

Attachment A: Developing Warburton as a World Class Mountain Bike Destination



Developing Warburton as a World Class Mountain Bike Destination, and Economic Feasibility Study

August 2021





This report was prepared by TRC Tourism for Yarra Ranges Council in relation to Developing Warburton as a World Class Mountain Bike Destination.

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We acknowledge the Indigenous peoples of the lands, waters and communities we work together with. We pay our respect to their cultures; and to their Elders – past, present and emerging.

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EXECUTIVE SUMMARY

Participation in mountain biking is growing, with desire by riders to enjoy the outdoors and experience natural attractions.

Majority of mountain bikers are beginners or intermediate level – seeking a new experience or participating in an outdoor activity with family and friends. Many intermediates are drawn to locations that contain the best experiences, even though the experiences may be blue or black standards.

There is obviously a fine balance in delivering a Mountain Bike (MTB) trail experience that is sustainable – environmentally and economically, while meeting the needs of both local communities and visitors and ensuring sufficient ongoing resources.

After development of the Warburton Mountain Bike Master Plan, the final stage prior to construction is to carefully evaluate all the potential impacts, positive and negative that the proposed trail network will create.

This report provides an overview of the impacts reviewing participation in MTBing, health and wellbeing, environmental and economic impacts. The report reviews a range of literature in best practice and provides an evaluation of existing and planned MTB experiences across Australia.

Findings reveal:

- Top reasons for undertaking MTB experience are for - Health and fitness, being outside in the open air, sightseeing, relaxation, recreation and socialization
- It is estimated that 1 million people currently participate in mountain biking, with likelihood to participate sitting around 6 million Australian adults
- Cycling activity is in the top 5 of sport and recreation activities undertaken by Australians. Over 50% of Australian households have at least one working bicycle at home
- Victorians have the highest level of cycling participation, accounting for 28.7% of all Australian cyclists

- High value – 20% of cycling participants have an income of over \$200,000 per annum
- The proposed Warburton MTB Master Plan aligns with priorities within Parks Victoria Healthy Parks, Healthy People Framework 2020
- Cycling is proven to have substantial benefits on physical and mental health and wellbeing, reducing professional medical expense and interventions.
- Mountain biking has a relatively low environmental impact, comparable to that of walkers
- Well-designed trails prevent off trail riding and unsanctioned trail development
- MTB trails provide opportunities for people to connect with and appreciate nature, resulting in increased awareness and advocacy for protection of our natural spaces
- Experiences in nature are highly desirable, demonstrated by the increase in intended conversion when an MTB experience within a national park is offered
- MTB riding is affordable for a large proportion of people
- Flow on benefits for local people and communities offering support services as trail towns and trail hubs, and improves liveability especially in regional locations
- COVID-19 is demonstrating strong uptake in outdoor recreational activities, with huge growth in Australia and globally in bicycle purchase and participation in cycling

National Parks and protected area authorities across Australia and New Zealand and elsewhere are committed to providing sustainable trail experiences, evidenced by substantial funding commitments both in the past and on the horizon in MTB trails

Economic Impact Assessment

This report provides an economic impact assessment of the proposed Warburton MTB Trails development. The modelling is based on estimates of annual uses/users of the trails and other assumptions utilised in quantifying spending and benefits in the region.

The economic modelling has been undertaken with 2 spending assumptions of trail users and visitors:

Based on published Tourism Research Australia data (TRA), and

Based on unpublished surveys of riders and visitors at Derby in Tasmania by Xyst Pty Ltd in May 2021.

The Derby data is likely to provide a more accurate picture of expenditure for mountain biking specific destinations as it captures expenses general visitors will not incur, including specialist bike hire, shuttle bus services and bike repairs.

However, the TRA spend data is used as the primary reference due to it being published data captured in a repeatable way by a leading statistical agency.

Attachment 1 to this report provides the same analysis undertaken with the same three cases undertaken with the Derby data for reference purposes only. It indicates a higher economic benefit due to the higher spending per visitor / rider.

Average expenditure levels are used in the modelling for trail users (who are visitors to the region) and based on Tourism Research Australia (TRA) data for tourism visitors to the Yarra Ranges LGA.¹

¹ Local Government Area Profiles, 2019, Yarra Ranges (S) LGA, Tourism Research Australia

The analysis is for a 10-year period of operations. Three cases are examined:

- Case 1 Base Case: Full Trails Network - covering the full development of the trails network
- Case 2 Reduced Trail Network, with no trails in the National Park Areas, and
- Case 3 with No Drop A K trail.

In modelling of trail users, we have drawn of the market segment profile from the surveys conducted by instinct and reason.²

Trail Use

The modelling has identified the potential number of trail users over the 10-year period of operations.

- For Case 1 Base Case, user numbers would increase from 131,217 in year 1 to 221,454 in year 10
- For Case 2: Reduced Trails Network (No Trails in National Parks) , user numbers would increase from 100,739 in year 1 to 140,014 in year 10
- For Case 3: No Drop A K Trail, user numbers would increase from 110,909 in year 1 to 153,769 in year 10.

Around two thirds of trail users would be day visitors and one third overnight visitors. The trails will generate a significant increase in visitors to the region and provide a major boost to accommodation and food service businesses.

The differences are show in the following charts. Case 2 delivers lower visitor numbers compared with the Case 1 Base Case, with a difference in year 10 of around 80,000 annual users. For Case 3 visitor numbers in year 10 are around 68,000 lower than the Base Case.

Regional Spending

For the Case 1: Base Case spending in the Yarra Ranges LGA by trail users would increase from \$28.0 million in year 1 (\$20.9 million overnights and \$7.1 million day visitors) to \$48.6 million in year 10 (\$36.7 million overnights and \$11.9 million day visitors).

² Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 & Additional Findings May 2021.

For the Case 2: Reduced Trails Network (no National Park Trails), spending in the Yarra Ranges LGA by trail users would increase from \$19.1 million in year 1 (\$13.6 million overnights and \$5.5 million day visitors) to \$28.4 million in year 10 (\$21.1 million overnights and \$7.3 million day visitors).

For the Case 3: No Drop A K Trail, estimated spending in the Yarra Ranges LGA by trail users would increase from \$21.2 million in year 1 (\$15.1 million overnights and \$6.1 million day visitors) to \$31.5 million in year 10 (\$23.5 million overnights and \$8.0 million day visitors).

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay, and
- spending on other recreational and tourism services.

Economic Impacts

The economic impacts of the trail's development are modelled for both the construction phase and the operations phase. The impacts are measured in terms of full-time equivalent jobs (FTE) and the increase in regional income that is generated by trail users and their spending in the region.

Economic Impacts Construction Phase

In modelling construction jobs, the cost components that are associated with trails and other facilities construction are used, and these total \$15.1 million for Stage 1 and Stage 2.

A total of 84.1 FTE jobs (70.1 direct jobs and 14.1 indirect/induced jobs) would be generated during the construction period. The direct jobs (70.1) comprise 50.3 jobs in on-site construction and 19.8 jobs in materials/equipment supply.

The EEC Report indicates that construction of the trails would be undertaken by teams of 3-4 persons.³

Economic Impacts Operations Phase

The operations phase economic impacts are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader Yarra Ranges region. MCA's regional economic model is used to estimate the employment and income impacts of the trail.

- For Case 1 Base Case, the operation of the trails would generate a total of 132.7 full-time equivalent jobs in year 1, increasing to 228.6 FTE jobs in year 10
- For Case 2 Reduced Network – No National Park Trails, the operation of the trails would generate a total of 90.5 full-time equivalent jobs in year 1, increasing to 131.7 FTE jobs in year 10
- For Case 3 No Drop A K, the operation of the trails would generate a total of 100.5 full-time equivalent jobs in year 1, increasing to 148.4 FTE jobs in year 10.

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

³ EES Chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council P24

Benefit Cost Analysis

The benefits and costs of the operations of the trails are analysed over a 10 -year period. The benefits are measured by:

- direct - the increase in regional income generated by trail users over a 10-year period, and
- indirect - the estimated health benefits and the trail user value.

The costs include design and planning costs, construction costs, and asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

A 7% discount rate is appropriate for a trail project. The BCRs including all benefits are:

- Case 1: Base Case yields a positive BCR of 7.7
- Case 2: Reduced Trail Network yields a positive BCR of 4.7
- Case 3: No Drop A K Trail yields a positive BCR of 5.2.⁴

If only regional income is included the BCRs are:

- Case 1 - 4.5
- Case 2 - 3.0
- Case 3 – 3.3.

⁴ The measured benefits include the increase in regional income, health benefits of exercise and a notional valuation of the consumer benefit of the trail.

1 Introduction

A world class mountain bike destination in the heart of the Yarra Ranges.

In 2010, the concept to develop a Warburton mountain bike hub was presented as an opportunity to increase recreational, economic and health and wellbeing benefits for local people, while attracting visitors into the Yarra Ranges.

Since then, the Yarra Ranges Shire Council (YRC) has undertaken a range of feasibility studies, economic impact assessments, stakeholder and community consultation, master planning, trail design and concept development. The proposed Warburton Mountain Bike Destination Master Plan is now undergoing the Environmental Effects Statement (EES) process. The process evaluates impacts to:

- Environment, habitats and biodiversity
- Waterways and catchments
- Social, economic, amenity and land use, including transport
- Cultural heritage.

The progression of the Master Plan would see the formalisation of an existing 15km of trail, development of 164km of new mountain bike trails and supporting trail infrastructure, access and facilities. The proposed trails have been designed to cater for diversity in rider abilities and landscape experiences.

1.1 Study purpose

TRC Tourism has supported the YRC on the Warburton mountain bike destination journey, having previously undertaken feasibility studies and economic impact assessments.

As the proposal comes closer to realisation, TRC has now been engaged to better understand the essential elements of a world class trail destination. This study will be used to help understand what YRC needs to do in a practical sense to achieve its full potential as a mountain bike hub.

A critical question being asked is “why develop these trails in the national park?”

This study will review best practice approaches to mountain biking, particularly within a national park and natural landscape context in three phases:

- Literature review
- Case studies
- Updated demand modelling.

The study will be used to demonstrate the importance of iconic natural landscapes as an essential component of trails experiences.

2 Proposed Warburton MTB Trails Development

2.1 Project Objectives

The project involves developing a proposed world-class mountain biking destination centred around Warburton, approximately 70 kilometres north east of Melbourne. The new trails build on the existing informal network of mountain bike trails. Yarra Ranges Council has identified mountain biking as an opportunity for tourism growth within the region, which would also support the region and the health and well-being of its residents. The trails would position Warburton as an internationally significant mountain biking destination and outdoor active destination.

The project objectives are to:

- Facilitate tourism growth and associated positive economic and jobs growth in the Yarra Valley Region
- Create iconic mountain bike trails eligible for International Mountain Bike Association Gold Ride Centre status
- Create spectacular riding experiences that have a competitive advantage over existing mountain bike destinations and leverage Warburton's beautiful township, rural valley and surrounding forested slopes
- Enhance the health and well-being of the community
- Maintain the significant biodiversity and heritage values within the project area and provide opportunities for the community to connect with and appreciate their importance.⁵

⁵ EES chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council . P3

2.2 Project Components

The project consists of approximately 186 kilometres of mountain bike trails providing a range of experiences to suit all levels of riding.

The main project components proposed are:

The proposed mountain bike trail network consists of:

- An upgrade of existing mountain bike trails - approximately 15 kilometres
- new mountain bike trails - approximately 164 kilometres
- existing vehicle roads and tracks to be incorporated into the mountain bike trail network (approximately seven kilometres).

Some of the trails are returning loops, while others are point-to-point trails. A new visitor's hub and main trail head at the Warburton Golf Course is planned, along with new trail head facilities at Mount Tugwell and Mount Donna Buang.⁶

2.3 Development Timing

The following is the staging for the development and operations of the Warburton MTB trails. Stage 2 is subject to acquiring future funding. This timing is indicative and is subject to approval processes.

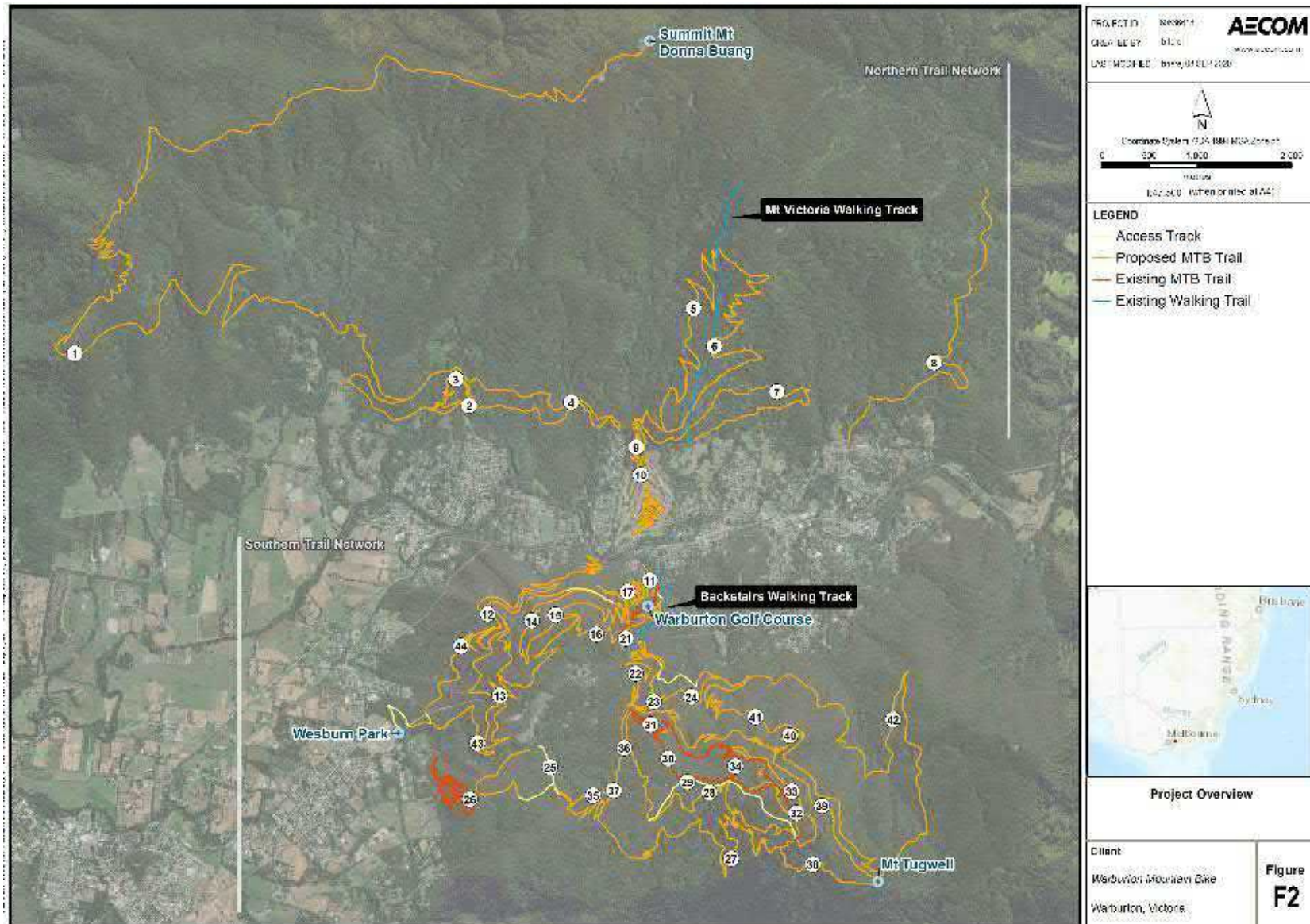
⁶ EES chapter 3 – Project Description Warburton Mountain Bike Destination Project. Yarra Ranges Council P6

Table 1. Staging of Warburton Trail Development

Warburton MTB Trail	
Staging of Trail	Indicative Timing Only
Construction	
Stage 1	
Construction Stage 1 (110 kms)	Sept 2021
Section 1 35 kms	Sept 2021-Feb 2022
Section 2 35 kms	Mar 2022-Aug 2022
Section 3 35 kms	Sept 2022-Jan 2023
Stage 2	
Construction Stage 2 Section 4 (76 kms)	6 months
Subject to funding - indicative only	Sept 2024-Jan 2025
Operations	
Commence	
Stage 1	
Section 1 35 kms	March 2022
Section 2 35 kms	Sept 2022
Section 3 35 kms	Feb 2023
Stage 2	
Section 4	Feb 2025

SOURCE: YARRA RANGES SHIRE COUNCIL SEPT 2020

Figure 1. Proposed Network – Yarra Ranges MTB Network



SOURCE: EES CHAPTER 3 – PROJECT DESCRIPTION WARBURTON MOUNTAIN BIKE DESTINATION PROJECT. YARRA RANGES COUNCIL P5

3 Literature Review

3.1 Background - Warburton Mountain Bike Trail Master Plan

Vision: To provide a world class mountain biking destination around the township of Warburton that promotes health and wellbeing, economic resilience and environmental stewardship.

A concept presented to the YRC by local mountain bike enthusiasts in 2010, the Master Plan is built upon several success factors that Warburton already offers:

- Warburton is nestled on the Yarra River and flanked by tall mountains on either side, making it possible to create a “ride in, ride out” experience directly from town
- National park and state forest settings that provide a rich diversity in topography, scenery and natural beauty
- There is over 1000m elevation change on the north side and over 800m on the south side
- Warburton and the Yarra Valley already support tourism and further development opportunities exist
- Proximity to an international airport increases ease of travel for overseas riders
- Only 70km from Melbourne CBD and over 4 million people living within an hour’s drive
- Soil that is highly conducive to trail building, allowing trails to be more sustainable and provide a better riding experience.

The proposed new trails also present an iconic Australia first opportunity:

‘Identified a descending trail from the Mt Donna Buang summit to Warburton Township (Drop-A-K) as a key opportunity to develop an experience unlike anything available in Australia. With over 1000 vertical metres of elevation difference and an opportunity to have a trail that is descent only, this unique product could be established as an international drawcard that would drive the visitor economy.’

3.1.1 Objectives

Incorporating 15km of existing trail upgrades and 164km of new trails, the Master Plan’s objectives are to:

- Facilitate tourism growth and associated positive economic and jobs growth in the Yarra Valley region
- Create iconic mountain bike trails eligible for International Mountain Bike Association Gold Ride Centre status
- Create spectacular riding experiences that have a competitive advantage over existing mountain bike destinations and leverage Warburton’s beautiful township, rural valley and surrounding forested slopes
- Enhance the health and well-being of the community
- Maintain the significant biodiversity and heritage values within the project area and provide opportunities for the community to connect with and appreciate their importance.

3.1.2 Delivery

With recommendations for minimal impact design and construction techniques, the trail network implementation schedule is 10 years in the making:

- Project development and approval: 2020-mid 2021
- Project construction: mid 2021-end 2030
- Project operations and maintenance: staged opening from end 2021 onward.

3.1.3 Target markets

Figure 2. Target markets outlined for the Warburton mountain bike trails experience.



Mountain bikers (includes residents)

- Mostly male 35-44 years old
- Higher disposable income
- Likely to be travelling with partner and children, or with a group of 3-5 friends
- Seeking at least a half day MTB experience, complemented by other destination experiences
- Attracted to mountain biking to escape the confines of the home, work and city, connect with nature, relax, socialise, undertake a personal challenge and adventure.



Families (includes residents)

- As mountain bikers often travel with their families, they are also a target market for Warburton.
- Beginner and social trails are a great way for mountain bikers to enjoy time together with their families.



Tourists / visitors

- For non-mountain bikers, many visitors may nowadays incorporate an outdoor experience such as mountain biking into their itineraries.
- Through provision of guided experiences and bike hire, visitors will enjoy Warburton mountain biking as a way of learning about and exploring the region.



Outdoor education

- Schools are incorporating outdoor education and adventure activities as a core component of the curriculum
- With several schools located both near Warburton and further afield in Melbourne, Warburton can open new skill building opportunities and camps for outdoor education groups.

3.1.4 Forecast benefits

Pre-COVID impacts, the realisation of the Warburton Mountain Bike Destination was forecast to result in:

- 120 new jobs
- \$16 million in economic spend
- 40+ km of trail linking Lilydale, Yarra Glen Healesville and joining into the Lilydale Warburton Rail Trail
- Improved healthy lifestyles of local people.
- Updated demand and forecasting post-COVID is incorporated within this report.

A combined total of \$11.3M has been committed by Federal, State and Local Governments to implement Stage 1 of the Warburton trails.

3.1.5 Environmental Effects Statement (EES)

As per the *Environment Effects Act 1978*, procedures and requirements under section 8B(5), an Environmental Effects Statement (EES) is being prepared to assess the proposed trails within the Warburton Mountain Bike Master Plan. The EES will assess the effect the project will have on:

- Environment, habitats and biodiversity
- Waterways and catchments
- Social, economic, amenity and land use, including transport
- Cultural heritage.

To advance to the detailed design stage, conceptual alignments were carefully investigated in the field, with a 20-metre corridor ‘ground-truthed’ by walking the trail length. The design principals applied during the ground-truthing works included:

- Where practicable, align trails on old benches/old roads or other disturbance corridors, which are reasonably common in areas that have a history of mining or logging
- Minimise the use of switchback corners to minimise construction footprints
- Avoid excessively flat or steep areas
- Use the terrain to its maximum. The final shape and feel of the trail is dictated by the terrain, so any interesting shapes or features that are present in the landscape should be capitalised on where possible
- Trails designed in accordance with Australian Mountain Bike Trail Guidelines (MTBA, 2019), and International Mountain Bike Association Trail Construction Guidelines.

During the ground-truthing, a Biodiversity Impact Assessment, Environmental Risk Assessment and Cultural Heritage and values assessment were undertaken. These assessments have been submitted to inform the EES for evaluation.

Other factors considered and presented within the EES include:

- Runoff management and erosion prevention
- Utilising existing vehicle roads and tracks to be incorporated into the mountain bike trail network
- Siting and conceptual design of new visitor hub, trail heads and associated infrastructure including shuttle bus road access, car parking and trail signage
- Trail construction including upgrading of existing trails and micro-siting of new trails
- Trail types including excavation, elevation, rock and embankments and trail construction techniques including bridges
- Trail construction and implementation timeframes for use
- Anticipated trail use from 2021 to completion in 2030, including regularity and participation in events
- Environmental impact mitigation including protection of tree roots during construction, awareness of weeds species, development of a Construction Environmental Management Plan as guidance for best environmental practices during trail construction, and installation of bike washing facilities to reduce weed spread
- Trail operations incorporating workforce requirements, maintenance works, inspections and methods.

All relevant planning documentation including the EES submission is available for public viewing and interactive comments via the www.rideyarranges.com.au website. In addition, face-to-face meetings, public forums, direct postal mail outs, emails and phone calls and online surveys have been available enabling local communities, organisations, industries and stakeholders to have their say and inform the future direction of Warburton as a world class mountain bike destination.

3.2 Mountain biking trends, participation and impacts

3.2.1 Trends

There are a number of mountain bike riding styles which have evolved since the sport began in the 1980's. Cross-country riding is the most popular style of riding due to its relative ease of participation by a broad range of users. Mature or core mountain bike riders however may seek out more adventurous trail experiences including gravity rides such as Gravity Enduro and jump and stunt focussed styles such as Freeride and Dirt Jumping.

With the continual increase of mountain bike participation by a broad range of demographics, riders can be broadly divided into core and non-core riders:

Figure 3. Mountain bike user definitions – non-core vs core



Non-core Mountain Bikers:

- Beginners
- Road bikers that occasionally ride MTB
- Families seeking safe enjoyable places to ride away from cars
- School groups (often guided by tour operators)
- Off-road bike tourers
- With increased skill, may eventuate into Core Mountain Bikers.



Core Mountain Bikers:

- High levels of expenditure on gear and equipment
- High amount of time spent mountain bike riding
- High willingness to travel to go mountain biking
- High likelihood of participating in competitive events.

3.2.2 MTB segments

Further segmenting the non-core versus core mountain bike riders is the uptake and participation in basic, intermediate and competition riding experiences.

Figure 4. Demographics of Basic, Intermediate and Competition riders⁷



Basic riders

- MTB is an add-on holiday experience, learning a new skill and undertaking a different experience
- Predominately female
- Over 55 years of age
- Minimal MTB experience
- May undertake as a once holiday activity
- MTB will be part of a day trip
- Participating in MTB for health and fitness and being outside in the open air



Intermediate riders

- MTB is part of a holiday in a natural setting
- Undertaken with family or partner
- 6-10 years riding experience
- May undertake as a twice per year holiday activity
- MTB will be part of a day trip
- Participating in MTB for health and fitness and being outside in the open air



Advanced or Competition riders

- MTB is a core element of the holiday
- Thrill-seeking and adventure based
- Will undertake with family or friends
- Predominately male
- 11+ years MTB experience
- Income \$150K+ pa
- May undertake 3 times or more per year as a holiday activity
- MTB will be usually part of a 2-night trip
- Participating in MTB to challenge themselves, enjoy time outside in the open air, health and fitness, thrill seeking and adventure, recreation and social connection.

⁷ Warburton Mountain Bike Destination 2019 – Instinct and Reason

Most people mountain bike for fun and enjoyment, with only a small proportion focussed on competitions. The attractive points for mountain biking are that it enables people to choose who they ride with, generally family or close friends; it can be done anytime; it does not require a minimum level of competency (other than the ability to ride a bicycle) and allows people to choose trails to match their ability; people that may be self-conscious about their ability can choose where, when and who they ride with.⁸

The combined top reasons all riders participate in MTB include:

- Health and fitness
- Being outside in the open air
- Sightseeing
- Relaxation, recreation and socialization
- For competition riders, MTB is also about challenge and thrill seeking.⁹

3.2.3 The importance of natural environments

Nature and wildlife are highly desired complementary experiences for all mountain bike riders, especially the larger segments of basic and intermediate skilled riders. Demand testing for a Warburton MTB experience undertaken by Instinct and Reason in 2019 indicated that offering nature and wildlife experiences returned the highest conversion intention rating of all ancillary offerings (+7.3%). Providing value-add national park ranger talks also increased desirability by +5-12%.

