source: Census of Population, Statistics NZ

There were 675 people unemployed in the statistical areas encompassing the trail in 2018, 14% of the labour force. Close to 1,000 people were unemployed in the area defined as the Mid-North. Even tripling the demand for trail use based on the profile of economic impacts presented in this report would only absorb around 120 people, so that there are no labour market constraints on further developing and promoting it.

The challenge, then, is to create the opportunities for sustainable investment that can take advantage of any increase in demand and to ensure that the skills and business resources are developed within the community to do so.



## Trail Management

Consideration was given to the economic impact of trail maintenance and operations. Given that the bulk of expenses are met directly (through trail maintenance) or indirectly (through grants to the Trust) by the Far North District Council and ancillary local sources (including partners), they do not represent an addition to regional economic activity (although they may involve a net transfer into the local area from the rest of Northland).

An \$11,700 grant by MBIE in 2020 does represent such a transfer, although is not considered enough to justify analysis. Past subsidies from central government supporting development of the cycleway are important, though. These represent a significant transfer into Northland, facilitating the economic activity described in this analysis and creating or supporting jobs and income that would not otherwise exist in the region.

## 4.4 Summary

Our analysis suggests that the trail in 2019:

- Accommodated over 42,000 unique visits; 30,500 by visitors from outside Northland and, of these, 24,000 by people visiting to ride the trail;
- Of those trail tourists, perhaps 3,000 came from overseas;
- Hosted around 9,000 full trail trips;
- Accommodated 42,000 visitor days (excluding locals);
- Accounted for \$8.4m in spending, of which \$5.7m represents regional income (added value);
- Supported around 140 full-time job equivalents in Northland;
- Achieved modest economic impacts in the immediate area (possibly no more than 10 full-time job equivalents and \$300,000 in value added), and approaching \$2m and 40 jobs in the wider Bay of Islands/mid-north area (southern far North District council).

These results and our analysis of experience elsewhere (Section 3) justify sustaining and improving the trail, including investing in ancillary infrastructure to support more users. They also suggest that there is room to lift its economic contribution, both through developing and promoting it and by encouraging more investment in the area. The aim of the latter will be both to lift its appeal and increase opportunities for longer visits and increased visitor spending in the area and thereby to generate more local income and jobs.

The analysis of movements on the trail also suggests that the extension to Paihia and beyond will boost user numbers within both the day-trip and over-night segments of the market. Such investment will ideally be accompanied by promotions into the major domestic markets and profile-raising (if necessary) within the Bay of Islands holiday market.

In order to lift the trail's market appeal, to maximise the revenue it might generate, and to increase its local contribution, support for increased accommodation opportunities and for new ventures in the areas of activities, hosting, and catering should also be explored.

## A Note on the Impact of Covid19

While drawing on a range of arbitrary assumptions, the figures in this report can be considered a reasonable reflection of the activity and impacts associated with PHTTCCT in 2019. Unfortunately, that was then: the tourism market as it was has since collapsed.

So what conclusions can we draw from the analysis for the challenges of the new reality?

**First**, the sorts of effects illustrated can be scaled up or down more or less directly: a halving of visitors using the trail will halve its contribution to jobs and income. Conversely, a doubling of visitor numbers should double jobs and income without by any means doubling the costs of maintenance and operations.

**Second**, for small businesses the negative impacts of reduced patronage may lead to permanent closure. For larger businesses they simply contribute to a more general loss of business along with the restrictions applied to social and economic activity generally in the area. The potential loss of such businesses, though, threatens to constrain the rate and scale of recovery once the pandemic wanes in an area under economic stress. The marginal income associated with trail activity is likely to be disproportionately important to the immediate area.

**Third**, recovery in visitor numbers and spending will depend for the foreseeable future on building *domestic* tourism. Fortunately, the trail does not depend too much on international visitors and there should be an opportunity for solid domestic visitor growth until such time as global travel restrictions are lifted. Even then, it is likely that the appetite for overseas holidays by New Zealanders will have diminished and domestic tourism will benefit.

### Recovery

Informal accommodation should respond relatively quickly to a recovery of demand, especially through bed and breakfast, specialist lodge, hostel, budget motel, and perhaps marae-based options.

The other keys to recovery may be:

- (1) The extent to which the trail can be promoted in domestic markets in a comprehensive manner – covering the total experience, accommodation options, and activities; and
- (2) The ability to increase and publicise activities available on or around the trail.

New activities will not necessarily demand a large capital investment to start up – although financial and mentoring support for local groups and individuals prepared to pursue them is likely to be needed in the early stages, together with the training of potential staff. There may also be a call for additional public investment in amenities on and around the trail, including parking and access points, the development of short spurs to link it with additional activities and hospitality facilities, and cycleway and amenity improvements where required.

An approach which addresses trail quality and amenity, on the one hand, and increases local investment in activities, on the other, should increase the economic contribution of the trail even more rapidly than any increase in user numbers.

## 5. Conclusion

The picture painted here is of a trail that has enjoyed increased patronage over the past four years and has consequently justified the original investment in economic terms. It now makes a significant contribution to the “tourism account” in Northland.

Without the benefit of an extensive survey of users<sup>29</sup> or corroborating data from a survey of businesses supplying goods and services to trail users<sup>30</sup> the figures presented in this report should be taken as indicative only. Nevertheless, along with the other information presented they lend themselves to reasonably robust conclusions:

- The level of use and associated spending means that the ongoing costs of operating the trail are substantially exceeded by the benefits to the region of its use.
- This means, among other things (and acknowledging that historical capital costs can now be treated as sunk), the economic benefits of any investments in improving the trail, its amenities, and marketing are likely be very positive as the marginal benefits of growth should easily exceed the marginal costs.
- When compared with other trails and when the surveyed spending of users is considered, there may be a need and, importantly, an opportunity for private investment in trail add-ons – tour packages, additional recreational and adventure activities , and on- and off-trail experiences.
- The trail appears to meet demand for day trip options ex-Opuia, presumably including trips from Paihia and beyond. This is a healthy development that raises other prospects:
  - Further boosting patronage through trail extension to Paihia, Waitangi, and perhaps even Haruru to tap into the Bay of Islands holiday market and provide a basis for extending the length of stay among visitors to generally;
  - Promoting the prospect of multi-day tours, ideally across the entire trail to a Bay of Islands-based holiday market;
  - Related to that, creating the capacity on the length of the trail to cater for and hold the interest of more overnight visitors, including increasing the provision of infrastructure and amenities, encouraging more investment in accommodation and catering, and lifting opportunities for the development of additional attractions.

The study has demonstrated that the economic benefits of the trail by now exceed the historic cost of development, that the marginal benefits of growth should well exceed the marginal costs, and that the trail has a significant but not yet substantial positive impact on the regional economic and jobs. The study’s main contribution is to highlight the need and opportunities for further development to lift its benefits. Doing so will not only boost the economy of the small towns and rural area through which it passes, but should also raise the profile, appeal, and popularity of the trail, thereby lifting its overall regional contribution.

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<sup>29</sup> Which would be expensive and time-consuming, with no guarantee of providing accurate figures

<sup>30</sup> Which was rendered impractical and considered inappropriate with the onset of Covid19