⁸ Warburton Mountain Bike Feasibility Study 2019

⁹ Warburton Mountain Bike Destination 2019 – Instinct and Reason

3.2.4 Participation

Recent estimates on mountain bike participation suggest that around **one million** Australians engage in mountain biking activity, ranging from beginner through to competition level.¹⁰

Data on the actual participation in mountain biking in Australia is largely collated from three sources – Mountain Bike Australia’s (MTBA) statistics, the *Ausplay Cycling – State of Play Report 2020* and recent research undertaken by Instinct and Reason on behalf of the Yarra Ranges Council.

During 2020, MTBA became affiliated with the broader Auscycling movement. Auscycling provides a single platform to unite all Australian cycling interests across BMX, BMX Freestyle, Cyclo-Cross, E-Sport, Mountain Bike, Para-Cycling, Road, Track and Lifestyle riding (recreational and commuter). Representing more than 52,000 members nation-wide, the vision of Auscycling is to make Australia a nation of bike riders, across all forms of cycling. Principle partners of this movement are the Federal Government’s Australian Sports Commission (SportsAus) and the Australian Institute of Sports – both with the objective of growing participation in sports for physical, recreational, social and mental wellbeing.

¹⁰ Warburton Mountain Bike Destination 2019 – Instinct and Reason

Figure 5. Mountain biking participation based on MTBA data¹¹

Mountain biking participation

MTBA membership



- Prior to COVID-19, MTBA membership numbers reached an all-time high of 18,000. This is a growth of 59.7% in the last 5 years.
- After a small decline due to travel restrictions and lockdowns, the CEO of MTBA has recently reported member numbers have now been restored to pre-COVID levels and are continuing to rise.



Social media

- Facebook - 39,994 followers (11% growth from FY19)
- Instagram - 23,102 followers (15% increase from FY19).
- Potential reach of 63,096 individuals.

Clubs - nationally

- 166 clubs
- 19 schools
- 27 private promoters (MTB events) affiliated with MTBA.
- Club affiliation has grown by 29.7% in the past five years.



Victorian clubs

- 37 MTB clubs, this is the second largest club membership behind NSW with 53 clubs.
- 3 Victorian schools are affiliated with MTBA, behind Queensland (8 schools) and NSW (4 schools).
- 1 private promoter affiliated with MTBA, this is less than all other States and Territories other than the NT – WA has 8 MTBA listed private promoters, followed by Tasmania with 5.



Source: Mountain Bike Australia Annual Report 2020

¹¹ Mountain Bike Australia Annual Report 2020

Figure 6. Category participation percentages of Australian adult (+18) mountain bike riders

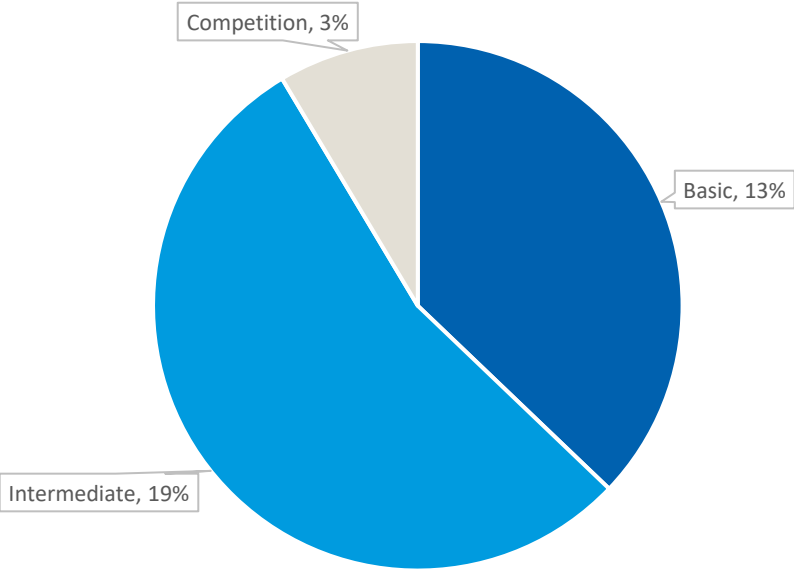
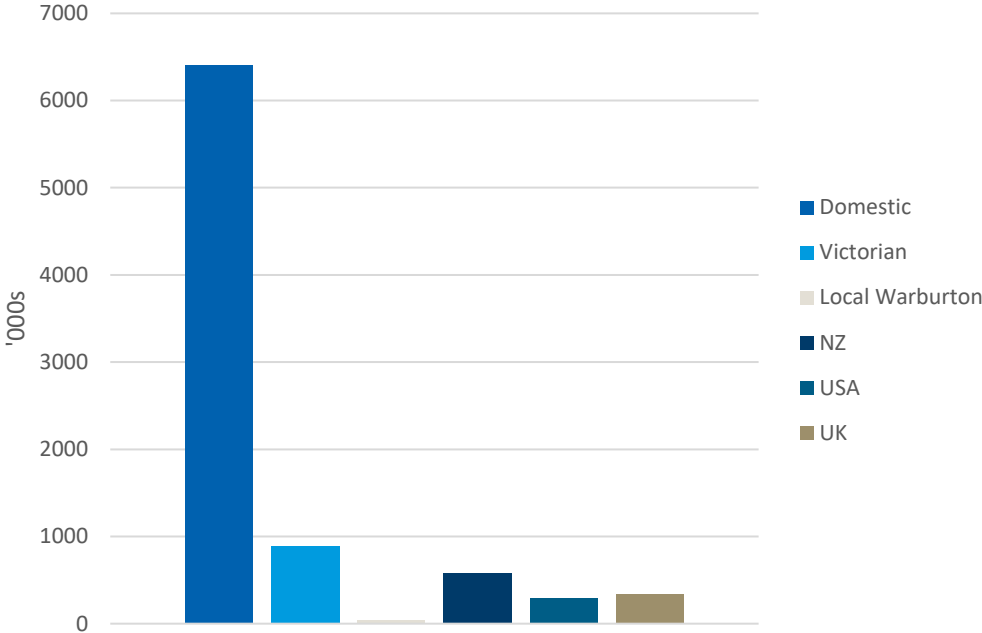


Figure 7. Total potential Australian MTB adult market, includes international visitors to Australia and likelihood of participation in an MTB experience¹²



- 32% of the adult Australian population have incorporated or considered a mountain bike experience in a holiday. Of this 82% have added an MTB experience into their holiday.¹³

¹² Warburton Mountain Bike Destination 2019 – Instinct and Reason. Statistics determined pre COVID-19.

¹³ Warburton Mountain Bike Destination 2019 – Instinct and Reason

3.2.5 Cycling

Clearinghouse for Sport undertake annual sport and physical recreation participation surveys, used to inform Sports Australia. Mountain biking is included within the broader cycling category. Results for cycling in the Ausplay State of Cycling Report for 2020 indicate:

Figure 8. Cycling participation in Australia¹⁴



¹⁴ Ausplay Cycling – State of Play 2020; Ausplay National Cycling Participation Survey 2019

3.3 Impacts of mountain biking

The benefits of mountain biking are outlined by Mountain Bike Australia (MTBA):

- **Environmental** – greater awareness and understanding of our environments, leading towards advocacy and protection
- **Economical** – users can support complementary mountain biking experiences such as cafes, bike hire, guided tours, accommodation. Mountain biking experiences and trails support business sustainability and opportunities for new business investment and employment
- **Social** – mountain biking can also connect communities together and provide a place for family and friends to enjoy time recreationally.¹⁵

Mountain bike riding provides more than just economic, health and social and environmental benefits. MTBA, IMBA and the previously presented research suggests that mountain biking provides:

Figure 9. Benefits of Great Trail Experiences



¹⁵ www.mtba.org.au

3.3.1 Benefits of Active Trail Use

There is great community benefit in the establishment of mountain bike trails and the promotion of outdoor activities is an essential component of healthy communities. Community pride is also a benefit from the development of MTB experiences, as members of the community are often involved in volunteering and maintenance of the track. Health and social wellbeing benefits of mountain biking include:

- promoting an appreciation for the outdoors and natural environment, creating advocates for protection of those environments
- is inclusive of all age groups and ability levels – everyone can participate
- can be undertaken at all times of the day and in almost any season
- does not consume significant maintenance resources when compared to other sporting facilities
- appeals to riders who are not comfortable riding on roads due to traffic
- promotes health and fitness within the local community.¹⁶

Mountain biking has also been utilised as a therapy for people with mental health issues, including women who are survivors of sexual abuse and assault (<https://thesacredcycle.org/>) and also people managing Post-Traumatic Stress (<https://paptsd.org/about/>).

3.3.2 Healthy Parks, healthy people

The concept for establishing Warburton as a mountain biking destination was a result of recommendations made in the Healthy Parks Healthy People (HPHP) framework in 2010. This framework is now a global movement, with clear evidence supporting the connection between healthy environments and positive human health and wellbeing.

Incorporated into Victorian Government policy, the Parks Victoria HPHP Framework 2020 is built on four principles that will benefit both Victorians and environments:

- The wellbeing of all societies depends on healthy ecosystems
- Parks nurture healthy ecosystems
- Contact with nature is essential for improving emotional, physical and spiritual health and wellbeing
- Parks are fundamental to economic growth and to vibrant and healthy communities.¹⁷

Relevant priorities of HPHP are in delivering:

- Sustainable natural settings and all abilities facilities that encourage and support nature play, outdoor learning, physical exercise, physical activity and recreation and social connection
- Trails and other tailored infrastructure that promote fitness and challenge
- Events and programs that promote regular participation in physical activity, resilience and positive mental health in nature and contribute to the visitor economy.

The Framework is an enabling document for the implementation of supporting plans such as:

<p>Protecting Victoria’s Environment: Biodiversity 2037</p>	<ul style="list-style-type: none"> • Goal One: ‘Victorians Value Nature’ • Increase opportunities for all Victorians to have daily connections with nature. • Increase opportunities for all Victorians to act to protect biodiversity.
<ul style="list-style-type: none"> • Victorian Health and Wellbeing Plan 2019-23 	<ul style="list-style-type: none"> • Increase active living • Improving mental wellbeing • Tackling climate change and its impact on health • ‘Encouraging (physical) activity to occur in natural environments (including parks) can increase people’s connection with nature and catalyse actions to conserve and protect our natural environments.’

¹⁶ Outdoor Council of Australia (2008). Australian Outdoor Adventure Activity Benefits Catalogue, <http://mountainbike.about.com>

¹⁷ Healthy Parks Healthy People Framework 2020, Parks Victoria

HPHP links the symbiosis between people and natural spaces - as sources of medicine and health and wellbeing, and for the protection of the environment.

3.3.3 Global research

Globally, various health and social benefits have been investigated surrounding both cycling and mountain biking. Findings include:

- **Improved physical and heart health** - The British Medical Association studied 10,000 people and found that participants riding bicycles for at least 30 km per week lessened their risk of coronary heart disease by almost 50%. Mountain biking uses large muscle groups that require a lot of oxygen, which increases your heart's cardiovascular fitness by 3-7%. Regular exercise also reduces the risks of obesity and lowers body fat¹⁸
- **Less stress on the joints** – As a non-load bearing sport, mountain biking reduces the risk of injuring and stressing joints in the way running or aerobic activity might
- **Decreased risk of diseases** - Researchers at the University of North Carolina found that people who cycle for 30 minutes, 5 days a week take half as many sick days off work compared to their sedentary counterparts. Improved health leads to an improved and stronger immune system. Another study published in the European Journal of Epidemiology reported that women who exercised regularly, including cycling to work, reduced their incidence of breast cancer¹⁹
- **Decreased risk of diabetes** – The risk of type 2 diabetes is becoming more prevalent due to the lack of physical activity people are undertaking. Research in Finland found that people who cycled for more than 30 minutes per day had a 40 per cent lower risk of developing diabetes²⁰
- **Reduced stress and positive mental health** - The vigorous demands of mountain biking stimulate your body to release natural endorphins, while also boosting serotonin, an important neurotransmitter in the brain which helps to prevent depression and anxiety. Gaining new skills and improving your mountain biking abilities also helps to build confidence and self-esteem
- **Increased brain power and cognitive function** - Researchers at Illinois University found that a 5% improvement in cardio-respiratory fitness from cycling led to an improvement of up to 15% on mental tests. This is in part due

to building brain cells in the hippocampus – the region of the brain responsible for memory. “It boosts blood flow and oxygen to the brain, which fires and regenerates receptors, explaining how exercise helps ward off Alzheimer’s”²¹

- **Increase bone density** - Resistance activities, such as pushing pedals, pull on the muscles, and then the muscles pull on the bone, which increases bone density. This increase may reduce the risk of osteoporosis²²
- **Improved balance and coordination** - Mountain biking is a dynamic activity that requires the rider to constantly adjust to varying terrain, pitch, and elevation. Balance and coordination require the combined resources of the brain, senses, muscles and nervous system. Keeping these systems active as we get older staves off disability from aging and reduces the risk of injury from falls
- **Whole body workout** – muscle strength and flexibility are improved through all parts of your body from your legs, gluteal, abdominal core and upper body – all without going to a gym
- **Sleep better** – after a tiring ride leading to a decrease in cortisol, a hormone that keeps us awake, your body and mind will need a regenerative sleep
- **Social benefits** - Mountain biking is often a social activity shared by clubs and groups who get out to ride together. There is increasing uptakes by families and friends riding together who can enjoy the social, bonding, recreational, nature and health benefits together.²³ In addition, often clubs will take custodianship and care of dedicated trails through supporting working bees, trail maintenance and advocacy. This establishes a sense of community pride of the riding experience
- **Enjoy and connect with nature** – by getting off the beaten track, riders can enjoy the solitude and connection to nature, which leads to reducing stress and fostering relaxation. The benefits of being outdoors and in fresh air also supports aids in our exposure to vitamin D, while enabling riders to appreciate, advocate and protect their natural environment.²⁴

¹⁸ Harvard Medical School, The Top 5 Benefits of Cycling www.health.harvard.edu/staying-healthy/the-top-5-benefits-of-cycling

¹⁹ 10 Benefits of Mountain Biking www.travelbughealth.com

²⁰ 10 Benefits of Mountain Biking www.travelbughealth.com

²¹ 10 Benefits of Mountain Biking www.travelbughealth.com

²² Harvard Medical School, The Top 5 Benefits of Cycling www.health.harvard.edu/staying-healthy/the-top-5-benefits-of-cycling

²³ 10 Benefits of Mountain Biking www.travelbughealth.com

²⁴ <https://www.betterhealth.vic.gov.au/health/healthyliving/cycling-health-benefits>

Additional active trail use benefits include:

- **Ride your way** - Riding can be as intense as you want, from very low intensity in the beginning or if recovering from injury or illness, built up to providing a demanding physical workout
- **Fun and enjoyment** – the adventure and buzz from coasting down hills and being outdoors establishes a healthy addiction
- **Time-efficient** – as a mode of transport, cycling replaces sedentary (sitting) time spent driving motor vehicles or using public transport with healthy exercise
- **Sense of community** - More people cycling, and walking provides additional opportunities for social interaction on the trail and at trail hubs enhancing the sense of community
- **Dedicated trails provide safer riding opportunities** - More cycling infrastructure and trails in a neighbourhood provides a safer trail network and avoids riding on the road. Children can also take advantage of dedicated trails that provide less dangerous traffic environments to cycle in.²⁵



BENEFITS OF CYCLING SOURCE: WWW.BLUESKYCYCLINGBLOGSPOT.COM

²⁵ Department of Transport and Main Roads, Queensland Government Cycling Benefits
www.tmr.qld.gov.au/Travel-and-transport/Cycling/Benefits.aspx

3.3.4 Environmental benefits

- Well planned and constructed MTB trails and experiences provide real environmental benefit by:
- Providing relatively low environmental impact on properly designed and constructed tracks
- Encouraging eco-friendly activity on specifically designed trails and tracks
- Reducing the evolution of unsanctioned trails
- Providing a space for people to connect with and appreciate the natural environment
- Promoting sustainable tourism
- Developing partnerships between land management agencies, riders and the community
- Contributing to community-based land management activities integrated with sustainable MTB trails
- Enhancing environmental awareness, improved understanding of our natural heritage and fostering stewardship.
- Each of these benefits are synonymous with the priorities within the Healthy Parks Healthy People Framework.

Figure 10. MTBA has a mountain bikers code of conduct which is built on respecting natural spaces and enjoyment for all



A range of studies have been conducted over the years on the environmental impact of mountain bike use in natural areas. Findings have revealed that environmental impacts are not greatly varied from walkers using trails.

<p>Measuring Environmental Impact Mountain Bikers of Santa Cruz – Mountain Biking Impact Study</p>	<p>The Mountain Bikers of Santa Cruz Science Committee undertook extensive research and literature reviews on the impact of mountain biking environmentally. They have produced categorised Frequently Asked Questions online providing a summary of the research as well as mitigating recommendations. In short, their research found that statistically, there is no difference in induced soil erosion, excavation, ruts, trail widening, weed transfer and wildlife interaction between biking and hiking, with horse riding being far more impactful. http://mbosc.org/mtb-impact-faq/</p>
<p>Environmental Impacts of Mountain Biking: Science Review and Best Practices by Jeff Marion and Jeremy Wimpey</p>	<p>This literature review investigates environmental impacts and research undertaken globally. The review finds that common environmental impacts associated with recreational use of trails include:</p> <ul style="list-style-type: none"> • Vegetation loss and compositional changes • Soil compaction • Erosion • Muddiness • Degraded water quality • Disruption of wildlife. <p>Examples provided in the review of environmental research methodology and monitoring include:</p> <p>Environmental - Thurston and Reader (2001) conducted an experimental trampling impact study involving mountain bikers and hikers in Boyne Valley Provincial Park of Ontario, Canada. The researchers measured plant density (number of stems/area), diversity (number of species present), and soil exposure (area of mineral soil exposed) before and after 500 one-way passes by bikers and hikers. Data analysis and statistical testing revealed that the impacts of hiking and biking were not significantly different for the three indicators measured. They also concluded that impacts from both hikers and bikers were spatially confined to the centreline of the lane (trail), indicating the importance of well-constructed trails and educating users to stay on trails.</p> <p>Wildlife - Taylor and Knight (2003) investigated the interactions of wildlife and trail users (hikers and mountain bikers) at Antelope Island State Park in Utah. A hidden observer using an optical rangefinder recorded bison, mule deer, and pronghorn antelope response to an assistant who hiked or biked a section of trail. The observer then measured wildlife reactions, including alert distance, flight response, flight distance, distance fled, and distance from trail. Observations revealed that 70 percent of animals located within 330 feet (100m) of a trail were likely to flee when a trail user passed, and that wildlife exhibited statistically similar responses to mountain biking and hiking. Wildlife reacted more strongly to off-trail recreationists, suggesting that visitors should stay on trails to reduce wildlife disturbance.</p>
<p>Trail Monitoring</p>	<p>The two-key metrics in trail monitoring are User Numbers and Trail Condition:</p> <ul style="list-style-type: none"> • To monitor user numbers, Australian land managers are increasingly utilising commercially available electronic counters such as the TrafX MTB counter (https://www.trafx.net) and the Island Research Traker-Count (http://www.islandresearch.com.au). Products such as these provide land managers with a relatively simple and reliable means of monitoring user numbers on specific trails allowing trends in trail user rates and behaviour to be better understood. • Photo-point monitoring is a relatively simple and useful approach to monitoring trail condition.

3.3.5 Economic Benefits

Understanding the natural attraction of these drawcards can aid in developing future MTB experiences, noting that in many instances, riders are seeking a holistic experience beyond just the trail. There is also the opportunity to leverage from existing attractions, natural features and activities to incorporate into an exceptional MTB experience, leading to increased visitation and expenditure, longer stays, regional dispersal, additional spend from community cycling events, job creation and business/commercial development.

- **Affordability** - While only 10% of the world's population can afford a car, an estimated 80% of people can afford a bike. Cycling provides economic and independent travel and increased mobility to many groups of the population with low rates of car ownership, such as low-income earners, unemployed people, seniors and those under 18 years of age.²⁶
- **Transport** - second only to food (18.2%), transport (15.5%) is the largest item of household expenditure in Australia. The family car costs up to 55 cents (AUD) per kilometre to run. In comparison, the cost of buying and maintaining a bike is around *one per cent* of the cost of buying and maintaining a car.²⁷
- **Property prices** – with the popularity of trails, increased visitation, improved liveability and commercial opportunities, the desire to live in trail regions will improve property prices. This has already been proven at sites such as the Blue Derby Trail in Tasmania, a region previously suffering from unemployment, low economic opportunity and minimal property sales/prices has now resulted in a thriving population, increased employment and property prices.
- In addition to tourism related economic benefits there are also direct flow-on effects of mountain biking for bicycle retail and wholesalers, bicycle mechanics, clothing and equipment manufacturers, trail designers and builders, coaches and instructors, event management groups and support services, shuttle and tour services, and mountain biking media companies.

Figure 11. Economic opportunities from MTB trail towns and hubs



²⁶ Department of Transport and Main Roads, Queensland Government Cycling Benefits, Queensland Cycling Strategy

²⁷ Department of Transport and Main Roads, Queensland Government Cycling Benefits, Queensland Cycling Strategy www.tmr.qld.gov.au/Travel-and-transport/Cycling/Benefits.aspx

Table 2. Commercial opportunities that have proved successful elsewhere

● OPPORTUNITY	● DELIVERY
● Bike shops and repairs	● Especially near trailheads. They may not sell many bikes, but accessories, consumables, repairs etc. are critical for visiting mountain bikers.
● Shuttle services	● In areas with good vertical elevation and gravity trails, riders will happily pay for comfortable and reliable transport back to the top of the hill.
● Coffee	● Bike riders of all disciplines love a good coffee shop. The closer to the trailhead, the better.
● Bike hire	● Most core mountain bikers are inclined to bring their own bikes, but there is still a good market segment of non-core riders looking to hire good quality mountain bikes.
● Guided tours and mountain bike tuition	● This opportunity does not have huge appeal for core mountain bikers, but it can be an excellent way for non-core mountain bikers to try the sport. Also, a great way for supporting solo traveller, small and large group activities, including school groups.
● Bike Friendly services	● Accommodation, cafes/coffee shops, places for bike service and repair. The Cyclist Welcome initiative of Far North Queensland developed a program and booklet to educate small business owners and the community on welcoming cyclists and how to be bike friendly. https://www.tablelandsfutures.com/wp-content/uploads/2015/04/BikeFriendlyBooklet-2014.pdf
● Accommodation	● Mountain bikers cover a wide spectrum of incomes and have wide ranging expectations for accommodation. Anyone that can cater towards cycling someway in their accommodation offering will have a competitive advantage. This can be as simple as providing secure bike lock up facilities.
● Food and Beverages	● There appears to be a growing overlap with boutique food and beverage tourism segments. Breweries and wineries are popular with mountain bikers, with the increasing establishment of gourmet trails in picturesque and rural settings.
● Groceries and other travel needs	● During travel, visitors require basic grocery and sundries. There are opportunities to provide on trail or close to trail and trail hub conveniences.
● Medial, physio and massage services	● Provision to ensure ongoing health and wellbeing benefits for riders, particularly those on holidays who wish to incorporate adventure and relaxation into their travels.
● First aid and on-trail support assistance	● Similar to on-trail first aid and operational support provided at ski fields, there are opportunities during peak seasons and events to offer this level of support on mountain bike trails.
● Other entertainment services and or experiences	● For many riders, the trail is only one component of the overall experience. Riders are also looking for complementary activities and experiences that become a part of the overall journey. In addition, during events or when family and friends are travelling to support core riders, providing additional activities and experiences for non-riders will keep them engaged and, in the region, longer.

Table 3. Examples of mountain biking economic impacts and potential value add events

● DESTINATION / TRAIL / EVENT	● IMPACT
● Cape to Cape Mountain Bike, WA	<ul style="list-style-type: none"> ● The Cape to Cape Mountain Bike race in WA is touted as being Australia’s largest and longest running MTB event: ● Starting in 2008, the event had 100 participants ● Attendees stayed an average of 5.6 nights in the region and had a direct spend of over \$1.9M (AUD). Of this expenditure the greatest expense items were accommodation, food and beverages, transport, and entertainment (i.e., sightseeing) ● 2014 race entries increased 20% to 1,500 after the 2013 ● 2018 marked the events 10th Anniversary with over 1600 entrants.²⁸²⁹
Whistler, British Colombia Canada	<ul style="list-style-type: none"> ● Attracted more than 160,000 mountain biking visitors in 2016, undertaking 533,000 rides in Whistler. ● Summer expenditure in 2006 totalled \$16.2M (CAD) and grew to \$46.6M (CAD) direct expenditure by 2016. Indirectly, broader British Columbia received \$75.9M (CAD) in revenue from mountain biking in 2016. ● 389 jobs are supported in Whistler due to mountain biking, attributing for \$18.1M (CAD) worth in wages and salaries. ● The local and federal governments were supported with a combined total of \$14.1M (CAD) in taxes received from mountain biking expenditure.³⁰ ● The annual Crankworx Event also contributes significantly to Whistler, known as the ‘Superbowl’ event of mountain biking, in 2019 it attracted over 300,000 spectators watching over 2,000 participants.³¹
● Blue Derby, Tasmania	<ul style="list-style-type: none"> ● Estimated \$30M (AUD) return on initial \$3.1M invested. ● Estimated growth from 30,000-138,000 trail visitors a year. ● Average stay of 4 to 5 nights + 5 more nights in other parts of Tasmania. ● Range of new businesses opening.³² ● ●
New Zealand Rotorua	<ul style="list-style-type: none"> ● Population of 67,000 with annual visitation of 2.5M people ● 2006 Mountain Bike World Trails generated \$12.2M (NZD) ● 2009 Whakarewarewa Forest Trails generated NZ \$40M (NZD) ● A 2018 Economic Impact Assessment of mountain bike riding in Rotorua found that for all riders estimated spending (direct and indirect) ranged from \$29.274M (NZD) (lower estimate) to \$47.321M (NZD) (upper estimate) annually. Spending by international and domestic visitors was centred largely around accommodation, meals and a range of MTB services, which

²⁸ South West Mountain Bike Master Plan 2018

²⁹ www.capetocapembt.com

³⁰ Economic Impact of Mountain Biking in Whistler 2016

³¹ www.crankworx.com/media/stats-and-facts/

³² www.ridebluederby.com.au, www.abc.net.au/news www.rdatasmania.org.au

● DESTINATION / TRAIL / EVENT	● IMPACT
	<p>include bike hire, shuttles, guides, lessons and other services. Local resident riders contribute between \$2.4M - \$3.9M (NZD) annually. Mountain biking generates 210 (lower estimate) to 340 full-time equivalent (FTE) direct and indirect jobs.³³</p> <ul style="list-style-type: none"> ● Crankworx commenced in Rotorua in 2014, quickly growing in popularity with residents and visitors alike, in 2019 the event attracted 39,000 spectators and over 1,000 participants.
<ul style="list-style-type: none"> ● Harcourt Bike Park, Victoria 	<ul style="list-style-type: none"> ● Opened in March 2018 with 34 km of newly constructed single track. ● The park has eleven trails that cater to riders of all abilities from beginner to advanced. The Victorian Government provided \$1.99M (AUD) through the Regional Jobs and Infrastructure fund. ● A Community Reference Group played an important role during the development, planning and construction of the Park. ● The Park is managed by a volunteer committee of management. ● The park saw an initial 31,000 riders within 6 months of opening generating \$1.6M for the local economy, well above first year forecasts. It is expected to welcome 100,000 a year within the next five years.³⁴

³³ *Mountain Biking in Whakarewarewa Forest Economic Impact Study, Rotorua Lakes Council 2018*

³⁴ <https://www.miragenews.com/mountain-bikers-flock-to-mount-alexander-region/>

In addition, supporting social and economic benefits addresses priorities within the HPHF Framework 2020, specifically:

- Improved amenity, liveability and quality of life
- Provision of ecosystem services (e.g., clean water)
- Improved educational outcomes
- Jobs and income to regional and urban economies
- Avoided physical and mental health costs, including reduced absenteeism and greater productivity
- Employment pathways.³⁵

3.4 Value of Nature Based Tourism

Nature-based tourism is leisure travel undertaken largely or solely for the purpose of enjoying natural attractions and engaging in a variety of nature-based activities – from visiting national parks, scuba diving and bushwalking to simply going to the beach.³⁶

National parks are a large component of the ‘nature based’ offer. The term ‘national park’ is an internationally recognised and valuable brand. It is estimated that protected areas globally attract around 8 billion visitors annually and are worth \$600B(US) to local economies. Having a national park in the region / destination is a great asset and can be an important influencing factor towards motivating a visitor’s decision to come to the area.³⁷

For Australia, recent research undertaken on regional dispersal demonstrated the value of nature-based experiences. Travelling with friends and family and the opportunity to experience nature-based offerings were identified as the two key motivations for regional travel for both domestic and international markets.³⁸

Additional data on the number and value of nature-based tourists in Australia during 2017 includes:

- **International:** 5.2 million international visitors (two-thirds of all the international visitors to Australia), engaged in some form of nature-based tourism. They stayed 202 million nights and spent \$20B on nature-based experiences
- **Domestic:** 20.1 million domestic overnight visitors who stayed 104M nights and spent \$18.9B on nature-based experiences
- **Domestic day trip:** 23.6 million domestic day trip visitors.³⁹

Understanding the natural attraction of these drawcards can aid in developing future MTB experiences, noting that in many instances, riders are seeking a holistic experience beyond just the trail. There is also the opportunity to leverage from existing attractions, natural features and activities to incorporate into an exceptional MTB experience, leading to increased visitation and expenditure, longer stays, regional dispersal, additional spend from community cycling events, job creation and business/commercial development.

³⁵ Healthy Parks, Healthy People Framework 2020, Parks Victoria

³⁶ Nature based tourism in Australia Manifesto – Ecotourism Australia 2017

³⁷ A Tourism Interpretive Master Plan for Ireland’s National Parks 2019

³⁸ Understanding visitor regional dispersal in Australia | Austrade 2019

³⁹ Nature based tourism in Australia Manifesto – Ecotourism Australia 2017

3.5 COVID 19

The following summary of impacts from COVID- 19 need to be considered by and managers and cycling destinations across Australia:

- With COVID-19 lockdowns and travel restrictions, physical activities (non-team sport) grew among adults 18+ years. Substantial year on year growth saw Australians exercising more than 3 times per week. Almost three quarters of Australian adults being active during lockdown, with the core purpose of maintaining physical health and wellbeing. People who were able to keep fit and active reported significant impacts to mental health and feelings of optimism.⁴⁰
- Increased demand for nature, outdoor and regional experiences. Those previously in city lockdowns are now desperate for regional, coastal and nature experiences. Domestic visitors are avoiding big cities - 51% of are seeking coastal destinations, 34% regional destinations, only 15% are desiring a city holiday.⁴¹
- Internationally, our previous barriers of 'distance' (Australia is so far away and too big to travel around) and 'time' (time taken to travel and time to get from one destination to the next) are now our biggest drawcards. Australia is currently number one on the list of desired international travel destinations, our wide-open spaces and remote attractions are highly prized.⁴² While international tourism is expected to take some time to recover, we do need to be prepared for anticipated international travel bubbles as borders re-open to COVID safe destinations.
- Globally, mountain bike trail counts across the United States are showing increases of 100% to over 500% compared with the same time in 2019.⁴³ Mountain bike sales in the US are 'through the roof'. NPD Sports reports a 117% increase in sales in April and May compared with 2019 numbers.⁴⁴
- Online retailer Bicycles Online saw a 170% growth by Australians in mountain bike sales during April 2020, with many family purchases and first-time mountain bike rider purchases.⁴⁵ Supplies are not meeting demand, with

many bikes imported from Asia. Lockdowns and shipping delays are causing backlogs in Australian bike orders.⁴⁶

- Tourism Research Australia have also forecast an increase in family group travel, as families reunite post travel restrictions.

These statistics demonstrate that our relationship with the outdoors is deepening, and our desire to travel more remotely and support regional communities is growing as travel restrictions are lifted. This demand has the potential to place pressure on existing visitor infrastructure and services. Careful visitor planning needs to be a high consideration with regards to regional distribution and provision of ample, safe and sustainable visitor infrastructure, amenities and experiences.



**'BICYCLES ARE THE
NEW TOILET
PAPER' –
REPORTED SURGE
IN BIKE SALES
ACROSS AUSTRALIA
CONTINUES
DURING GLOBAL**

⁴⁰ Ausplay State of the Nation – Early impact of COVID-19 on sport and physical activity participation August 2020

⁴¹ Tourism Australia presentation – Australian Regional Tourism Convention October 2020

⁴² Tourism Australia presentation – Australian Regional Tourism Convention October 2020

⁴³ <https://www.forbes.com/sites/timnewcomb/2020/07/13/amidst-cycling-surge-sport-of-mountain-biking-seeing-increased-sales-trail-usage/?sh=5c6c9c8c3ddf>

⁴⁴ <https://www.forbes.com/sites/timnewcomb/2020/07/13/amidst-cycling-surge-sport-of-mountain-biking-seeing-increased-sales-trail-usage/?sh=5c6c9c8c3ddf>

⁴⁵ <https://www.afr.com/policy/health-and-education/inside-the-virus-bicycle-boom-20200413-p54jea>

⁴⁶ www.abc.net.au – Bikes in short supply after millions take up riding, 25 September 2020.

4 Case studies

Mountain biking is a rapidly growing recreational, sport and tourism activity across Victoria, Australia and globally. Mountain biking provides both residents and visitors alike with the opportunity to connect with nature in diverse environments, travel regional areas and communities and appreciate sites of natural, cultural and historical significance. Placing people in natural places has proven time and time again to provide multiple, reciprocal benefits. Mountain biking is a means of achieving this.

This is reaffirmed by a range of recent funding commitments in developing and enhancing mountain bike trails within national parks and protected natural spaces across Australia:

- PARKS 2025: Fleurieu Peninsula, South Australia mountain biking and hiking. Overall project investment: \$3 million. The Fleurieu Peninsula is well known for its mountain biking and multi-use trails, although not all are formal or within current parks or reserves
- WA - \$20 million to service existing and new bike trails to attract more visitors to national parks in Kalamunda and Mundaring in the Perth Hills, and regional WA including Albany, Denmark, Mount Barker, Plantagenet, Pemberton and Margaret River.⁴⁷ Funding of \$10 million has been approved and construction is underway. Total network of 100km of high-quality mountain bike trails between Wellington National Park and the town of Collie. Connects with the existing 1,000km Munda Biddi Trail
- NT - \$12M committed towards the development of the Red Centre Adventure Ride in the jointly managed Tjoritja / West MacDonnell Ranges National Park
- VIC - \$500K for the revitalisation of the Forrest Mountain Bike Park, \$500K Falls Creek Mountain Bike Park expansion, \$12 million Victorian state government funding of a multi-faceted 10-year plan to grow cycle tourism in the Victorian High Country

- ACT - \$375K for MTB trails across the region
- NSW - Thredbo Valley Track extension was recently opened. It now goes 61km in total from Dead Horse Gap to Jindabyne. The 21km extension cost \$9.8 million
- QLD – \$41.4 million for Wangetti Trail construction. The first section of trail will traverse through the Macalister Ranger National Park which is located wholly within the Wet Tropics World Heritage Area. The trail will be 94km, dual use for both walkers and mountain bike riders.⁴⁸

The following section will provide more in-depth case studies of mountain bike trails within national parks and natural areas.

- Munda Biddi, WA
- Red Centre Adventure Ride, NT – incorporating Tjoritja / Western MacDonnell Ranges National Park
- Thredbo, NSW – incorporating Kosciuszko National Park
- Wangetti

⁴⁷ <https://www.mediastatements.wa.gov.au/Pages/McGowan/2020/08/WA-Recovery-Plan-injects-150-million-dollars-into-States-tourism-industry.aspx>

⁴⁸ <https://thelatzreport.com.au/news/trade/mountain-bikings-100-million-jump/>

CASE STUDY 1. MUNDA BIDD, WA



www.mundabindi.org.au

Meaning: 'Forest Trail' Noongar language

Location: The Munda Biddi in Western Australia covers 1,000 km of multi-use track from Perth to Albany. Covering 43 sections through seven towns, national parks and reserves, it is the world's longest continuous off-road cycle track.

Year: Opened 2013

Investment: The Trail was funded through the Royalties for Regions Program (\$3M AUD) and the Department of Parks and Wildlife (\$1M AUD).

Facilities & Experiences offered: The trail offers a range of options from shorter family friendly day rides up to 8 km, through to multi-day rides requiring 100 km riding per day. Sections of the trail provide different experiences to cater for a range of riding levels, majority of the track is off road.

To complete the track end-to-end, 3-4 weeks is recommended, encouraging riders to stop and explore the attractions and townships along the trail.

For multi-day riders, there are options for on trail camping in either forest camps (limited facilities) or purpose-built camps with undercover sleeping shelter and amenities. Some campsites are accessible by vehicle enabling supported rides and the ability for riders to be picked up to stay in commercial accommodation options in one of the seven towns the trail passes.

Options include:

- Commercial Munda Shuttle service
- Munda guided and supported tour services
- Bike hire
- The Munda Biddi Trail Foundation offers Trip Planning and Gear Workshops and volunteer training days
- Events – In October 2020, the inaugural Munda Biddi Trail Ultra race was held, attracting 30 local WA riders. This is anticipated to grow significantly as WA state borders re-open to domestic and later international markets.



TRAIL FACILITIES

Visitor numbers: Estimated over 42,000 trail users annually.⁴⁹Counters were installed on the trail in 2018, data has not been made publicly available.

Construction: Undertaken by the WA Government using prison work crews, which keeps costs down while also facilitating the skill development of individuals in the work crews. It is estimated that each kilometre of track costs approximately \$4000 per kilometre, which includes construction officer, contractors, signage and other operating costs. The trail is formed with red pea-gravel in the northern section and a combination of loamy soils and fine white sand in the south.

Operations: Operating costs are funded by the Royalties for Regions program, which are reported as minimal due to the well-constructed sustainable trails, involvement of volunteers and machinery being hired or leased as required. The WA Government funds equipment needs and training for volunteers. Estimated annual cost - \$1,740,000⁵⁰

Ownership / Governance / Partnerships: The trail is managed in partnership through a Memorandum of Understanding between the not-for-profit Munda Biddi Trail Foundation, the Department of Environment and Conservation and other land managers. The Foundation formed initially in 1999 and today has the role of coordinating volunteer programs and marketing and promoting the trails and facilities. The Foundation employs three full time staff members - an Executive Officer, Community Development Officer and an Administration and Volunteer Coordinator.

Benefits:

- **Community:** A safe, long, off-road trail that can be used by local community members for cycling and walking, promoting regular exercise and healthy living. Creation of a volunteer maintenance program that has helped foster community pride.⁵¹ The Foundation has reported the success of the trail is largely based on the partnerships they have as well as the commitment and support of local communities. To encourage business growth, use of the trail and advocacy, a Cycle Friendly Business Initiative was delivered. Approximately \$75,000 was spent per regional town supporting intensive engagement to grow trail awareness, advocacy and business development. As a result, more than 120 businesses are affiliated with the initiative.

- **Environmental:** Volunteers of the foundation undertake quarterly trail inspections and maintenance to ensure the trail is safe for riders and being protected from damage or negative impacts. The Foundation works together with WA Parks and Wildlife to ensure protection of the natural assets along the trail.
- **Economic:** The trail provides a flow of economic benefits to communities and businesses along its length, many of which are members of the Munda Biddi Trail Foundation’s successful Cycle Friendly Business program. Total estimated annual visitor spend is at least \$17,691,784.⁵²

Visitor engagement:

- TripAdvisor: 4.5-star rating, ‘beautiful trail’
- Facebook – 4.1K followers
- Instagram – 1.5K followers, #muddabiddi 1K+ posts.

LESSONS for Warburton:

- Trail partnership between not-for-profit Munda Biddi Foundation, Department of Environment and other land managers
- Strong community focus, with quarterly volunteer programs, training incentives, Cycle Friendly business initiative, recreation and flow-on economic benefits
- Regular on-trail presence by volunteers and Parks and Wildlife maintaining and reporting on impacts
- Construction initiatives using prison work crews
- High return on investment.

⁴⁹ Case Study – Munda Biddi Trail – Construction Project, Nannup to Walpole, Summary Report September 2015

⁵⁰ Nannup Trails Hub – Potential and opportunities NBD marketing

⁵¹ Case Study – Munda Biddi Trail – Construction Project, Nannup to Walpole, Summary Report September 2015

⁵² Nannup Trails Hub – Potential and opportunities NBD marketing

CASE STUDY 2. RED CENTRE ADVENTURE RIDE, NT



Location: West MacDonnell Ranges and jointly managed Tjoritja / West MacDonnell Ranges National Park, Central Australia NT. Proposed 200 km MTB trail.

Year: under construction (3-year timeframe)

Investment: \$12M funding commitment from the Northern Territory Government.

Facilities & Experiences offered:

Proposed

- Day and multi-day rides (4-5 days)
- Guided and independent experiences, including Aboriginal led story-telling opportunities
- Options for on trail and off trail accommodation including higher end eco-camps
- Shuttle, equipment and luggage transport
- Equipment and bike hire, repair and retail
- Food and beverage supply
- Long stay parking at trailheads; and bike-friendly accommodation in Alice Springs.

Visitor numbers: Forecast of 31,500 riders per annum.⁵³

Construction: 3-year timeframe forecast. A capital investment of \$12 million is required to construct the whole trail - \$7 million for trail construction and \$5 million for associated overnight accommodation and infrastructure.

Ownership / Governance / Partnerships: Potential partners and their roles in the delivery of the overall experience include:

- **Government** – trail alignment and associated infrastructure development and some management
- **Traditional Owners** – potential for experience delivery, storytelling, accommodation supply or operation, support services, trail construction and maintenance
- **Private enterprise** – potential accommodation supply or operation, tour products, support services, trail construction and maintenance.

Operations: The NT Parks and Wildlife Commission would be responsible for undertaking trail maintenance and management. A user fee is proposed to be charged to assist with maintenance of the trail and contribute to local Traditional Owners.

Maintenance costs are estimated at \$300,000 a year. This would require a total investment of \$15 million over 10 years.

⁵³ Red Centre Adventure Ride Concept Plan

Benefits:

- **Cultural:** The Ride will highlight and interpret the outstanding natural features and sites of the West MacDonnell Ranges. Cultural values and stories will be an inherent part of the experience, with stories shared via a range of formats along the trail. Opportunities for Traditional Owners and local people through activities such as sharing of cultural stories, trail construction, trail management, guiding and business development opportunities.
- **Environmental:** The trail will be designed and maintained so it is environmentally sustainable and blends into the Red Centre landscape. Ground-truthing and alignment work to ensure a culturally and environmentally appropriate trail has been undertaken together with Traditional Owners and land management experts.
- **Economic:** At a proposed trail use fee of \$50 per person, and allowing for gradual increase in trail use, total revenue from trail fees over the first ten years of operation would reach around \$4.3 million assuming the trail had reached 50% of its capacity (or 15,750 users/ year) by that time (medium case). Annual spending in the region by adventure trail users would increase progressively over time. The year 10 spending is estimated at \$5.437 million for the medium case. In the operational phase the trail would generate a total of 7.8 FTE jobs in the region in year 1, increasing to 38.6 jobs in Year 10.

LESSONS for Warburton:

- Trail partnership between government, Traditional Owners and private sector
- A range of support and commercial services recommended along the trail, supporting Traditional Owners and local business development and employment
- Trails are being constructed to a high standard in the national parks
- Trail use fee proposed with funding returning to Traditional Owners and covering trail maintenance costs.

GROUND-TRUTHING THE TRAIL WITH TRADITIONAL OWNERS, LAND MANAGEMENT SPECIALISTS & TRAIL DESIGN AND CONSTRUCTION EXPERTS



CASE STUDY 3. THREDBO, NSW



Location: Thredbo MTB Park set in Kosciuszko National Park, NSW

Year: 1990

Investment: \$9.8 million was recently invested through the Regional Growth Environment and Tourism Fund to extend the Thredbo Valley Track by a further 21 km.

Facilities & Experiences offered: Highest and only lift-served MTB trail in Australia, with a range of trail options from Green through to advanced level. Total of 34 km of MTB trails.

- Use of winter season ski chairlifts for Gravity rides
- Clinics and programs for kids, beginners, intermediate and advanced riders
- Retail and bike equipment rental including e-bikes
- Qualified guides
- Thredbo Alpine Village with a range of accommodation options, retail and food and beverage services
- National Park attractions and facilities
- Events – Thredbo Gravity Series.

Visitor numbers: Kosciuszko National Park receives approximately 2.3 million visitors per year, 800,000 of these visitors arrive to the Park in Summer to undertake walking and cycling activities. It is estimated that around 3% of all summertime visitors are utilising the MTB trails (approx. 24,000).

Construction: NSW National Parks and Wildlife Services has established a set Cycling Policy to guide development and enhancement of cycling trails within national parks. The criteria incorporate ecological sustainability, appropriateness of the location, provision of a quality experience for cyclists, balancing competing visitor demands, consideration of opportunities and demand for cycling across the region, including other land tenures, protection of visitor safety, availability of resources to provide and maintain the experience – this Policy has also been applied to Thredbo MTB Park.

Ownership / Governance / Partnerships: The Thredbo MTB Park and trail network is incorporated both within the privately operated Thredbo Alpine Village and Kosciuszko National Park.

Operations: Each respective land manager undertakes maintenance of relevant trails. In addition, Thredbo Alpine Village also own and operate the chairlift as a commercial venture. Entry fees into Kosciuszko National Park are around \$20 per vehicle. Thredbo is largely responsible for management of marketing and promotion of the MTB trails and the commercial activities that occur and support the trail experience.

Benefits:

- Environmental: The trails are managed through the NSW National Parks Cycling Policy criteria.
- Economic: Provision of the MTB trails and events delivers year-round economic benefits for local communities in the Snowy's, formerly known as a winter destination.
- Community – the recent extension of the trail provides new opportunities for recreation and economic development from local Snowy communities (e.g., Jindabyne).

Visitor feedback:

- Trip Advisor – 4.5-star rating
- Trailforks – 4-star rating
- Facebook – 17K followers.



LESSONS for Warburton:

- Continuing to improve and expand the MTB trail, further connecting to local Alpine village communities
- A long-standing private and public relationship
- Innovation in growing off peak tourism to an Alpine destination
- Trail construction in alpine areas within national parks are allowed
- Set development criteria to ensure environmental protection, visitor enjoyment and safety and adequate resourcing.

CASE STUDY 4. WANGETTI TRAIL QLD



Wangetti, QLD

Location: The first section of trail will traverse through the Macalister Ranger National Park which is located wholly within Queensland's Wet Tropics World Heritage Area. The trail will be 94 km, dual use for both walkers and mountain bike riders and connect Palm Cove to Port Douglas via the Wangetti Community.

Year: Under construction, intended to be operational by 2022.

Investment: \$41.4M has been committed - \$33.4 million of State funds and \$8 million from the National Tourism Icons Program.

Facilities & Experiences offered: The trail may feature:

- Public campsites or privately operated low impact eco accommodation at five sites
- Potential to host events.

Visitor numbers: 20,000 mountain bikers estimated to use the trail annually.⁵⁴

Construction: All facilities along the trail must be delivered in accordance with the Department of Environment and Science's Implementation Framework: Ecotourism Facilities on National Parks and in line with Best Practice Ecotourism Development Guidelines.

The Queensland Government is in the process of securing several significant environmental approvals for the delivery of the Wangetti Trail. This includes working with local authorities, Local, Federal and State Government to secure approx. 19 approvals are required for the Wangetti Trail to move forward with construction.

The trail must be delivered in accordance with the Wet Tropics Management Plan, requirements under the *Nature Conservation Act* (1992) and other environmental approval conditions.

The Queensland Government has also prepared a construction methodology manual that will guide the trail builder on the preferred infrastructure, methods and materials for building the trail within protected areas.⁵⁵

⁵⁴ Wangetti Trail Concept Plan 2017

⁵⁵ <https://www.dtis.qld.gov.au/our-work/qld-ecotourism-trails/wangetti-trail>

Ownership / Governance / Partnerships: The collaborative model between governments, tourism operators and Traditional Owners aims to deliver long-term job and business opportunities for Traditional Owners. These opportunities extend beyond the land to all aspects of the tourism industry, for example, as rangers, guides, chefs, service staff and artists.

Benefits:

- **Community:** Up to 150 new local jobs will be created including opportunities to develop local skills and increase diversity of regional jobs. Liveability is forecast to improve through social, recreation and economic wellbeing benefits.
- **Economic** – modelling has suggested that the new trail experience will deliver \$300 million into the local economy.⁵⁶ New funding and re-investment sources to preserve, protect and present national parks and their cultural heritage. Long term job and business opportunities for Traditional Owners and their future generations, with 150 new local jobs forecast.
- **Environment:** In accordance with the Wet Tropics Management Plan, Nature Conservation Act 1992, the trail will enable better controls to limit damaging and uncontrolled activities within parks including feral animal management
- **Cultural** – by partnering with Traditional Owners, the trail will enable enhanced connection to Country whilst ensuring its protection and preservation. The trail will also support stronger appreciation and understanding of Aboriginal culture through visitor interpretation.

LESSONS for Warburton:

- Significant financial investment committed by State Government.
- Environmental Framework for development and Queensland Government Trail Construction Manual.
- Collaborative governance model between government, tourism operators and Traditional Owners
- Trails can be built in national parks and World Heritage Areas
- Substantial job creation and economic benefits.

⁵⁶ <https://www.abc.net.au/news/2020-08-04/queensland-wangetti-trail-sparks-government-rift/12522042>

5 Behind the Assumptions – Economic Assessment

This report provides the economic feasibility assessment based on three cases (as previously described). The three cases are options for the development of the Warburton Mountain Biking Destination aimed at providing the maximum community return while minimising the environmental and social issues that may arise.

The three cases are:

- Case 1 Base Case: Full Trails Network - covering the full development of the trails network
- Case 2 Reduced Trail Network, with no trails in the National Park Areas,
- Case 3 with no Drop A K trail.

The three cases have been developed by Yarra Ranges Shire Council – each with its own set of strengths for different user groups. It is the impact of the changes on each of the potential user groups that changes the assumed visitor patterns – leading to differing economic impact outcomes.

In deriving the assumed changes to the users and their travel / use patterns from the alternate cases, each with their set of market appeal, TRC Tourism and MCa have drawn on several sources of information. These include market research by Instinct and Reason⁵⁷, industry knowledge, and unpublished survey work undertaken at Derby in Tasmania⁵⁸.

⁵⁷ Warburton MTB Trail Market Research Instinct and Reason. 2021

5.1 User Spending Assumptions

- 2 separate economic impact assessments have been completed. The first using Tourism Research Australia (TRA) spending assumptions based on their published data and sources. This is the assessment that has been included in the main body of this report.
- The second assessment (**Attachment 1 to this report**) uses a higher spend rate per visitor and is based on unpublished visitor survey data undertaken by Xyst Pty Ltd at Derby in Tasmania. While the second assessment is valid and is included in this report as an appendix – it is not referenced as the impact figures due to TRA being a quoted and published data source.
- In both user spending assessments undertaken – the three trail cases as described above remain the same for comparative purposes.

5.2 The markets

For the purposes of modelling, and using the evidence available, we simply break the potential riders and users into the following categories:

- Expert and advanced
- Intermediate
- Novice
- Beginner
- Non-MTB riders.

⁵⁸ Xyst – Survey of riders at Derby 2021.

5.3 The Cases

In Case 1 – the potential for a leading trail that is aimed at the intermediate market and that presents a lead in market opportunity for a hero experience offers the most attractive visitor proposition (and therefore user spending). This is because it will not frighten off novice riders, will pick up the bulk of the intermediate markets (which is the highest number of riders), and offers a world class natural experience that advanced riders will come to ride it.

Drop A K trail – included in the base case, presents 2 important elements to all markets – it is the hero trail designed for all riders, and it offers an outstanding natural experience.

A survey at Derby in Tasmania affirms this assumption.

56% of those surveyed at Derby had done or were planning on doing the Blue Tier and/or Bay of Fires Epic Trail on their visit⁵⁹.

Drop A K trail – included in the base case, presents 2 important elements to all markets – it is the hero trail designed for all riders, and it offers an outstanding natural experience. The importance of outstanding nature is also highlighted in the survey results.

Case 2 presents the assumed visitor numbers for the reduced trail network with no trails in the national parks. This includes the Drop A K trail which is predominantly in the national park.

46% of those surveyed at Derby had Spectacular Nature and Scenery, and natural values as the reason for doing the trail and riding at Derby.⁶⁰

⁵⁹ Derby Survey of Riders – Xyst 2021

⁶⁰ Derby Rider Survey – Xyst 2021.

In addition to losing the ability to undertake a world class ride in one of Victoria's icon national parks experiencing nature at its finest, this case reduces other trail options. The impact is a drop in advanced and intermediate riders – and these market segments are the ones that are most likely to spend additional nights enjoying the trails.

10% less riders in the intermediate category and 10% less advanced and expert riders would use Warburton MTB Destination if there were no trails in the national park.⁶¹

Case 3 presents the proposition of some alternate trails in the national park, but with no Drop A K.

This option provides an alternative set of trails to Drop A K, but they are more aligned to advanced and intermediate riders. The market research data shows the drop is still in the advanced category, although the intermediate riders have not fallen as much (9% drop in advanced riders, 3% drop in intermediate riders).

5.4 Assumed Impacts on Trail Users

The reduced trails network in case 2 (no national park trails and drop) would result in lower levels of trail use by visitors from outside the region (mainly by the more experienced riders).

For estimating the impacts of these changes in the trails network, changes were made to the Case 1 Base Case and are shown in Appendix 1 of this report.

These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays.

For Case 3 - the removal of the Drop A K Trail would result in lower levels of trail use by visitors from outside the region (with reductions in all user categories, particularly Novices and Intermediates).

⁶¹ Warburton MTB trail research – Instinct and Reason 2021.

Compared with the Base Case projections, these changes would lead to a reduction in visits in all rider categories, a slower growth in user numbers and likely reductions in average length of overnight stays in the region. The changes in the modelling assumptions used are outlined in Appendix 1 of this report.

Case 1 offers the highest visitor use due to the broad market appeal, the mix of trails designed to attract all riders from novice to expert, and the outstanding natural environment in which the trails (particularly Drop A K) pass through.

Case 3 offers the second highest visitor numbers due to the appeal of the national park rides and contiguous network remaining, and case 3 offers the least number of riders due to the reduction in hero products and access to an outstanding natural experience (in the minds of the consumers).

The trail experiences (especially the Drop a Km) in the National Park account for 15% of visitation choice for the aggregated market but this hides the real impact. The advanced and expert riders want it and the loss of it reduced demand. In contrast, Beginner riders prefer not having the Drop a KM. Intermediate riders lose some interest with the loss of Drop a Km but it's the loss of the NP itself that most impacts.⁶²

This report provides an economic impact assessment of the development of the Warburton Mountain Bike Trails Network. The results are indicative of the potential benefits from the development and operation of the trail network. The modelling is based on estimates of annual rides/users (in different categories, and other assumptions utilised in quantifying spending in the region.⁶³

⁶² Warburton MTB Destination Market Research – Instinct and Reason. 2021.

⁶³ Average spending per visitor is based on Tourism Research Data for the Yarra Ranges LGA.

The modelling has estimated the potential number of trail users over a 10-year period of operations from the completion of the trail network.

Three cases are examined:

- Case 1 Base Case: Full Trails Network - covering the full development of the trails network
- Case 2 Reduced Trail Network, with no trails in the National Park Areas, and
- Case 3 with no Drop A K trail.

In modelling of trail users, we have drawn of the market segment profile from the surveys conducted by Instinct and Reason.⁶⁴

The economic impacts of the trails arise from:

- spending by these users/visitors in the towns adjacent to the trail and other spending in the broader region
- spending associated with events
- health benefits of active recreation activities, and
- a notional value of the trails for users.

Visitors from outside the region (particularly overnight visitors/users) generate significant expenditure covering:

- food and beverage
- accommodation (for overnight stayers)
- recreation and other services, and
- transport.

The economic impact analysis has been undertaken by MCA <Michael Connell & Assocs.> - economic consultants.

⁶⁴ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 & Additional Findings May 2021.

6 Modelling of Trail Operations

For the economic impact assessment, the construction phase (staged over 2021 to 2024) and operations phase (from 2022) were covered. The operations phase covers trail users over the year and major state and national events that could be staged.

For operations, the modelling has estimated the potential number of trail users over the 10-year period from 2022 to 2031. Two cases are examined: Case 1 Base Case Full Network- covering the full development of the trails network; and Case 2 Reduced Network - with no trails in the National Park Areas. In modelling of trail users, the market segment profile from the surveys conducted by instinct and reason is used.⁶⁵

6.1 Mountain Biking Participation

The recent AusPlay survey for 2019 shows that 1.4% of the Australian population participated in mountain biking or a total 289,600 nationally. This participation rate was used to estimate potential users of the Warburton MTB trails network in metro and regional areas. The MTB participation rate is similar to that for ski and snowboarding (1.3%) and around half of that for surfing (2.5%).

The participation rate for mountain biking (1.4%) has been used in the modelling of trail user numbers. At present, males dominate the activity. For the 10-year modelling of operations the participation rate was increased reflecting growth in popularity and more women likely to participate.

Table 4. Sport Participation in Australia (2019)

Activities	Total	Age							Males	Females
		15-17	18-24	25-34	35-44	45-54	55-64	65+	Total	Total
Estimate (000s)										
Bush walking	1,310.9	26.6	110.9	304.8	254.2	245.8	222.0	146.5	616.8	694.1
Cycling	2,374.8	44.6	143.9	387.9	472.3	523.3	456.3	346.5	1,510.3	864.5
Mountain biking	289.6	13.0	13.7	57.0	81.6	80.1	34.6	9.8	245.0	44.6
Ski & snowboard	278.8	9.3	18.1	64.1	52.6	59.8	52.5	22.3	172.1	106.7
Surfing	527.6	18.2	43.4	122.1	117.6	114.6	77.8	33.9	391.6	136.0
Participation rate (%)										
Bush walking	6.3%	3.1%	4.6%	8.0%	7.4%	7.6%	7.5%	3.6%	6.0%	6.6%
Cycling	11.5%	5.3%	6.0%	10.2%	13.8%	16.1%	15.5%	8.5%	14.8%	8.2%
Mountain biking	1.4%	1.5%	0.6%	1.5%	2.4%	2.5%	1.2%	0.2%	2.4%	0.4%
Ski & snowboard	1.3%	1.1%	0.8%	1.7%	1.5%	1.8%	1.8%	0.6%	1.7%	1.0%
Surfing	2.5%	2.1%	1.8%	3.2%	3.4%	3.5%	2.6%	0.8%	3.8%	1.3%

SOURCE: AUSPLAY SURVEY RESULTS JANUARY 2019 - DECEMBER 2019. RELEASED 30 APRIL 2020 (AND RE-ISSUED 24 JUNE 2020)
[HTTPS://WWW.CLEARINGHOUSEFORSPORT.GOV.AU/RESEARCH/SMI/AUSPLAY/RESULTS/SPORT](https://www.clearinghouseforsport.gov.au/research/smi/ausplay/results/sport)

6.2 Modelling Assumptions

Trail users were modelled based on several assumptions. Given the proximity of the trails to Melbourne a large number of trail users will be day visitors. Potential user numbers for the trail network have been modelled based on several assumptions listed below. Modelling of events was undertaken separately.

Potential users were estimated based on population data for local government areas, with proximity affecting the likelihood of visiting and the average number of rides per year. The likelihood of visiting the trail was assumed to increase over time as recognition of the trails increase. The analysis was at a local government area level and these LGAs were then clustered into regions.

A range of assumption were utilised in modelling trail user numbers, and these are detailed in Appendix A.

6.3 Summary Comparison of Cases

The results for cases are detailed in the following chapters. The cases are:

1. Case 1 Base Case: Full Trails Network (Chapters 4 & 8)
2. Case 2 Reduced Trails Network (Chapter 5 & 9), and
3. Case 3 No Drop a K Trail (Chapter 6 & 10).

In summary, Case 2 Reduced Trails Network (no national park trails) would result in substantially lower levels of trail use by visitors from outside the region (in all rider categories). A smaller reduction in overall trail use occurs with Case 3 No Drop a K Trail.

The changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

The following charts compare the modelling results for the 3 cases. This is based on research by instinct and reason.⁶⁶

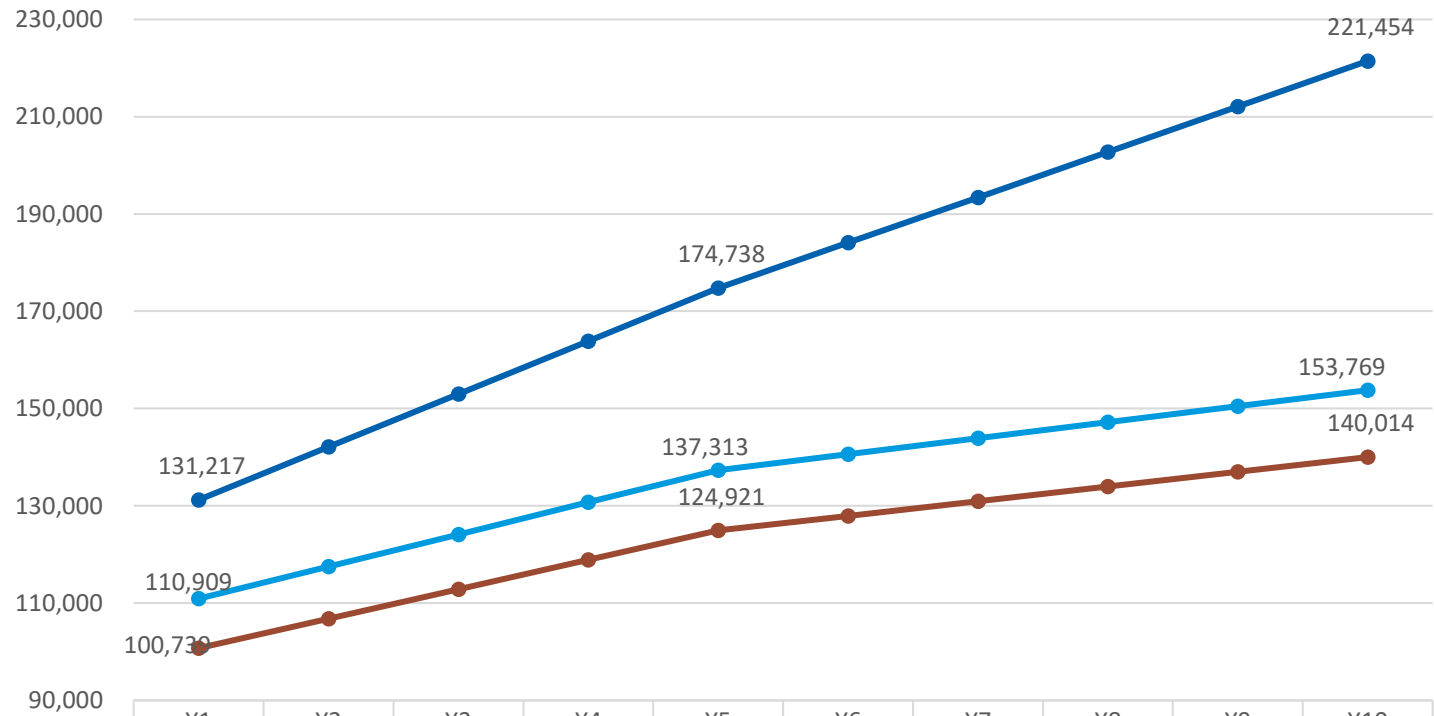
For Case 2 the National Park Trails are not included. The impacts of this change have been modelled by reducing Intermediate users by 33.5%, Advanced & Expert trail users by 21.5% (compared with the Base Case), reducing Novices by 21%, and Beginners by 8%. Growth is substantially lower and there is a reduction in length of overnight stays.

Case 3 No Drop A K Trail, has a different pattern of reductions in users (Beginners - 8%, Novices -13%, Intermediates -20%, and Advanced/Expert -8%).

This has impacts on trail users' spending in the region, jobs generated, regional income generated and benefit cost ratios (BCRs). The differences are show in the following charts. Case 2 delivers lower visitor numbers compared with the Case 1 Base Case, with a difference in year 10 of around 81,000 annual users. For Case 3 visitor numbers in year 10 are around 68,000 lower than the Base Case.

⁶⁶ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16; Additional Findings on Drop A K Trail, May 2021.

Figure 12. Warburton Trails Network Comparison – Estimated Trail Users Years 1-10

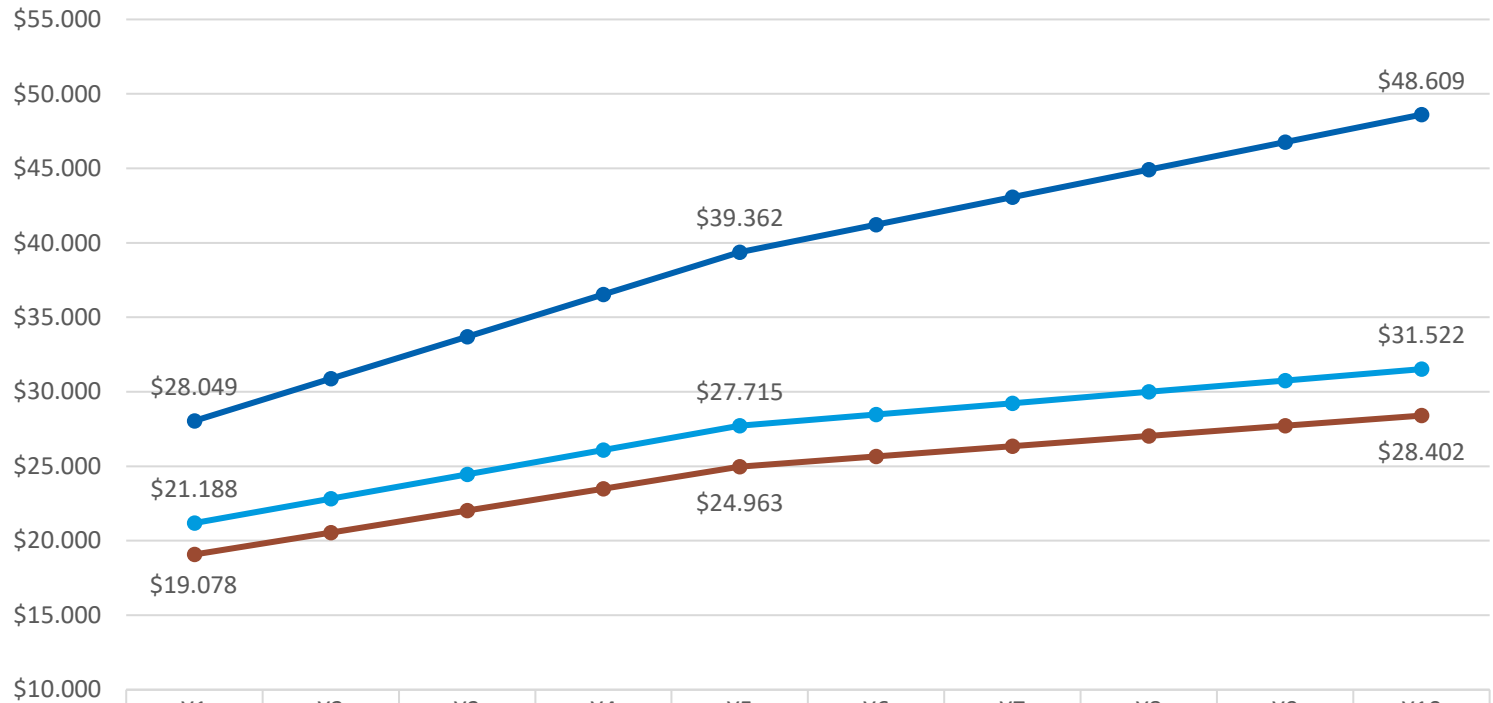


	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Case 1 : Base Case Total Users	131,217	142,097	152,977	163,858	174,738	184,081	193,424	202,768	212,111	221,454
Case 2 :No National Parks Trails	100,739	106,784	112,830	118,876	124,921	127,940	130,958	133,977	136,995	140,014
Case 3: No Drop A K Trail	110,909	117,510	124,111	130,712	137,313	140,604	143,896	147,187	150,478	153,769

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

As a consequence of the substantially lower user numbers in the categories, and a reduced length of stay, in year 10 trail user spending in the region is around \$20 million lower for Case 2 and \$17 million lower for Case 3.

Figure 13. Warburton Trails Network – Spending in Region by Trail Users Years 1-10 (\$million 2021 prices)

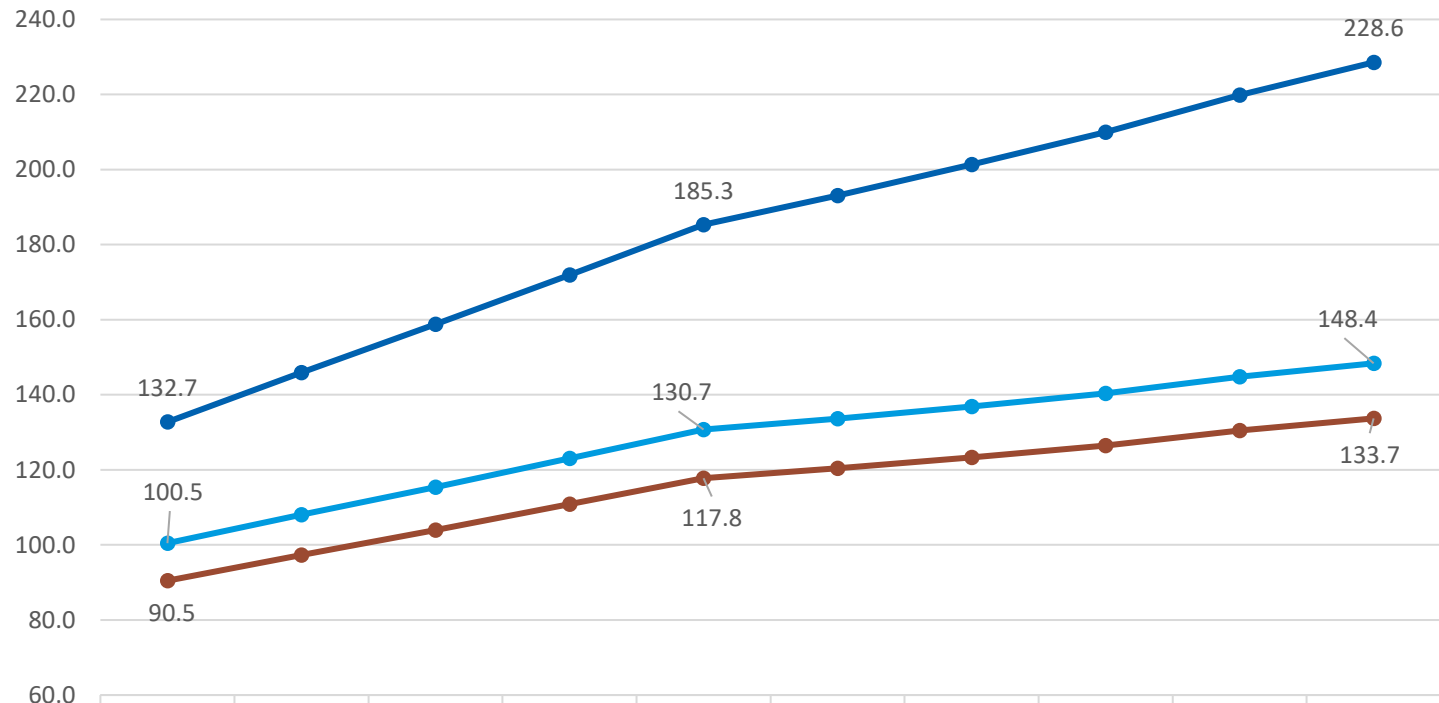


	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Case 1: Base Case	\$28.049	\$30.877	\$33.705	\$36.534	\$39.362	\$41.211	\$43.061	\$44.910	\$46.759	\$48.609
Case 2: No National Park Trails	\$19.078	\$20.549	\$22.021	\$23.492	\$24.963	\$25.651	\$26.338	\$27.026	\$27.714	\$28.402
Case 3: No Drop A K	\$21.188	\$22.820	\$24.451	\$26.083	\$27.715	\$28.476	\$29.238	\$29.999	\$30.761	\$31.522

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

As a consequence of lower user numbers, stays and spending, the total jobs generated in the region are lower for Case 2 and Case 3. In year 10 the jobs generated in the region are around 80-90 lower compared with the Base Case (Case 1: Base Case 229 jobs; Case 2 134 jobs; and Case 3 148 jobs).

Figure 14. Warburton Trails Network – Total Jobs in Region Generated by Trail Users (FTE no.)

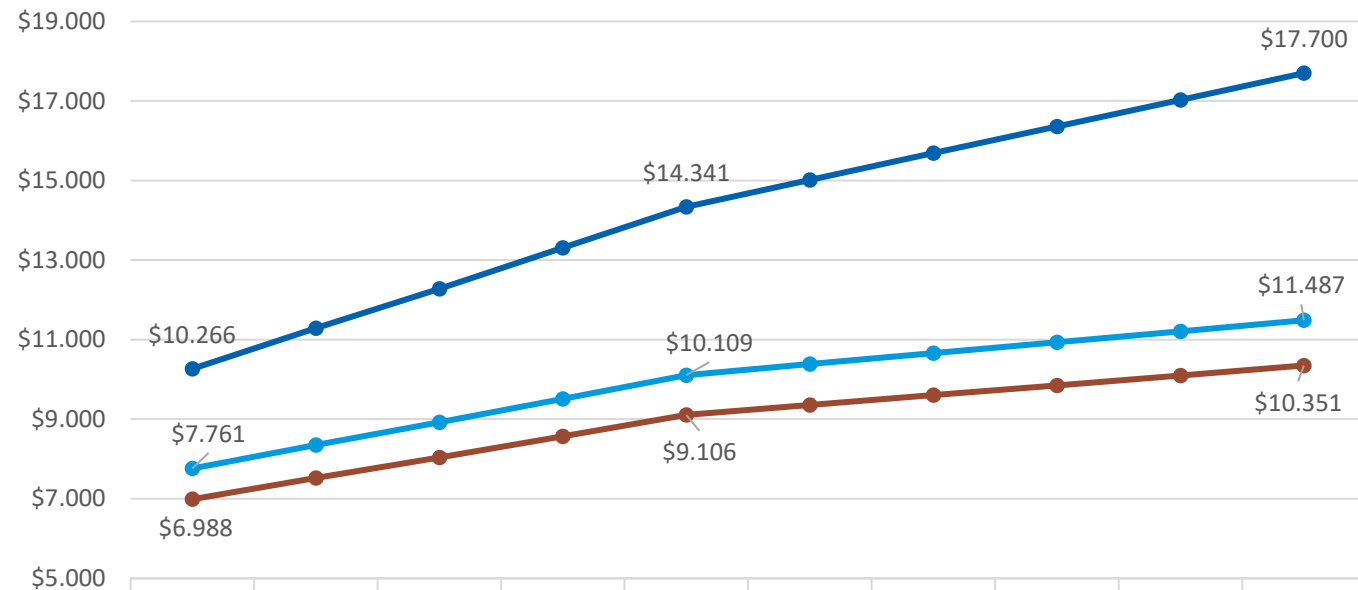


	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Case 1: Base Case - Total Jobs	132.7	146.0	158.8	172.0	185.3	193.1	201.3	209.9	219.8	228.6
Case 2: Reduced Trails - Total Jobs	90.5	97.3	104.0	110.8	117.8	120.4	123.3	126.5	130.4	133.7
Case 3: No Drop A K - Total Jobs	100.5	108.1	115.4	123.0	130.7	133.6	136.9	140.4	144.8	148.4

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

With the reduced trail network and the consequent lower trail users, spending and length of stays, the regional income generated is lower than that for the Base Case (Case 2 \$10.3 million in year 10; Case 3 \$11.5 million compared to Case 1 Base Case around \$17.7 million in year 10).

Figure 15. Warburton Trail Network – Regional Income Generated by Trail Users (\$million 2021 prices)



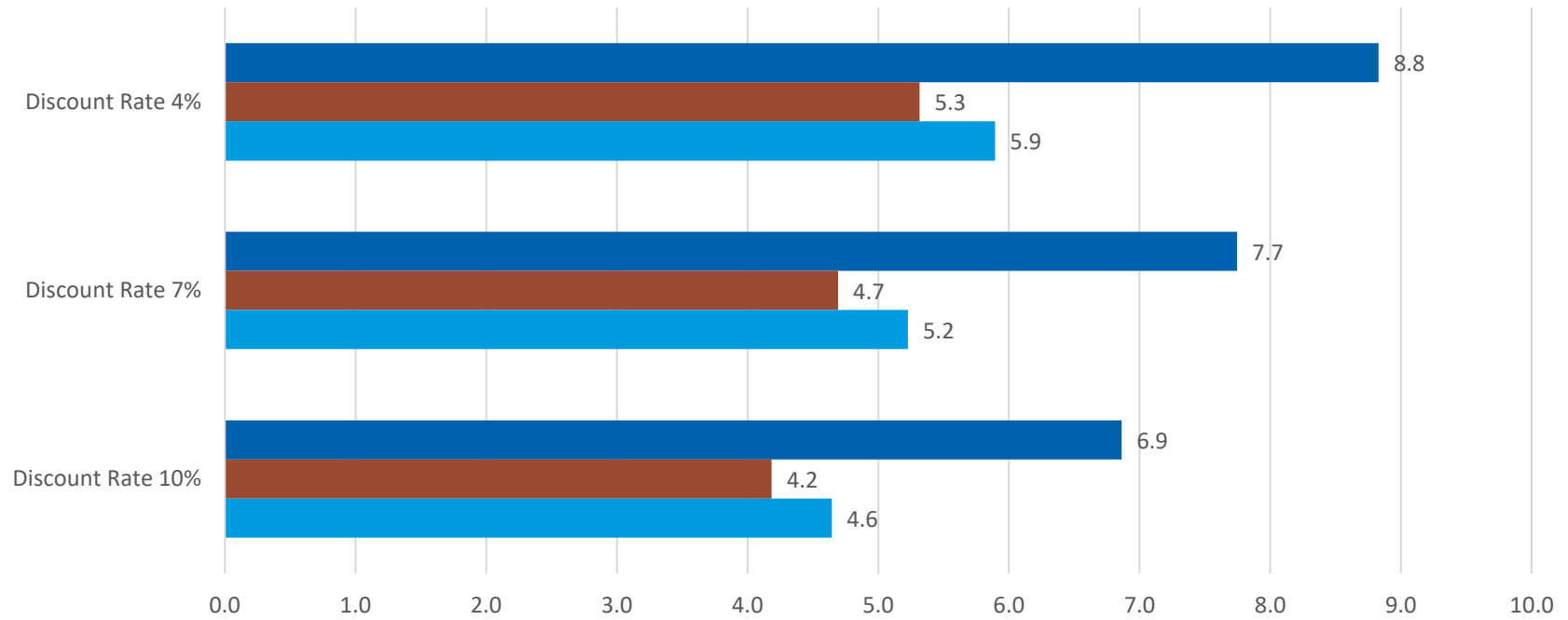
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Case 1: Base Case - Total Regional Income	\$10.266	\$11.289	\$12.283	\$13.306	\$14.341	\$15.012	\$15.688	\$16.358	\$17.029	\$17.700
Case 2: Reduced Trails - Total Regional Income	\$6.988	\$7.521	\$8.035	\$8.568	\$9.106	\$9.355	\$9.604	\$9.853	\$10.102	\$10.351
Case 3: No Drop A K - Total Regional Income	\$7.761	\$8.351	\$8.922	\$9.512	\$10.109	\$10.385	\$10.660	\$10.936	\$11.212	\$11.487

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

The measurement of benefits includes both direct benefits (the increase in regional income) and indirect benefits (estimated health benefits and the value to users measured by a shadow price of \$15 per ride).

- For Case 2 and Case 3 the benefit cost ratios are lower than those for the Case 1 Base Case. For all benefits a 7% discount rate the BCRs are Case 1 7.7 and Case 2 5.0 and Case 3 5.2.
- If only regional income is included the BCRs are Case 1 4.5 and Case 2 3.0 and Case 3 3.3.

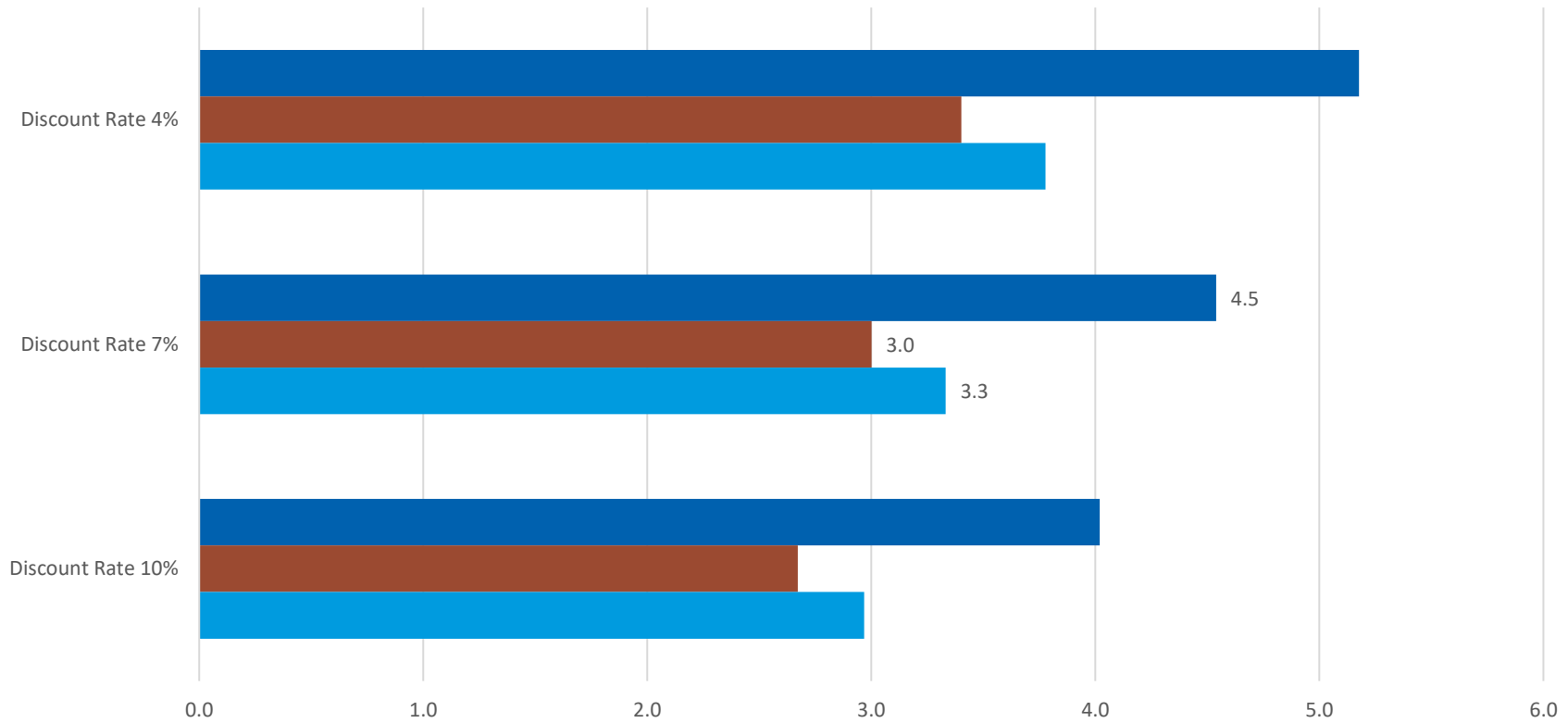
Figure 16. Benefit Cost Ratios (BCR) – Warburton Trails Development (All Benefits)



	Discount Rate 10%	Discount Rate 7%	Discount Rate 4%
■ Case 1 - Base Case BCR	6.9	7.7	8.8
■ Case 2 - Reduced Trails BCR	4.2	4.7	5.3
■ Case 3 - No Drop A K Trail BCR	4.6	5.2	5.9

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 17. Benefit Cost Ratios (BCR) – Warburton Trails Development (Regional Income Only)



	Discount Rate 10%	Discount Rate 7%	Discount Rate 4%
■ Case 1 - Base Case BCR	4.0	4.5	5.2
■ Case 2 - Reduced Trails BCR	2.7	3.0	3.4
■ Case 3 No Drop A K Trail BCR	3.0	3.3	3.8

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

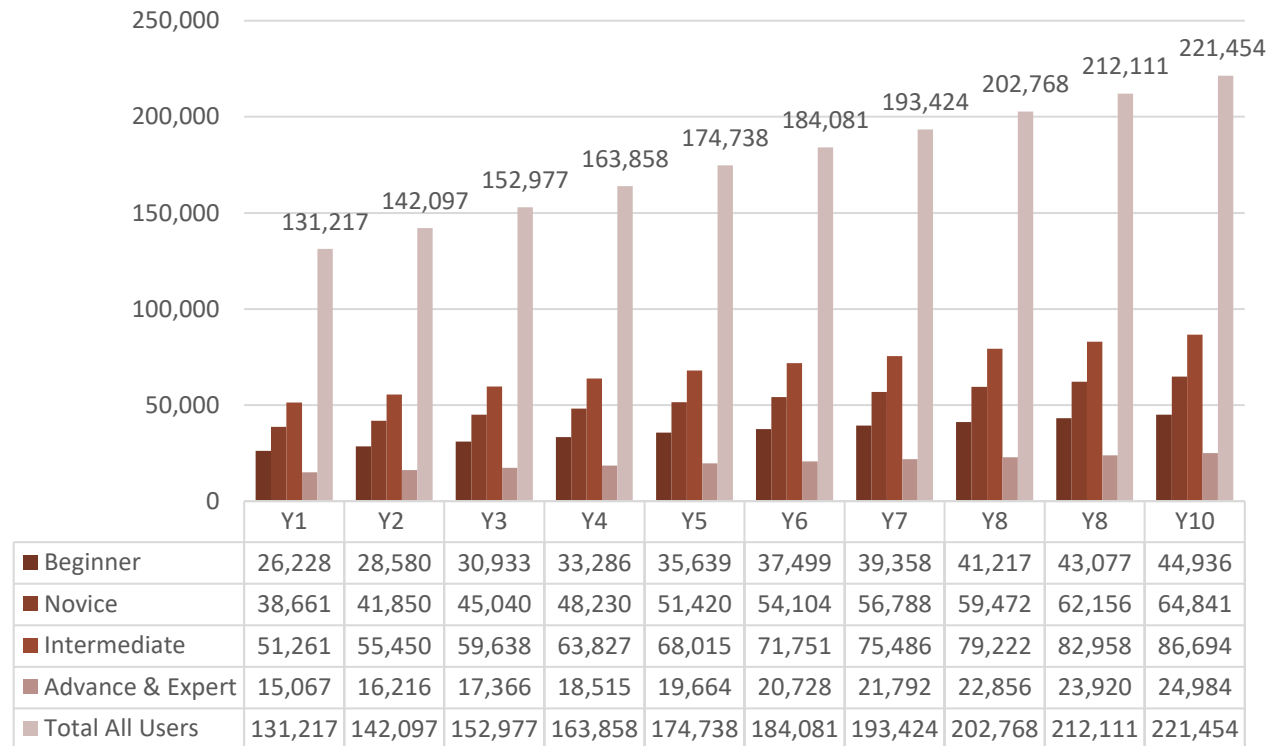
7 Trail Operations - Case 1: Base Case Full Trail Network – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 1 Base Case - Full Trail Network, which includes the Drop A K trail.

Trail User Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 131,200 in year 1 to 178,700 in year 5 and reach 221,500 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. This represents a significant increase in visitors to the region, in this specialised category of trail users. The tables below show the estimated numbers by user category (using the rider profile developed by *Instinct and Reason*).

Figure 18. Base Case – Trail Users by Type – 10 Years (no.)



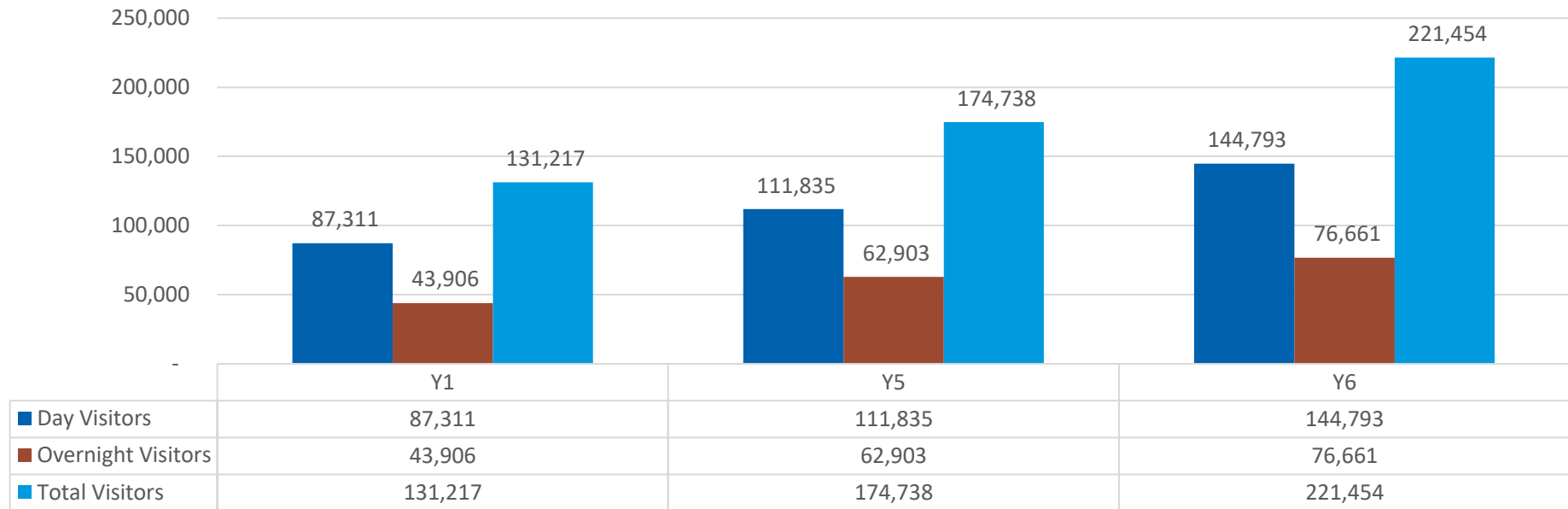
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 5. Case 1 – Base Case: Estimated Trail Users by Category

Case 1 Base Case	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total Trail Users										
Beginner	26,228	28,580	30,933	33,286	35,639	37,499	39,358	41,217	43,077	44,936
Novice	38,661	41,850	45,040	48,230	51,420	54,104	56,788	59,472	62,156	64,841
Intermediate	51,261	55,450	59,638	63,827	68,015	71,751	75,486	79,222	82,958	86,694
Advance & Expert	15,067	16,216	17,366	18,515	19,664	20,728	21,792	22,856	23,920	24,984
Total All Users	131,217	142,097	152,977	163,858	174,738	184,081	193,424	202,768	212,111	221,454

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 19. Case 1 – Base Case – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

The tables below show the mix of day and overnight visitors for each of the trail user categories (for selected years).

Table 6. Case 1 Base Case: Total Trail Users – Day and Overnights

Case 1 Base Case	Y1			Y5			Y10		
Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Beginner	16,418	9,810	26,228	21,345	14,294	35,639	27,501	17,435	44,936
Novice	24,460	14,201	38,661	31,574	19,846	51,420	40,694	24,146	64,841
Intermediate	36,045	15,216	51,261	45,783	22,232	68,015	59,536	27,158	86,694
Advance & Expert	10,389	4,679	15,067	13,134	6,530	19,664	17,062	7,922	24,984
Total All Users	87,311	43,906	131,217	111,835	62,903	174,738	144,793	76,661	221,454

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 7. Case 1 Base Case: Trail Users by Type by Residence Location

Trail Users	Y1			Y5			Y10		
Case 1 Base Case	Users			Users			Users		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	26,538	0	26,538	31,641	0	31,641	42,150	0	42,150
Total Metro & Adjacent Areas	54,773	19,906	74,679	70,995	26,103	97,097	91,843	33,461	125,304
Total Yarra Ranges & Areas	81,311	19,906	101,217	102,635	26,103	128,738	133,993	33,461	167,454
Other									
Other Regional/Intrastate	3,600	14,400	18,000	4,000	16,000	20,000	4,400	17,600	22,000
Interstate	2,400	9,600	12,000	2,800	11,200	14,000	3,200	12,800	16,000
Internationals	0	0	0	2,400	9,600	12,000	3,200	12,800	16,000
Total Other	6,000	24,000	30,000	9,200	36,800	46,000	10,800	43,200	54,000
Total All Trail Users	87,311	43,906	131,217	111,835	62,903	174,738	144,793	76,661	221,454

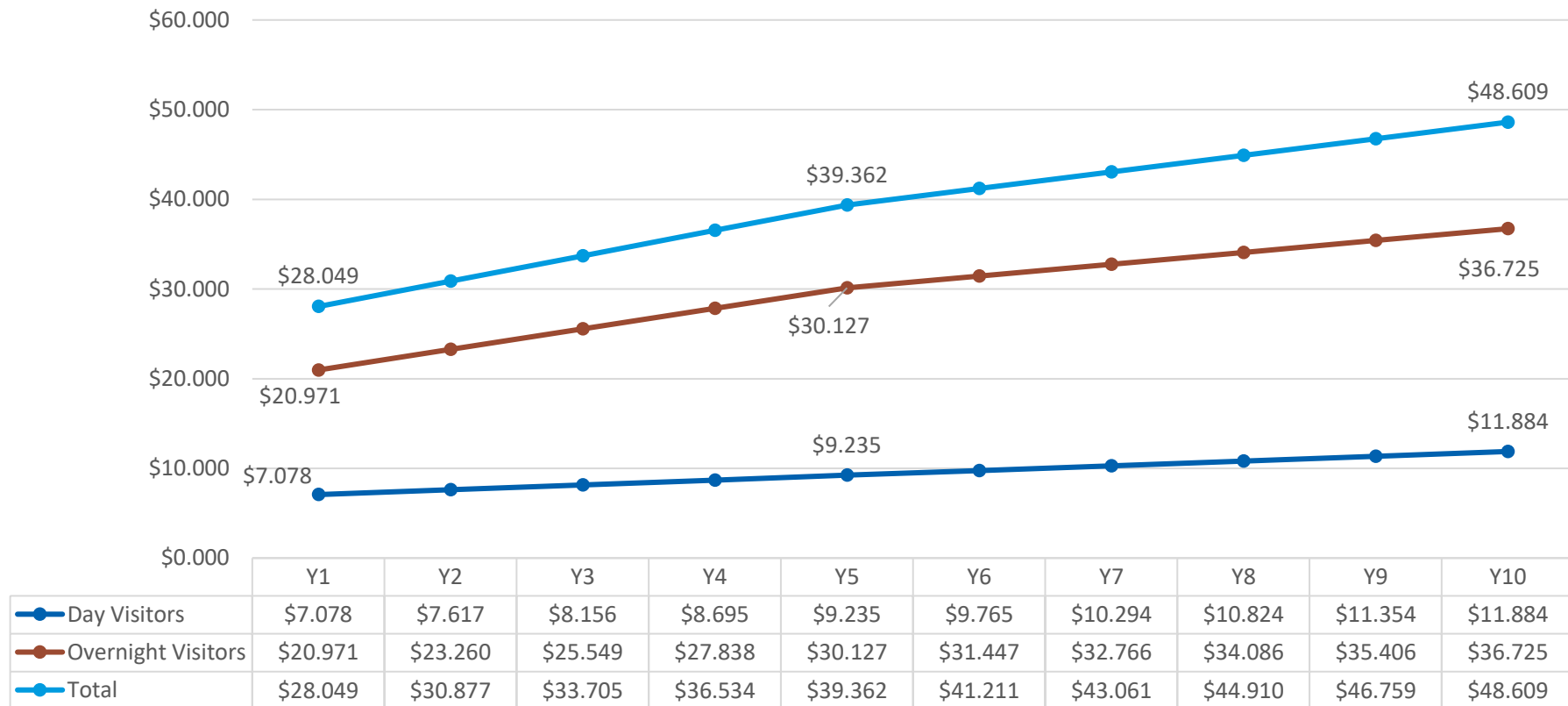
SOURCE: MCA MODELLING JANUARY 2021. OTHER REGIONAL/INTERSTATE/INTERNATIONALS = RIDES PER VISIT. NOTE 2021 POPULATION ESTIMATES ARE USED FOR 2022.

7.1 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$28.0 million in year 1 (\$20.9 million overnights and \$7.1 million day visitors) to \$48.6 million in year 10 (\$36.7 million overnights and \$11.9 million day visitors).

Figure 20. Case 1 Base Case – Spending in Region by Trail Users (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 8. Case 1 Base Case – Trail User Spending in the Region (\$million 2021 prices)

Case 1 Trail User Spending (\$ million 2021 prices) in Region	Y1			Y5			Y10		
	Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight
Yarra Ranges	\$0.950	\$0.000	\$0.950	\$1.132	\$0.000	\$1.132	\$1.508	\$0.000	\$1.508
Total Metro & Adjacent Area	\$5.513	\$9.486	\$14.999	\$7.157	\$12.439	\$19.596	\$9.265	\$15.946	\$25.211
Total Yarra Ranges & Areas	\$5.692	\$9.805	\$15.498	\$7.368	\$12.815	\$20.183	\$9.526	\$16.411	\$25.937
Other									
Other Regional/Intrastate	\$0.367	\$6.818	\$7.186	\$0.408	\$7.576	\$7.984	\$0.449	\$8.333	\$8.782
Interstate	\$0.248	\$4.667	\$4.915	\$0.289	\$5.445	\$5.734	\$0.331	\$6.223	\$6.554
Internationals	\$0.000	\$0.000	\$0.000	\$0.248	\$4.667	\$4.915	\$0.331	\$6.223	\$6.554
Total Other	\$0.616	\$11.485	\$12.101	\$0.946	\$17.688	\$18.634	\$1.111	\$20.779	\$21.890
Total All Areas	\$7.078	\$20.971	\$28.049	\$9.235	\$30.127	\$39.362	\$11.884	\$36.725	\$48.609

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

7.2 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$48.6 million in the region, up from \$28.0 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay, and
- spending on other recreational and tourism services.

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service a growing visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 9. Case 1 Base Case – Spending by Type (\$million – constant \$2021)

Case 1 Base Case Type of Spending (\$ million)	Share of Spending %	Y1	Y5	Y10
Total Day Visitors				
Food	65%	\$4.601	\$6.003	\$7.724
Bike Hire	15%	\$1.062	\$1.385	\$1.783
Guides	5%	\$0.354	\$0.462	\$0.594
Shuttle	15%	\$1.062	\$1.385	\$1.783
Total Spending - Day Visitors		\$7.078	\$9.235	\$11.884
Total Overnight Visitors				
Food & Accommodation	60%	\$12.583	\$18.076	\$22.035
Bike Hire	20%	\$4.194	\$6.025	\$7.345
Guides	5%	\$1.049	\$1.506	\$1.836
Shuttle	15%	\$3.146	\$4.519	\$5.509
Total Spending Overnights		\$20.971	\$30.127	\$36.725
Total Users				
Food & Accommodation		\$17.183	\$24.079	\$29.760
Bike Hire		\$5.256	\$7.411	\$9.128
Guides		\$1.402	\$1.968	\$2.430
Shuttle		\$4.207	\$5.904	\$7.291
Total Spending Users		\$28.049	\$39.362	\$48.609

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

8 Trail Operations - Case 2: Reduced Trail Network – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 2 Reduced Trails Network, with no trails in the National Park areas.

The reduced trails network (no national park trails) would result in lower levels of trail use by visitors from outside the region (mainly by the more experienced riders). These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

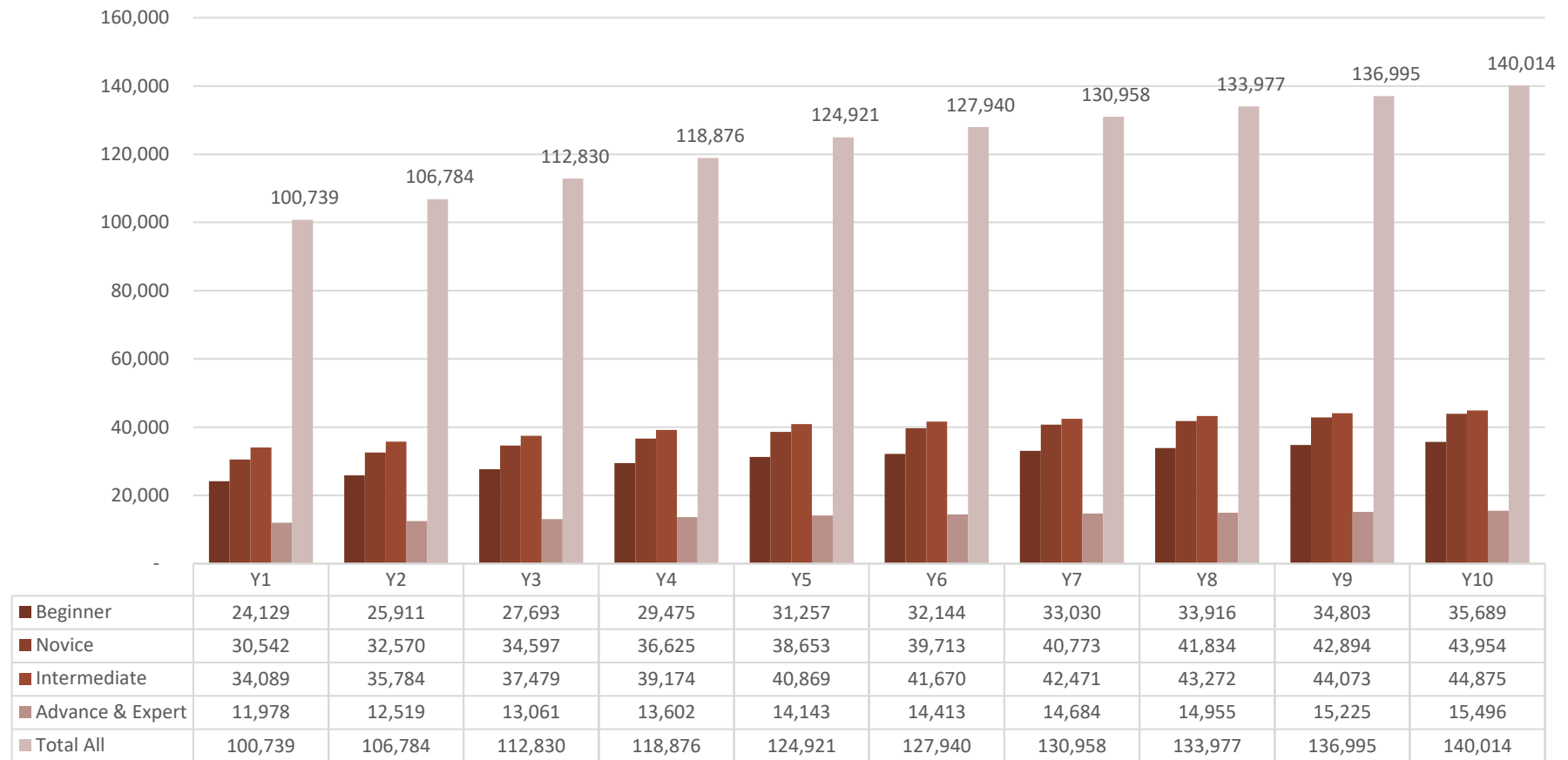
The impact of the reduced trail network was modelled based on changes in assumptions, which are outlined in Appendix A (Table A.5).

8.1 Trail Use Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 100,750 in year 1 to 124,900 in year 5 and reach 140,000 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. The tables below show the estimated numbers by user category (using the rider profile developed by Instinct and Reason). The year 10 users are around 80,000 below Case 1 Base Case numbers.



Figure 21. Case 2 Reduced Trails Network – Trail Users by Type (no.)



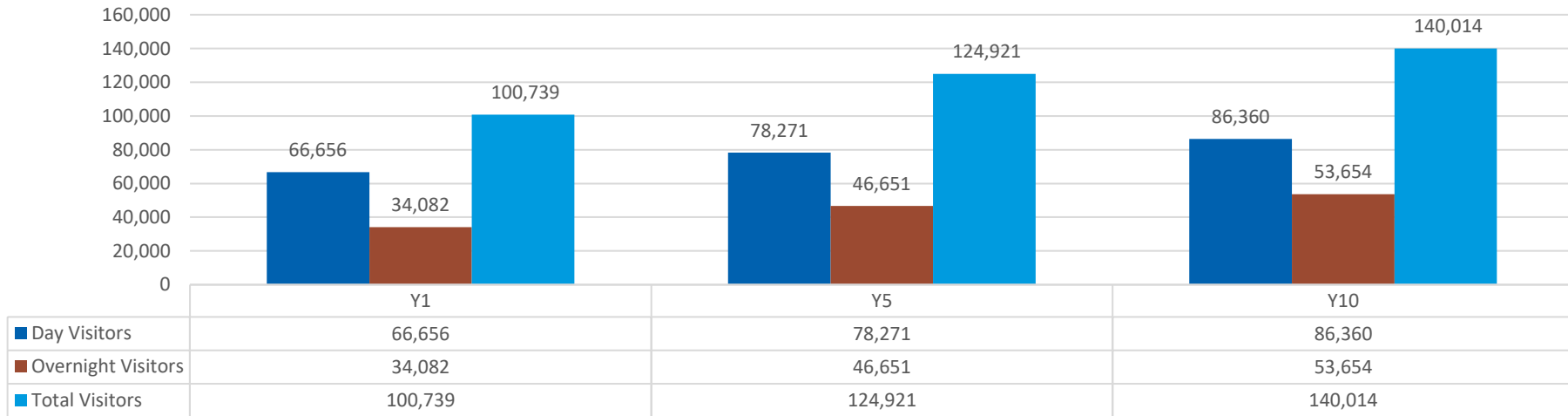
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 10. Case 2 Reduced Trails Network: Estimate Trail Users by Category

Case 2 Reduced Trails Network	Y1			Y5			Y10		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Beginner	15,104	9,025	24,129	18,459	12,798	31,257	20,845	14,844	35,689
Novice	19,323	11,219	30,542	23,428	15,225	38,653	26,418	17,536	43,954
Intermediate	23,970	10,119	34,089	27,089	13,780	40,869	29,113	15,762	44,875
Advance & Expert	8,259	3,719	11,978	9,294	4,848	14,143	9,983	5,513	15,496
Total All Users	66,656	34,082	100,739	78,271	46,651	124,921	86,360	53,654	140,014

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 22. Case 2 Reduced Trails Network – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 11. Case 2 Reduced Trails Network: Estimated Trail Users by Category

Case 2 Reduced Trails Network	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Beginner	24,129	25,911	27,693	29,475	31,257	32,144	33,030	33,916	34,803	35,689
Novice	30,542	32,570	34,597	36,625	38,653	39,713	40,773	41,834	42,894	43,954
Intermediate	34,089	35,784	37,479	39,174	40,869	41,670	42,471	43,272	44,073	44,875
Advance & Expert	11,978	12,519	13,061	13,602	14,143	14,413	14,684	14,955	15,225	15,496
Total All Users	100,739	106,784	112,830	118,876	124,921	127,940	130,958	133,977	136,995	140,014

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 12. Case 2 Reduced Trails Network: Trail Users by Residence Location

Case 2 Reduced Trails Network	Year 1			Year 5			Year 10		
	Users			Users			Users		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	19,520		19,520	21,721		21,721	22,695		22,695
Urban & Adjacent									
Total Metro & Adjacent Areas	42,475	15,436	57,911	49,408	18,086	67,495	55,283	20,127	75,410
Total Yarra Ranges & Areas	61,995	15,436	77,430	71,130	18,086	89,216	77,978	20,127	98,105
Other									
Other Regional/Intrastate	2,800	11,202	14,002	3,112	12,446	15,558	3,423	13,691	17,114
Interstate	1,861	7,445	9,306	2,171	8,686	10,857	2,482	9,926	12,408
Internationals			0	1,858	7,432	9,290	2,477	9,910	12,387
Total Other	4,662	18,647	23,308	7,141	28,564	35,705	8,382	33,527	41,909
Total All Trail Users	66,656	34,082	100,739	78,271	46,651	124,921	86,360	53,654	140,014

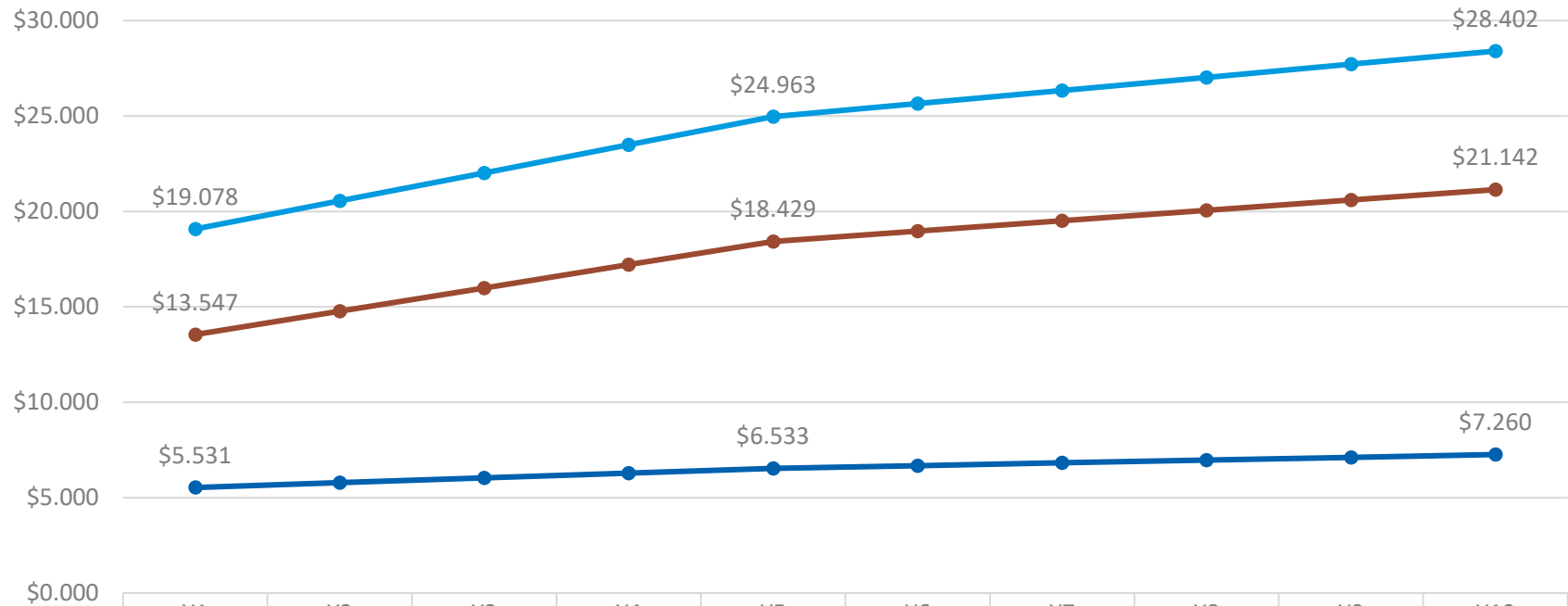
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

8.2 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$19.1 million in year 1 (\$13.6 million overnights and \$5.5 million day visitors) to \$28.4 million in year 10 (\$21.1 million overnights and \$7.3 million day visitors).

Figure 23. Case 2 Reduced Trail Network – Spending in Region by Trail Users (\$million 2021 prices)



	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors	\$5.531	\$5.782	\$6.032	\$6.283	\$6.533	\$6.679	\$6.824	\$6.969	\$7.115	\$7.260
Overnight Visitors	\$13.547	\$14.768	\$15.988	\$17.209	\$18.429	\$18.972	\$19.514	\$20.057	\$20.599	\$21.142
Total Spending	\$19.078	\$20.549	\$22.021	\$23.492	\$24.963	\$25.651	\$26.338	\$27.026	\$27.714	\$28.402

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 13. Case 2 Reduced Trails Network: Trail User Spending in the Region (\$million 2021 prices)

Case 2: Reduced Trail Network	Y1			Y5			Y10		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Yarra Ranges LGA	\$0.850	\$0.000	\$0.850	\$0.946	\$0.000	\$0.946	\$0.989	\$0.000	\$0.989
Total Metro & Adjacent Areas	\$4.210	\$6.115	\$10.325	\$4.864	\$6.991	\$11.855	\$5.423	\$7.706	\$13.128
Total Yarra Ranges & Metro	\$5.060	\$6.115	\$11.175	\$5.810	\$6.991	\$12.802	\$6.411	\$7.706	\$14.117
Other									
Other Regional	\$0.282	\$4.399	\$4.681	\$0.313	\$4.888	\$5.201	\$0.344	\$5.377	\$5.721
Interstate	\$0.190	\$3.033	\$3.223	\$0.221	\$3.538	\$3.760	\$0.253	\$4.044	\$4.297
Internationals	\$0.000	\$0.000	\$0.000	\$0.189	\$3.012	\$3.201	\$0.252	\$4.016	\$4.268
Total Other	\$0.471	\$7.432	\$7.903	\$0.723	\$11.438	\$12.161	\$0.849	\$13.436	\$14.285
Total All Areas	\$5.531	\$13.547	\$19.078	\$6.533	\$18.429	\$24.963	\$7.260	\$21.142	\$28.402

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

8.3 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$27.9 million in the region, up from \$18.9 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay
- spending on other recreational and tourism services.

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service this growth in a specialised visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 14. Case 2 Reduced Trail Network: Spending Type (\$million 2021 prices)

CASE 2: REDUCED TRAIL NETWORK				
Type of Spending	Share of Spending	Y1	Y5	Y10
(\$ million)	%			
Total Day Visitors				
Food	65%	\$3,595,372	\$4,246,741	\$4,719,119
Bike Hire	15%	\$829,701	\$980,017	\$1,089,027
Guides	5%	\$276,567	\$326,672	\$363,009
Shuttle	15%	\$829,701	\$980,017	\$1,089,027
Total Spending - Day Visitors		\$5,531,341	\$6,533,448	\$7,260,182
Total Overnight Visitors				
Food & Accommodation	60%	\$8,128,239	\$11,057,597	\$12,685,031
Bike Hire	20%	\$2,709,413	\$3,685,866	\$4,228,344
Guides	5%	\$677,353	\$921,466	\$1,057,086
Shuttle	15%	\$2,032,060	\$2,764,399	\$3,171,258
Total Spending Overnights		\$13,547,065	\$18,429,327.52	\$21,141,719
Total Users				
Food & Accommodation		\$14,433,024	\$18,990,203	\$21,632,494
Bike Hire		\$3,539,114	\$4,665,883	\$5,317,371
Guides		\$953,920	\$1,248,139	\$1,420,095
Shuttle		\$2,861,761	\$3,744,416	\$4,260,285
Total Spending Users		\$19,078,406	\$24,962,776	\$28,401,901

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

9 Trail Operations - Case 3: No Drop A K – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 3 No Drop A K Trail. This is the trails network, with the proposed Drop a Kilometre trail not included.

This would result in lower levels of trail use by visitors from outside the region (mainly by novice and intermediate riders). These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

Survey research by *Instinct and Reason*, shows that an overall reduction in users (comprising Beginner – 8%; Novice-13%; Intermediate -20%; and Advanced/Expert -8%).⁶⁷ These reductions were applied to each of these user categories.

The impact of the removal of the Drop A K Trail were modelled based on the assumptions, which are outlined in Appendix A.

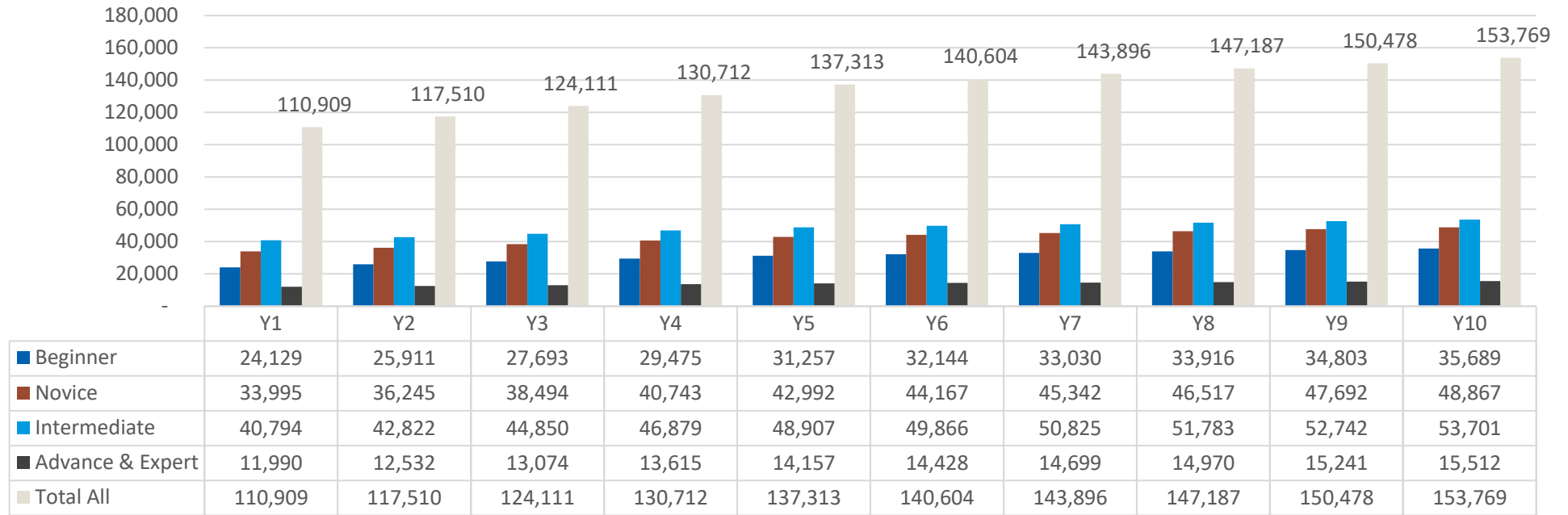
9.1 Trail User Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 110,900 in year 1 to 137,300 in year 5 and reach 153,800 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. The tables below show the estimated numbers by user category (using the rider profile developed by instinct and reason).

These user numbers are substantially below the Base Case user numbers – 21,000 lower in year 1 and around 68,000 lower in year 10.

⁶⁷ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 and Additional Findings May 2021.

Figure 24. Case 3 – No Drop A K – Trail Users by Type (no.)



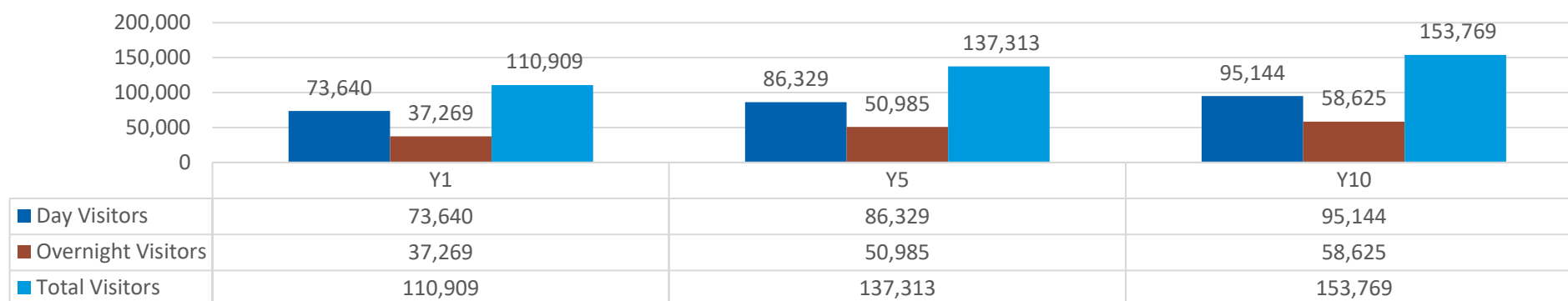
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 15. Case 3 No Drop A K: Estimated Trail Users by Category

Case 3 No Drop A K	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Beginner	24,129	25,911	27,693	29,475	31,257	32,144	33,030	33,916	34,803	35,689
Novice	33,995	36,245	38,494	40,743	42,992	44,167	45,342	46,517	47,692	48,867
Intermediate	40,794	42,822	44,850	46,879	48,907	49,866	50,825	51,783	52,742	53,701
Advance & Expert	11,990	12,532	13,074	13,615	14,157	14,428	14,699	14,970	15,241	15,512
Total All Users	110,909	117,510	124,111	130,712	137,313	140,604	143,896	147,187	150,478	153,769

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 25. Case 3 No Drop A K – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 16. Case 3 No Drop A K: Estimated Trail Users by Residence Location

Case 3 No Drop A K	Year 1			Year 5			Year 10		
	Users			Users			Users		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	22,046	0	22,046	24,532	-	24,532	25,632	-	25,632
Total Metro & Adjacent Areas	46,502	16,899	63,401	53,990	19,760	73,750	60,349	21,971	82,321
Total Yarra Ranges & Areas	68,548	16,899	85,447	78,522	19,760	98,282	85,981	21,971	107,952
Other									
Other Regional/Intrastate	3,061	12,242	15,303	3,401	13,603	17,003	3,741	14,963	18,704
Interstate	2,032	8,127	10,159	2,370	9,482	11,852	2,709	10,836	13,545
Internationals	0	0	0	2,035	8,140	10,176	2,713	10,854	13,567
Total Other	5,092	20,370	25,462	7,806	31,225	39,031	9,163	36,653	45,817
Total All Trail Users	73,640	37,269	110,909	86,329	50,985	137,313	95,144	58,625	153,769

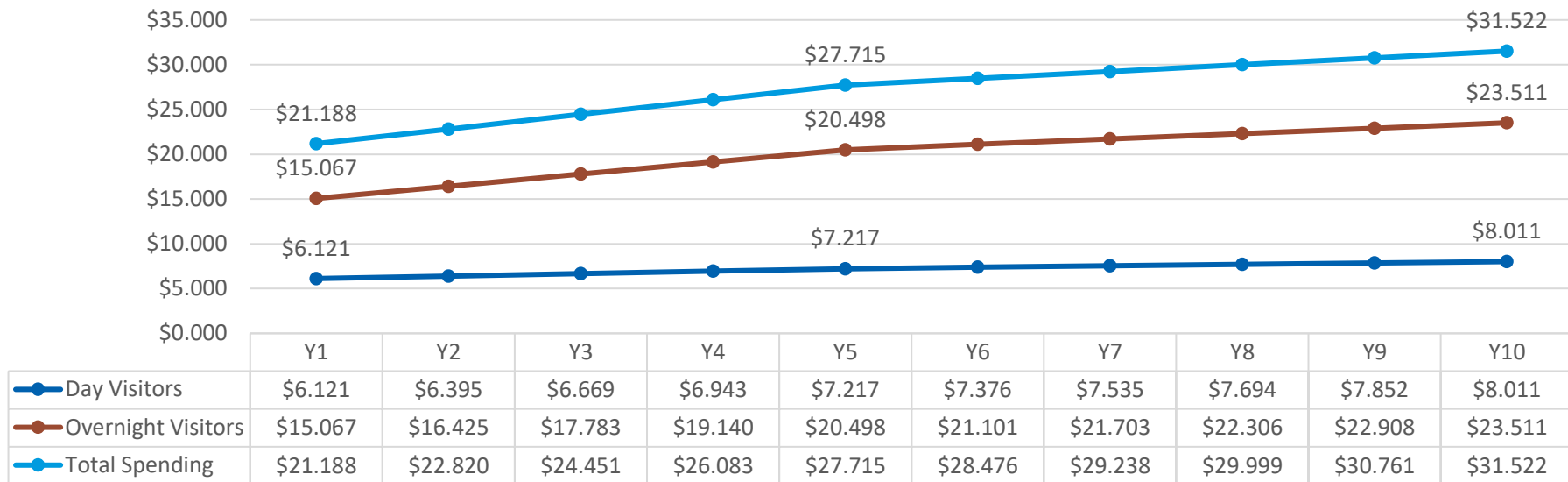
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

9.2 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$21.2 million in year 1 (\$15.1 million overnights and \$6.1 million day visitors) to \$31.5 million in year 10 (\$23.5 million overnights and \$8.0 million day visitors).

Table 17. Case 3 No Drop A K – Spending in Region (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 18. Case 3 No Drop A K: Trail User Spending in the Region (\$million 2021 prices)

Case 3 No Drop A K	Year 1			Year 5			Year 10		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Yarra Ranges LGA	\$0.965	\$0.000	\$0.965	\$1.074	\$0.000	\$1.074	\$1.122	\$0.000	\$1.122
Total Metro & Adjacent Areas	\$4.638	\$6.812	\$11.450	\$5.348	\$7.772	\$13.120	\$5.955	\$8.559	\$14.514
Total Yarra Ranges & Areas	\$5.603	\$6.812	\$12.415	\$6.422	\$7.772	\$14.193	\$7.077	\$8.559	\$15.636
Other									
Other Regional	\$0.310	\$4.892	\$5.202	\$0.344	\$5.436	\$5.780	\$0.378	\$5.979	\$6.358
Interstate	\$0.208	\$3.363	\$3.571	\$0.243	\$3.924	\$4.167	\$0.278	\$4.484	\$4.762
Internationals	\$0.000	\$0.000	\$0.000	\$0.208	\$3.367	\$3.575	\$0.278	\$4.489	\$4.767
Total Other	\$0.518	\$8.255	\$8.773	\$0.795	\$12.726	\$13.521	\$0.934	\$14.952	\$15.886
Total All Areas	\$6.121	\$15.067	\$21.188	\$7.217	\$20.498	\$27.715	\$8.011	\$23.511	\$31.522

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

9.3 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$25.6 million in the regional economy, up from \$17.4 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay
- spending on other recreational and tourism services

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service a growing visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 19. Case 3 No Drop A K: Spending in the Region by Type (\$million 2021 prices)

Case 3 No Drop A K Type of Spending (\$ million)	Share of Spending %	Year 1	Year 5	Year 10
Total Day Visitors				
Food	65%	\$3.978	\$4.691	\$5.207
Bike Hire	15%	\$0.918	\$1.083	\$1.202
Guides	5%	\$0.306	\$0.361	\$0.401
Shuttle	15%	\$0.918	\$1.083	\$1.202
Total Spending - Day Visitors		\$6.121	\$7.217	\$8.011
Total Overnight Visitors				
Food & Accommodation	60%	\$9.040	\$12.299	\$14.107
Bike Hire	20%	\$3.013	\$4.100	\$4.702
Guides	5%	\$0.753	\$1.025	\$1.176
Shuttle	15%	\$2.260	\$3.075	\$3.527
Total Spending Overnights		\$15.067	\$20.498	\$23.511
Total Users				
Food & Accommodation		\$16.032	\$21.089	\$24.016
Bike Hire		\$3.932	\$5.182	\$5.904
Guides		\$1.059	\$1.386	\$1.576
Shuttle		\$3.178	\$4.157	\$4.728
Total Spending Users		\$21.188	\$27.715	\$31.522

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

10 Economic Impacts of Warburton MTB Trails – Construction Phase

The economic impacts of the trail developments are modelled for both the construction phase and the operations phases.

The impacts are measured in terms of:

- full time equivalent jobs (FTE)
- the increase in regional income that is generated by trail users and their spending in the region.⁶⁸

This section covers the construction phase impacts.

A significant number of jobs and an increase in regional income will be generated during the construction phase of the project.

10.1 Construction Costs

In modelling construction jobs, we used the cost components that are associated with trails and other facilities construction, and these total \$15.090 million for Stage 1 and Stage 2

Table 20. Construction Costs – Warburton Trails Project (\$2020)

Staging of Trail	Timing	Costs
Construction		(\$2020)
Stage 1		
Trail Construction Stage 1 (110 kms)	Sept .2021	
Section 1 35 kms	Sept 2021-Feb 2022	\$1,400,000
Section 2 35 kms	Mar 2022-Aug 2022	\$1,400,000
Section 3 35 kms	Sept 2022-Jan 2023	\$1,400,000
Total		\$4,200,000
Other Infrastructure - Stage 1		
Main Bridge Warby Highway		\$2,000,000
Bridge- Old Warby Highway		\$400,000
Trail Heads		\$1,500,000
Minor Bridges, trail infrastructures & boardwalks		\$2,000,000
Final design work		\$450,000
Signage, fencing, environmental works		\$750,000
Total Other		\$7,100,000
Stage 1 Cost		\$11,300,000
Stage 2		
Construction Stage 2 Section 4 (76 kms)	Sept 2024-Jan 2025	\$3,040,000
Other Infrastructure – Stage 2		\$750,000
Stage 2 Cost		\$3,790,000
<Subject to funding - indicative only>		
Total Project Cost		\$15,090,000

SOURCE: YARRA RANGES COUNCIL JULY 2021. AN ADDITIONAL \$2 MILLION IS BEING SPENT ON DESIGN, STUDIES AND PLANNING APPROVAL COSTS.

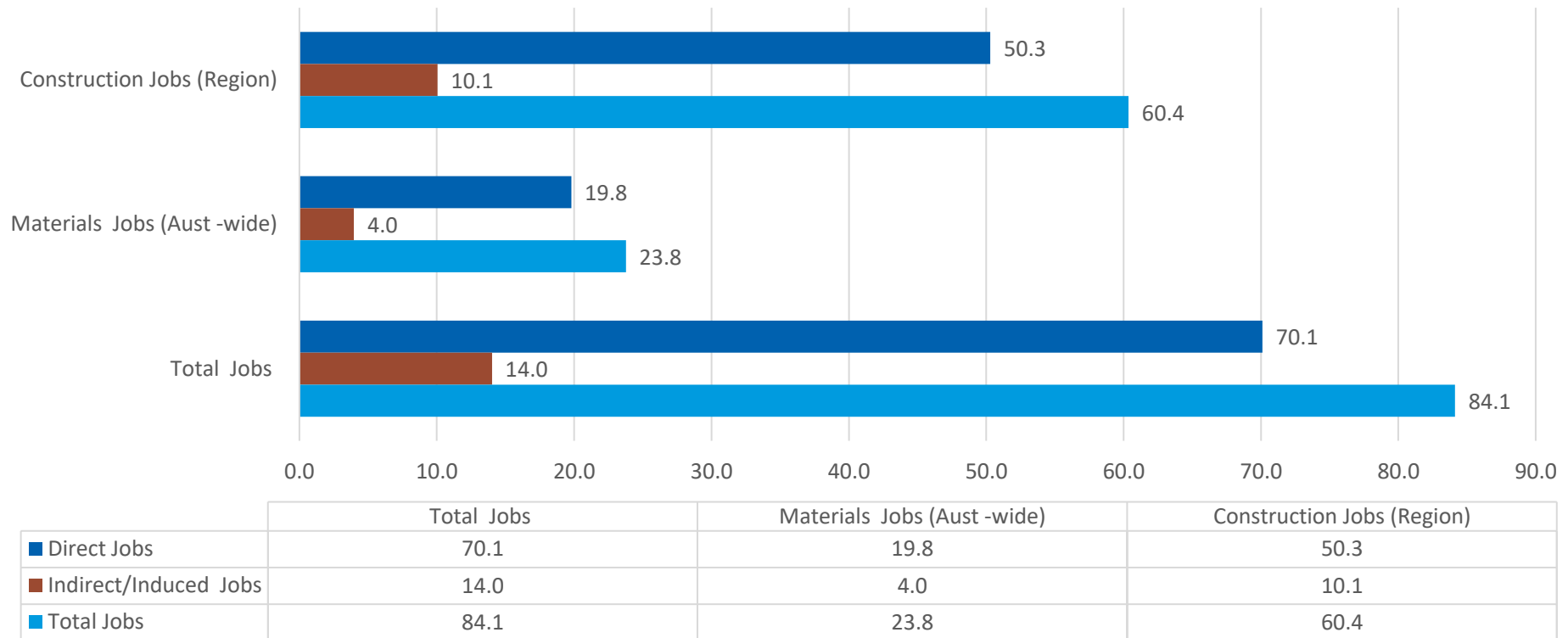
⁶⁸ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the

multiplier impacts of employee spending on the region. In the modelling of income generated, income tax and GST on spending, are both treated as leakages from the region.

10.2 Jobs Generated

A total of 84.1 FTE jobs (70.1 direct jobs and 14.1 indirect/induced jobs) would be generated during the construction period. The direct jobs comprise 50.3 jobs in on-site construction and 19.8 jobs in materials/equipment supply. The EES Report indicates that construction of the trails would be undertaken by teams of 3-4 persons.⁶⁹

Figure 26. Warburton Trails Construction (Stages 1 and 2) – Total FTE Jobs (no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

⁶⁹ EES Report Chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council P24

Table 21. Warburton Trails Stage 1 Construction FTE Jobs (no.)

Warburton Trail Construction Jobs	Direct Jobs	Indirect/Induced Jobs	Total Jobs
Stage 1 - Trail			
Construction Jobs (Region)	14.0	2.8	16.8
Materials Jobs (Aust -wide)	5.5	1.1	6.6
Total Jobs - Construction Phase	19.5	3.9	23.4
Stage 1 - Infrastructure			
Construction Jobs (Region)	23.7	4.7	28.4
Materials Jobs (Aust -wide)	9.3	1.9	11.2
Total Jobs - Construction Phase	33.0	6.6	39.6
Total Stage 1			
Construction Jobs (Region)	37.7	7.5	45.2
Materials Jobs (Aust -wide)	14.8	3.0	17.8
Total Jobs - Construction Phase	52.5	10.5	63.0

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 22. Warburton Trails Stage 2 Construction FTE Jobs Generated (no.)

Warburton Trail Construction Jobs	Direct Jobs	Indirect/Induced Jobs	Total Jobs
Stage 2 - Trail			
Construction Jobs (Region)	10.1	2.0	12.2
Materials Jobs (Aust -wide)	4.0	0.8	4.8
Total Jobs - Construction Phase	14.1	2.8	16.9
Stage 2 - Infrastructure			
Construction Jobs (Region)	2.5	0.5	3.0
Materials Jobs (Aust -wide)	1.0	0.2	1.2
Total Jobs - Construction Phase	3.5	0.7	4.2
Total Stage 2			
Construction Jobs (Region)	12.6	2.5	15.2
Materials Jobs (Aust -wide)	5.0	1.0	6.0
Total Jobs - Construction Phase	17.6	3.5	21.1

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

10.3 Regional Income

Construction will provide a boost to regional income - a total of \$9.054 million over Stage 1 and Stage 2. This assumes that most of the construction workforce will be from the Warburton/Yarra Ranges LGA and adjacent areas.

Table 23. Warburton Trails Construction Regional Income Generated (\$million – 2021 prices)

Warburton Trail Construction Regional Income	Direct Regional Income	Indirect/Induced Income	Total Regional Income
Stage 1 - Total			
Regional Income	\$5.650	\$1.130	\$6.780
Stage 2 -Total			
Regional Income	\$1.895	\$0.379	\$2.274
Total Project			
Regional Income	\$7.545	\$1.509	\$9.054

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

11 Operations Phase - Case 1: Base Case Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region.

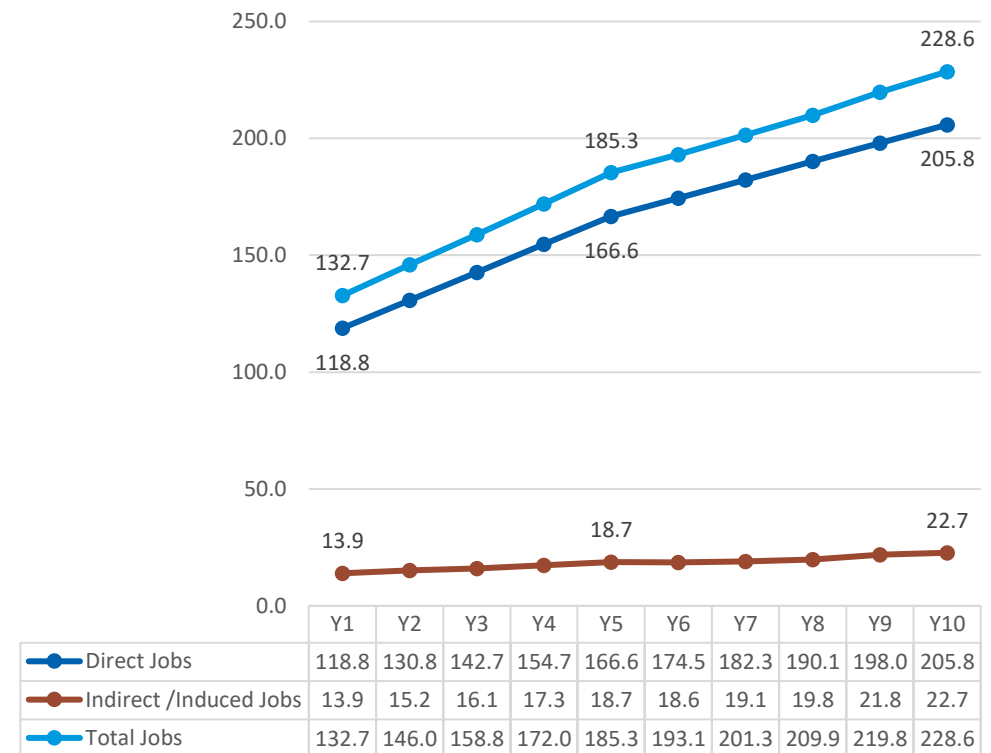
MCA’s regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.⁷⁰

11.1 Employment Impacts – Jobs Generated

The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups. In summary:

- The operation of the trails would generate a total of 132.7 full-time equivalent jobs in year 1, increasing to 228.6 FTE jobs in year 10
- Of the direct jobs in year 10, day visitors would account for 51.6 FTE jobs, overnight visitors for 205.8 FTE jobs
- An events program would create an equivalent of 13.8 FTE additional jobs in year 10 (see Appendix B).

Figure 27. Case 1 Base Case Jobs Generated by Trail Operations (FTE no.)

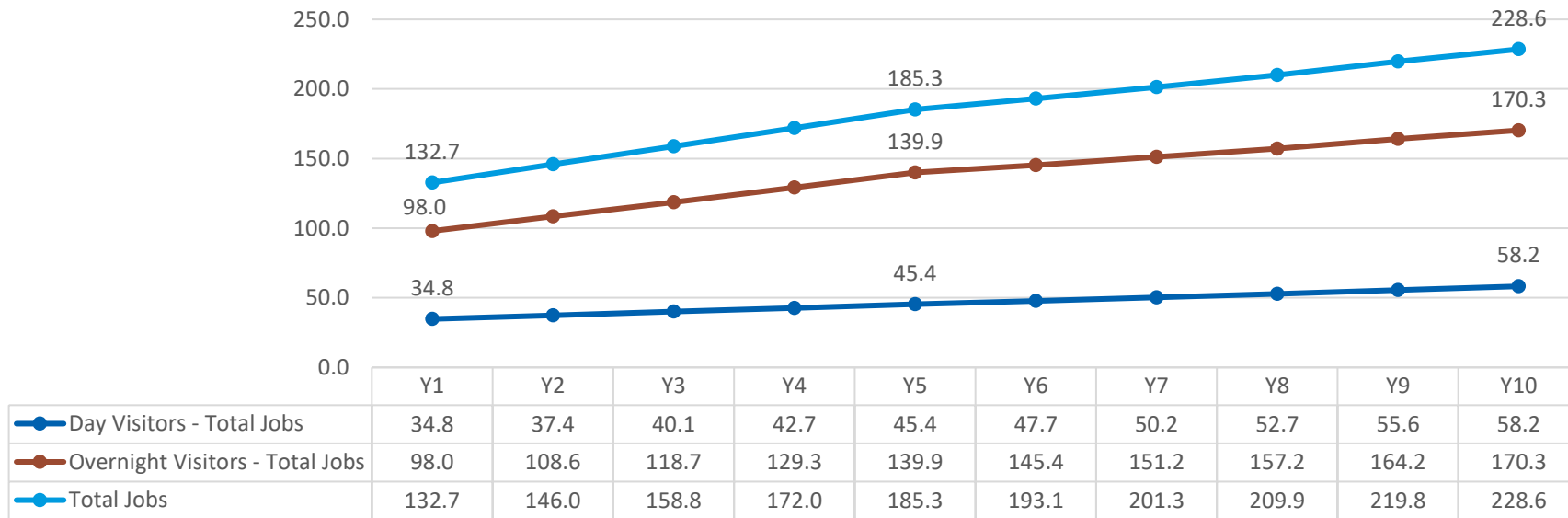


SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

⁷⁰ The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to : the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the region (e.g., food ingredients, soft drinks, beer , consumer products

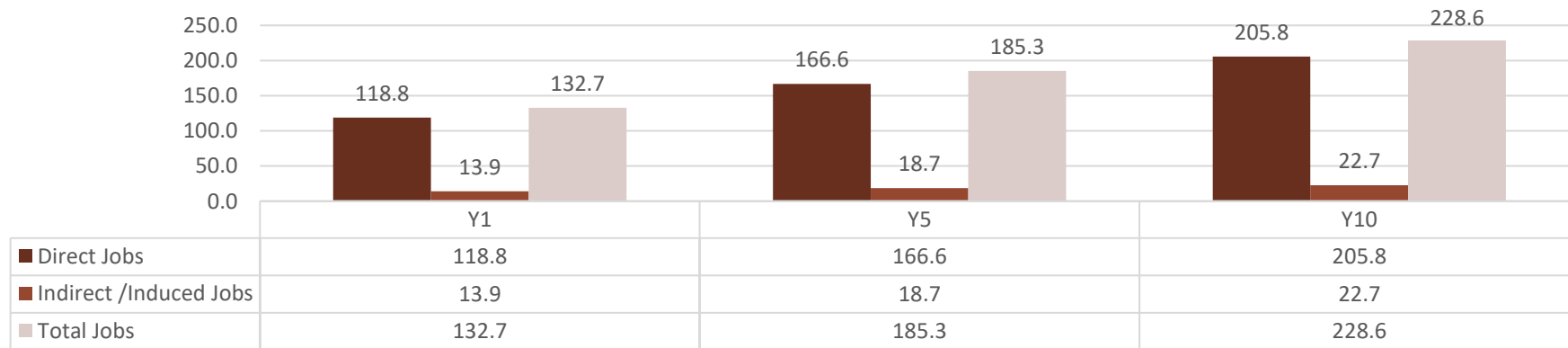
bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Figure 28. Case 1 Base Case Total Jobs Generated by Trail Operations (FTE no.)



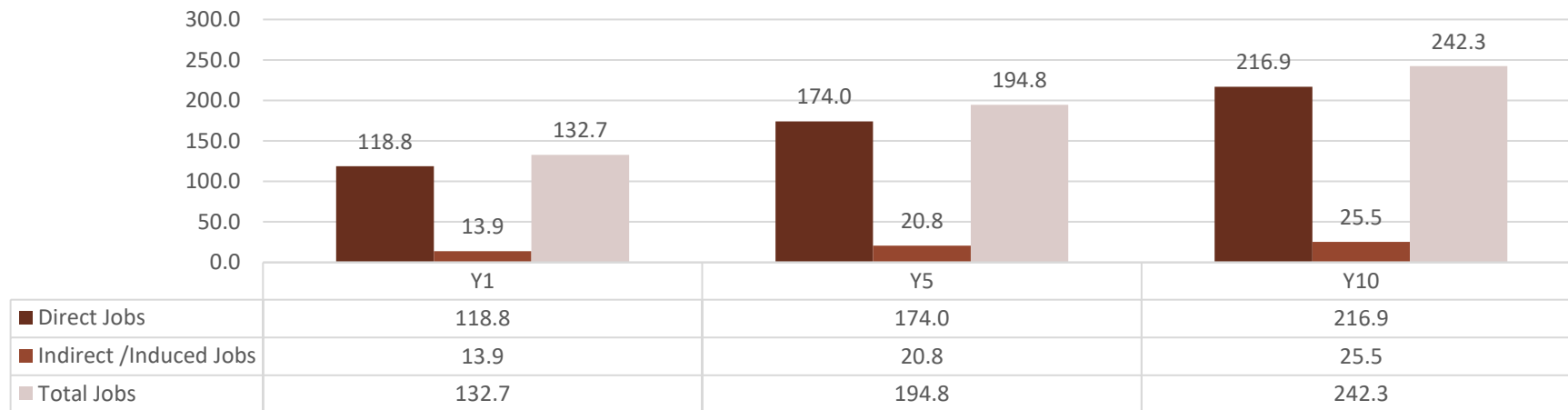
SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 29. Case 1 Base Case Jobs Generated by Trail Operations (no events) (FTE no.)



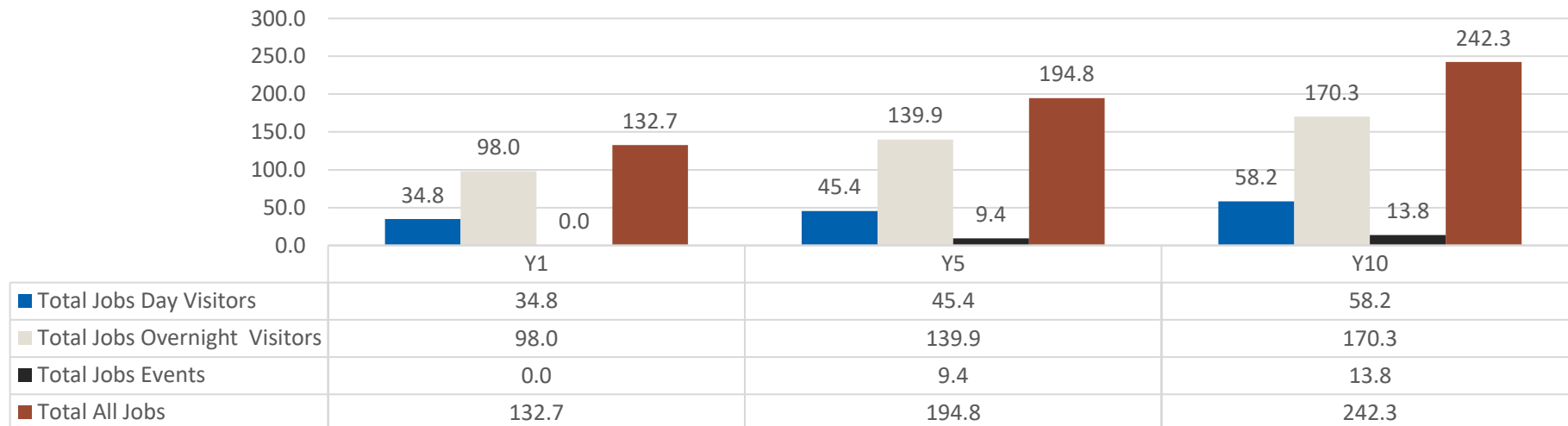
SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 24. Case 1 Base Case Jobs Generated by Trail Operations (with events) FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 30. Case 1 Base Case Jobs Generated by Trail Operations (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 25. Case 1 Base Case Jobs Generated by Trail Operations (no events) (FTE no.)

Case 1 Base Case Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	30.7	33.1	35.4	37.8	40.1	42.4	44.7	47.0	49.3	51.6
Indirect/Induced	4.0	4.3	4.7	4.9	5.3	5.3	5.5	5.7	6.3	6.6
Total Jobs - Day Visitors	34.8	37.4	40.1	42.7	45.4	47.7	50.2	52.7	55.6	58.2
Overnight Visitors – Trail Users										
Direct Jobs	88.1	97.7	107.3	116.9	126.5	132.0	137.6	143.1	148.7	154.2
Indirect/Induced	9.9	10.9	11.4	12.4	13.4	13.3	13.6	14.1	15.5	16.1
Total Jobs - Overnight Visitors	98.0	108.6	118.7	129.3	139.9	145.4	151.2	157.2	164.2	170.3
Total Visitors – Trail Users										
Direct Jobs	118.8	130.8	142.7	154.7	166.6	174.5	182.3	190.1	198.0	205.8
Indirect/Induced	13.9	15.2	16.1	17.3	18.7	18.6	19.1	19.8	21.8	22.7
Total All Jobs	132.7	146.0	158.8	172.0	185.3	193.1	201.3	209.9	219.8	228.6

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 26. Case 1 Base Case Total Jobs Generated by Trails Operations (with events) (FTE no.)

Operations: Jobs Generated by Trail Users/Visitors	Y1	Y5	Y10
Day Users/Visitors			
Direct Jobs	30.7	40.1	51.6
Indirect/Induced Jobs	4.0	5.3	6.6
Total Jobs	34.8	45.4	58.2
Overnight User/Visitors			
Direct Jobs	88.1	126.5	154.2
Indirect/Induced Jobs	9.9	13.4	16.1
Total Jobs	98.0	139.9	170.3
Events			
Direct Jobs	0	7.4	11.1
Indirect/Induced Jobs	0	2.1	2.7
Total Jobs	0	9.4	13.8
Total All Users/Visitors (no events)			
Direct Jobs	118.8	166.6	205.8
Indirect/Induced Jobs	13.9	18.7	22.7
Total Jobs	132.7	185.3	228.6
Total All Users/Visitors (with events)			
Direct Jobs	118.8	174.0	216.9
Indirect/Induced Jobs	13.9	20.8	25.5
Total Jobs	132.7	194.8	242.3

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

11.2 Jobs by Industry

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

The development of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 55.6 jobs
- transport (including shuttles and other transport) 21.9 FTE jobs
- accommodation 61.2 jobs
- food and beverage 65.6 jobs.

The follow table shows estimates for day visitors and overnight visitors.

Table 27. Case 1 Base Case Total Jobs Generated by Trail Operations y Industry (no events) (FTE no.)

Case 1 Base Case	Year 1	Year 5	Year 10
All Jobs			
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	12.1	15.7	20.2
Other retail	3.6	4.7	6.1
Health	0.3	0.5	0.6
Transportation	4.1	5.4	6.9
Communication	0.1	0.1	0.2
Recreation Services/Other Services	13.8	18.0	23.2
Education	0.2	0.3	0.3
Miscellaneous	0.5	0.6	0.8
Total	34.8	45.4	58.2
Overnight Visitors			
Accommodation	35.0	50.2	61.2
Food & Beverage	26.1	37.3	45.4
Other retail	6.9	9.8	12.0
Health	0.8	1.1	1.3
Transportation	8.6	12.3	14.9
Communication	0.3	0.4	0.5
Recreation Services/Other Services	18.6	26.6	32.4
Education	0.5	0.6	0.8
Miscellaneous	1.1	1.5	1.9
Total	98.0	139.9	170.3
Total All Jobs (No Events)			
Accommodation	35.0	50.2	61.2
Food & Beverage	38.1	53.0	65.6
Other Retail	10.6	14.6	18.0
Health	1.2	1.5	1.9
Transportation	12.8	17.7	21.9
Communication	0.4	0.5	0.7
Recreation Services/Other Services	32.5	44.7	55.6
Education	0.7	0.9	1.1
Miscellaneous	1.6	2.2	2.7
Total All Jobs	132.7	185.3	228.6

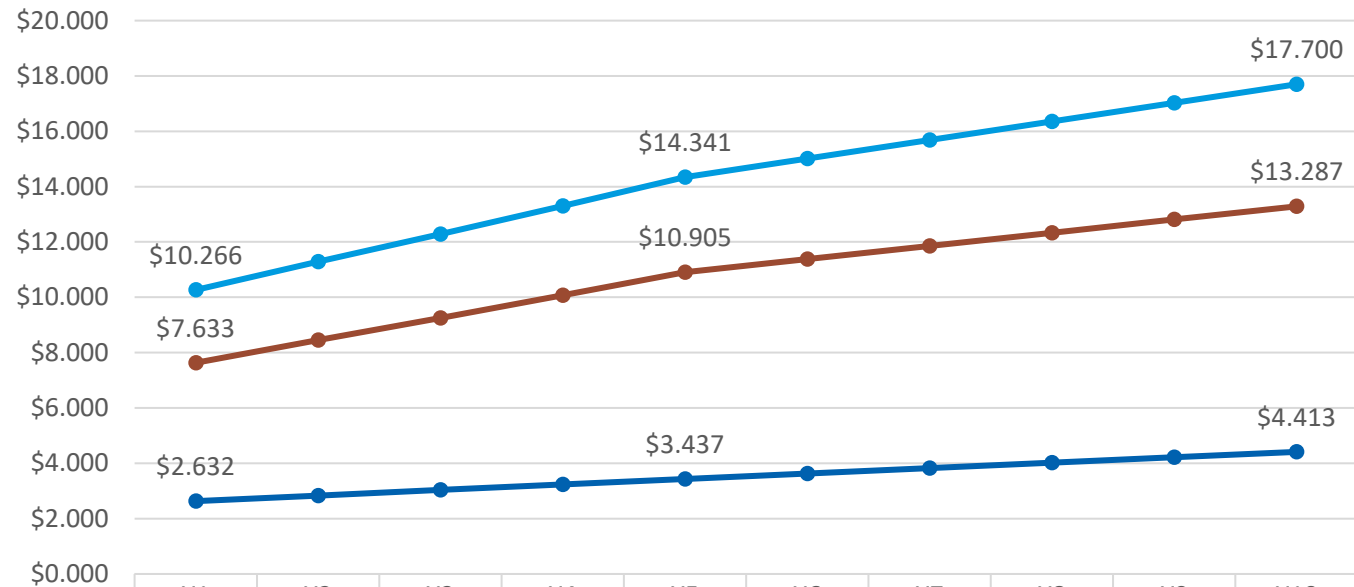
SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

11.3 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals around \$10.3 million in year 1, increasing to \$17.7 million in year 10.⁷¹

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is \$2.6 million in year 1 and \$4.4 million in year 10. Overnight users/visitors boost total regional income by \$7.6 million in year 1 and \$13.3 million in year 10.

Table 28. Case 1 Base Case – Regional Income Generated (\$ million 2021 prices)



	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Regional Income - Day Visitors/Users	\$2.632	\$2.831	\$3.034	\$3.233	\$3.437	\$3.631	\$3.829	\$4.023	\$4.218	\$4.413
Regional Income - Overnight Visitors/Users	\$7.633	\$8.459	\$9.248	\$10.074	\$10.905	\$11.381	\$11.859	\$12.335	\$12.811	\$13.287
Total Regional Income	\$10.266	\$11.289	\$12.283	\$13.306	\$14.341	\$15.012	\$15.688	\$16.358	\$17.029	\$17.700

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

⁷¹ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated, income tax and GST on spending, are both treated as leakages from the region.

Table 29. Case 1 Base Case Regional Income Generated (\$million 2021 prices)

Case 1 Base Case Regional Income \$ million (2020 prices)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Day Visitors											
Direct Income	\$2.328	\$2.506	\$2.683	\$2.860	\$3.038	\$3.212	\$3.386	\$3.561	\$3.735	\$3.909	\$31.218
Indirect/Induced	\$0.304	\$0.325	\$0.351	\$0.372	\$0.399	\$0.419	\$0.442	\$0.463	\$0.483	\$0.504	\$4.063
Total Income	\$2.632	\$2.831	\$3.034	\$3.233	\$3.437	\$3.631	\$3.829	\$4.023	\$4.218	\$4.413	\$35.281
Overnight Visitors											
Direct Income	\$6.889	\$7.641	\$8.393	\$9.145	\$9.897	\$10.330	\$10.764	\$11.197	\$11.631	\$12.064	\$97.951
Indirect/Induced	\$0.744	\$0.818	\$0.855	\$0.929	\$1.008	\$1.050	\$1.095	\$1.138	\$1.180	\$1.223	\$10.041
Total Income	\$7.633	\$8.459	\$9.248	\$10.074	\$10.905	\$11.381	\$11.859	\$12.335	\$12.811	\$13.287	\$107.992
Total Visitors											
Direct Income	\$9.217	\$10.147	\$11.076	\$12.005	\$12.935	\$13.542	\$14.150	\$14.758	\$15.366	\$15.973	\$129.168
Indirect/Induced	\$1.048	\$1.143	\$1.207	\$1.301	\$1.407	\$1.470	\$1.538	\$1.601	\$1.663	\$1.726	\$14.104
Total Income	\$10.266	\$11.289	\$12.283	\$13.306	\$14.341	\$15.012	\$15.688	\$16.358	\$17.029	\$17.700	\$143.272

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Total regional income over 10 years for all visitors is \$143.3 million.

Table 30. Case 1 Base Case Increase in Regional Income – Total 10 Years (\$million 2021 prices)

Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$31.218	\$97.951	\$129.168
Indirect/Induced Income	\$4.063	\$10.041	\$14.104
Total Income	\$35.281	\$107.992	\$143.272

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

11.4 Benefit Cost Analysis

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

11.4.1 Trail Costs – 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million. See Appendix D for details.

11.4.2 Measuring Benefits – 10 Years

The measured benefits of the Warburton MTB Trails comprise the increase in regional income generated by trail users, the health benefits, and a notional consumer value to users of the trails.

Increase in Regional Income

The increase in regional income generated by trail users spending over a 10-year period totals \$143.3 million (in constant \$2021 prices).

Table 31. Case 1 Base Case Regional Income Generated by Trail Users (\$m 2021 prices)

Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$31.218	\$97.951	\$129.168
Indirect /Induced \Income	\$4.063	\$10.041	\$14.104
Total Income	\$35.281	\$107.992	\$143.272

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).⁷²

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices and 4 hours for advanced and experts (and average of \$10 per hour). Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$47.1 million (in constant prices \$2021) over the 10-year period or an average of \$4.7 million per year.

⁷² Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 32. Case 1 Base Case Health Benefits Estimates (\$ million 2021 prices)

Case 1 Base Case Ave Hours	Health Benefits Valuation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
2.5	Beginner	\$0.656	\$0.715	\$0.773	\$0.832	\$0.891	\$0.937	\$0.984	\$1.030	\$1.077	\$1.123	\$9.019
2.5	Novice	\$0.967	\$1.046	\$1.126	\$1.206	\$1.285	\$1.353	\$1.420	\$1.487	\$1.554	\$1.621	\$13.064
4	Intermediate	\$2.050	\$2.218	\$2.386	\$2.553	\$2.721	\$2.870	\$3.019	\$3.169	\$3.318	\$3.468	\$27.772
4	Advance & Expert	\$0.603	\$0.649	\$0.695	\$0.741	\$0.787	\$0.829	\$0.872	\$0.914	\$0.957	\$0.999	\$8.044
	Total All	\$4.275	\$4.627	\$4.979	\$5.332	\$5.684	\$5.989	\$6.295	\$6.600	\$6.906	\$7.212	\$57.899
4	Interstate & Internationals	\$0.480	\$0.820	\$0.920	\$0.980	\$1.040	\$1.100	\$1.160	\$1.220	\$1.280	\$1.280	\$10.280
	Total (less interstate. & internationals)	\$3.795	\$3.807	\$4.059	\$4.352	\$4.644	\$4.889	\$5.135	\$5.380	\$5.626	\$5.932	\$47.619

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Consumer User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$26.7 million (constant prices \$2021) over 10 years for all trail users or an average of \$2.6 million per year.

Table 33. Case 1 Base Case Consumer Value Estimates (\$million 2021 prices)

Case 1 Base Case Consumer Value \$ million 2021 prices	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Beginner	\$0.393	\$0.429	\$0.464	\$0.499	\$0.535	\$0.562	\$0.590	\$0.618	\$0.646	\$0.674	\$5.411
Novice	\$0.580	\$0.628	\$0.676	\$0.723	\$0.771	\$0.812	\$0.852	\$0.892	\$0.932	\$0.973	\$7.838
Intermediate	\$0.769	\$0.832	\$0.895	\$0.957	\$1.020	\$1.076	\$1.132	\$1.188	\$1.244	\$1.300	\$10.415
Advance & Expert	\$0.226	\$0.243	\$0.260	\$0.278	\$0.295	\$0.311	\$0.327	\$0.343	\$0.359	\$0.375	\$3.017
Total All	\$1.968	\$2.131	\$2.295	\$2.458	\$2.621	\$2.761	\$2.901	\$3.042	\$3.182	\$3.322	\$26.681

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

11.4.3 Benefit Cost Analysis

All Benefits

The following table and chart show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

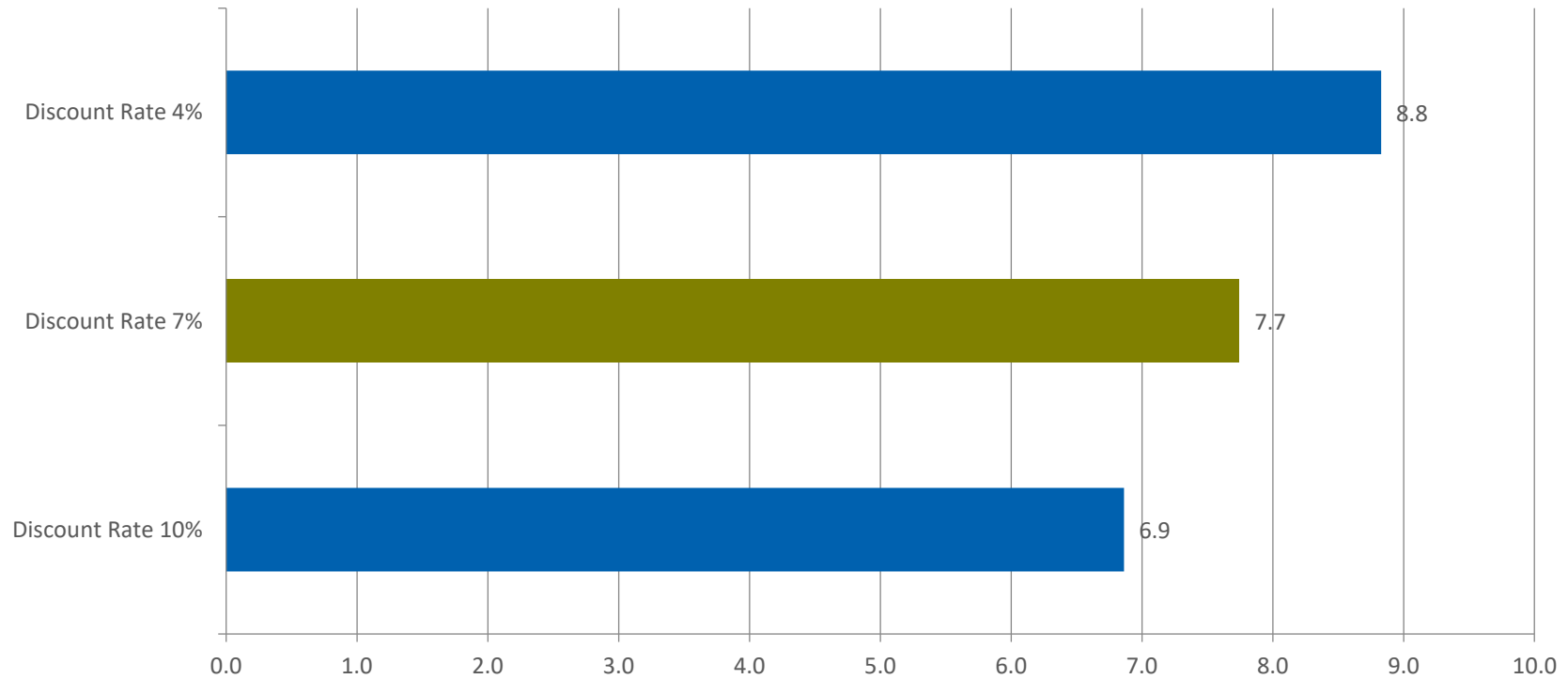
Table 34. Case 1 Base Case Benefits and Cost Analysis – 10 Years (Constant 2021 prices)

Case 1 Base Case Total Project	Discount Rate	Discount Rate	Discount Rate
Regional Cost Benefit (\$2021 prices) Period : 10 Years	4%	7%	10%
Trail Extension			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Costs - Depreciation (10 Years) 2%			
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Direct Benefits (users) (10 years)			
Regional Income Increase	\$143,272,395	\$143,272,395	\$143,272,395
Health Benefits (Vic Users)	\$47,619,295	\$47,619,295	\$47,619,295
User Value (shadow user price)	\$26,680,891	\$26,680,891	\$26,680,891
Total Benefits	\$219,572,581	\$219,572,581	\$219,572,581
Total Benefits (\$) Present Value	\$193,220,035	\$169,521,629	\$150,197,040
Net Present Value (\$) Total Benefits	\$171,332,535	\$147,634,129	\$128,309,540
Benefit Cost Ratio (BCR- All Benefits)	8.8	7.7	6.9
NPV/Cost	7.8	6.7	5.9
Regional Income Only (PV)			
	\$123,649,870	\$108,421,959	\$96,007,532
BCR (Regional Income only)	5.2	4.5	4.0

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates. For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 7.7. The present value of total benefits generated by the investment are 7.7 times the total costs of the project over a 10-year period. If only the increase in regional income is include in the benefits, the BCR is 4.5 (for a 7% discount rate).

Figure 31. Case 1 Base Case Benefits Cost Ratio (BCR – All Benefits) Warburton Trail Development



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

12 Operations Phase - Case 2: Reduced Trail Network Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region.

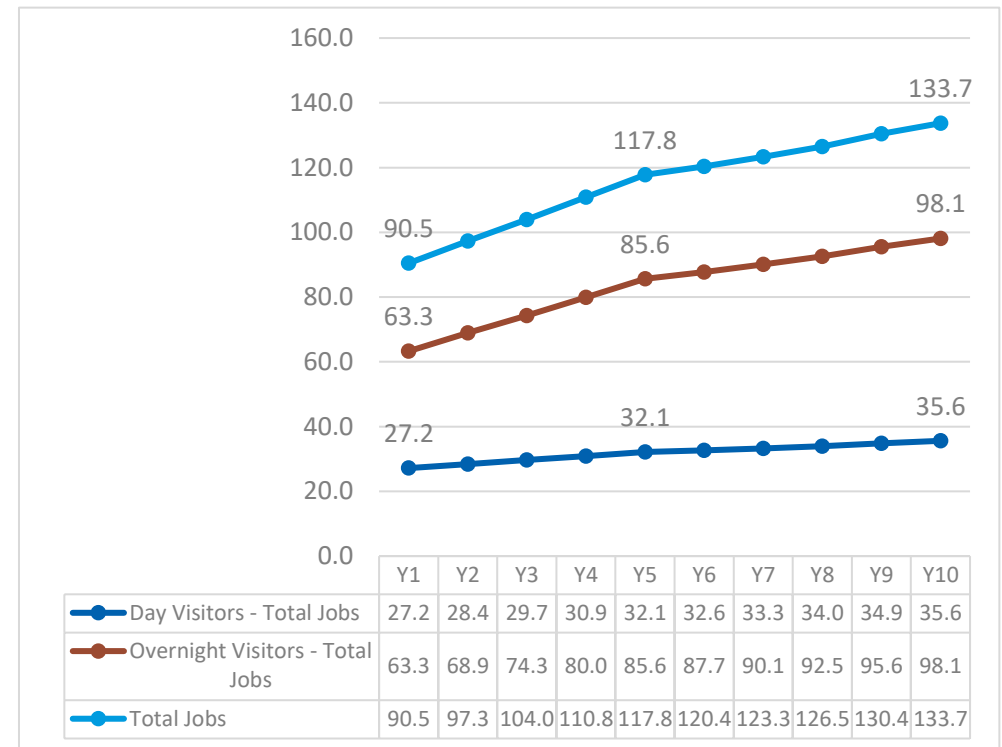
MCA’s regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.⁷³

12.1 Employment Impacts – Jobs Generated

The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups.

- The operation of the trails would generate a total of 90.5 full-time equivalent jobs in year 1, increasing to 133.7 FTE jobs in year 10.
- Of the direct jobs in 2031 (year 10), day visitors would account for 42.7 FTE jobs, overnight visitors for 89.2 FTE jobs.
- An events program would create an equivalent of 13.8 FTE additional jobs in 2031 (see Appendix B).
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Figure 32. Case 2 Reduced Trails Network Jobs Generated by Trail Operations (no events) (FTE no.)

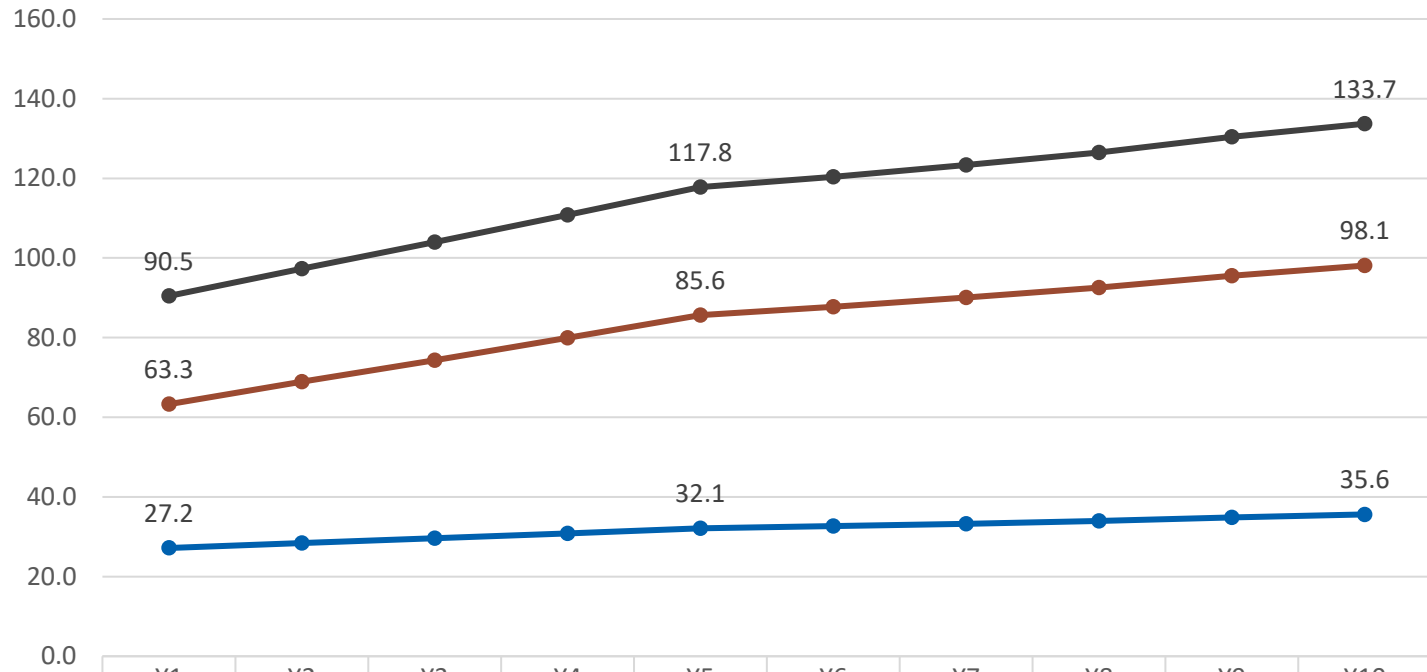


SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

⁷³ The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to: the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the [Developing Warburton as a World Class Mountain Bike Destination, and Economic Feasibility Study](#) | Three Case Economic Impact Assessment – Spend Assumption 1 (TRA)

region (e.g., food ingredients, soft drinks, beer, consumer products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Figure 33. Case 2 Reduced Trails Network Total Jobs Generated by Trail Operations (no events) (FTE no.)



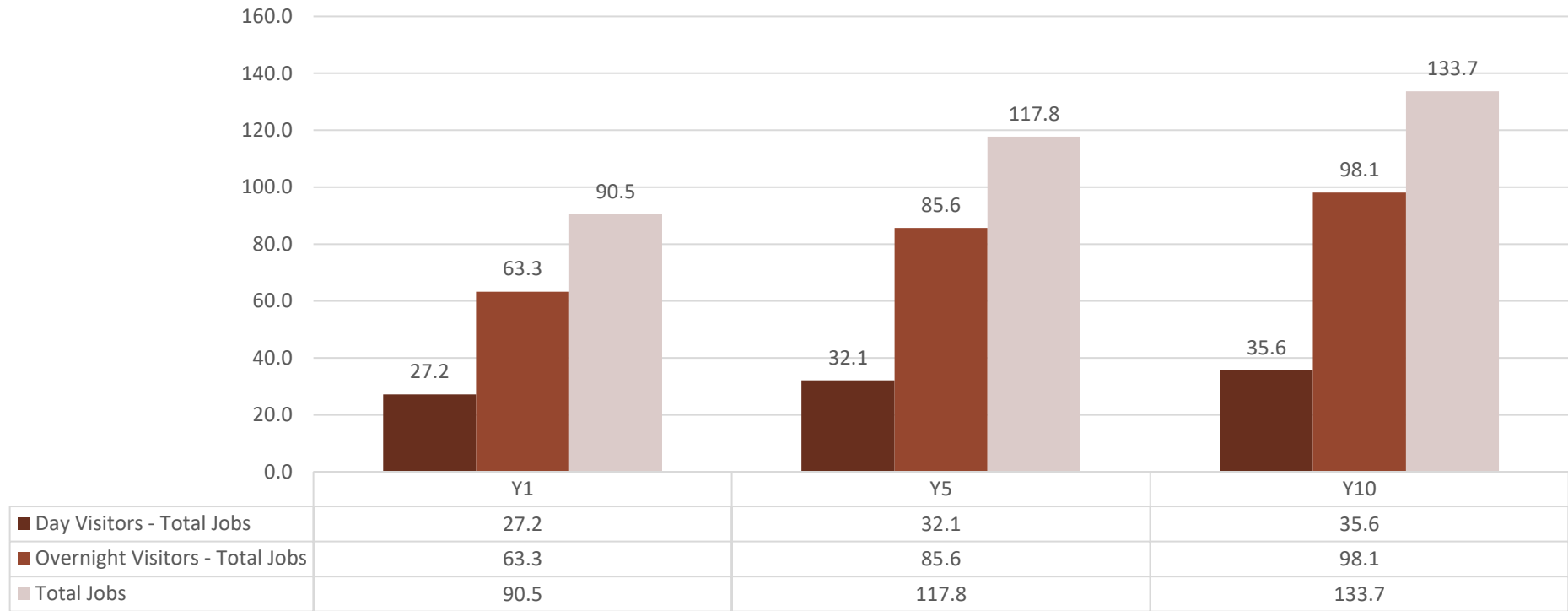
- Source: MCA modelling & estimates, July 2021. Note some differences due to rounding

Table 35. Case 2 Reduced Trails Network Jobs Generated by Trail Operations (no events) (FTE no.)

Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	24.0	25.1	26.2	27.3	28.4	29.0	29.6	30.3	30.9	31.5
Indirect/Induced	3.2	3.3	3.4	3.6	3.7	3.6	3.6	3.7	4.0	4.1
Total Jobs - Day Visitors	27.2	28.4	29.7	30.9	32.1	32.6	33.3	34.0	34.9	35.6
Overnight Visitors – Trail Users										
Direct Jobs	56.9	62.0	67.1	72.3	77.4	79.7	81.9	84.2	86.5	88.8
Indirect/Induced	6.4	6.9	7.2	7.7	8.3	8.1	8.1	8.3	9.1	9.3
Total Jobs - Overnight Visitors	63.3	68.9	74.3	80.0	85.6	87.7	90.1	92.5	95.6	98.1
Total Visitors – Trail Users										
Direct Jobs	80.9	87.1	93.3	99.5	105.8	108.7	111.6	114.5	117.4	120.3
Indirect/Induced	9.6	10.2	10.6	11.3	12.0	11.7	11.7	12.0	13.0	13.4
Total All Jobs	90.5	97.3	104.0	110.8	117.8	120.4	123.3	126.5	130.4	133.7

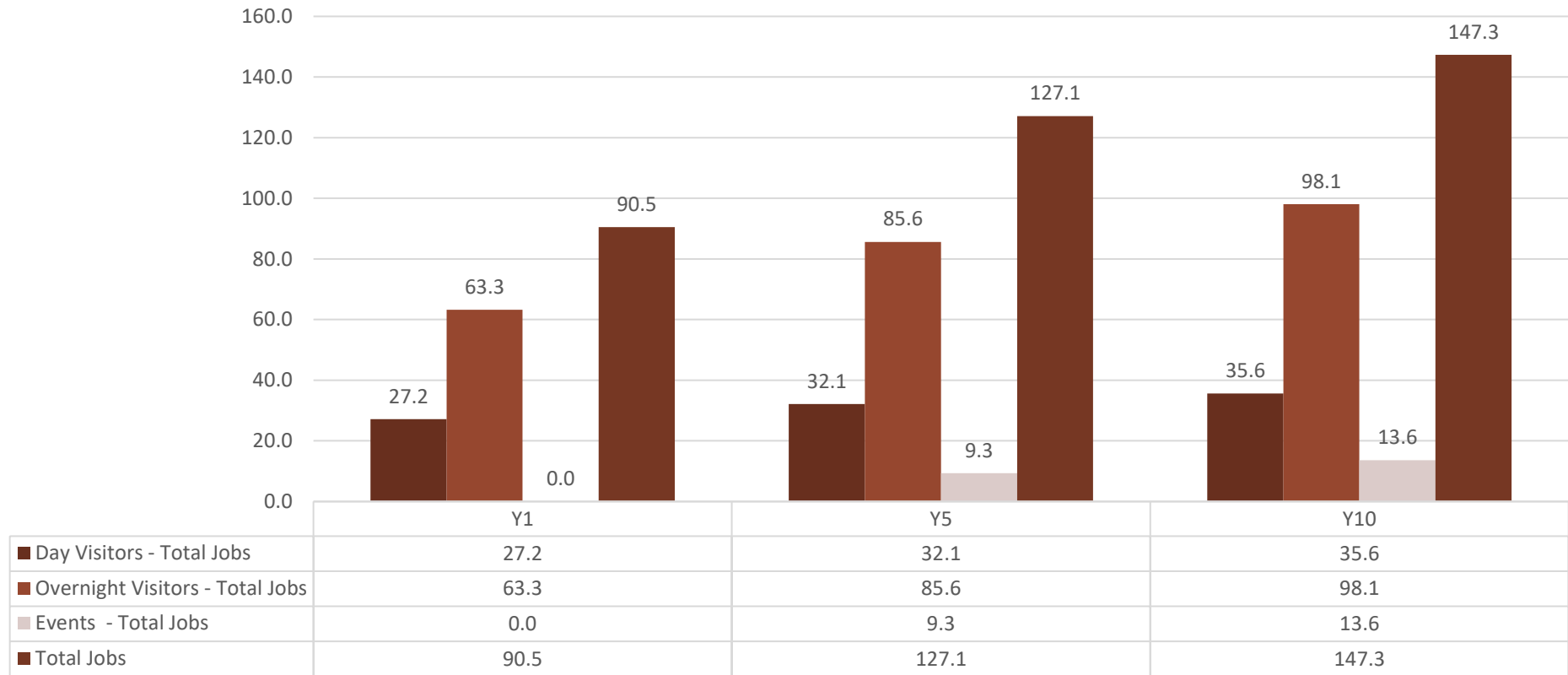
SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 34. Case 2 Reduced Trails Network Total Jobs (no events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 35. Case 2 Reduced Trails Network Total Jobs (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 36. Case 2 Reduced Trails Network Total Jobs Generated by Trails Operations (FTE no.)

Case 2 Operations: Jobs Generated by Trail Users/Visitors	Year 1	Year 5	Year 10
Day Users/Visitors			
Direct Jobs	24.0	28.4	31.5
Indirect/Induced Jobs	3.2	3.7	4.1
Total Jobs	27.2	32.1	35.6
Overnight User/Visitors			
Direct Jobs	56.9	77.4	88.8
Indirect/Induced Jobs	6.4	8.3	9.3
Total Jobs	63.3	85.6	98.1
Events			
Direct Jobs	0	7.4	11.1
Indirect/Induced Jobs	0	1.9	2.5
Total Jobs	0	9.3	13.6
Total All Users/Visitors (no events)			
Direct Jobs	80.9	105.8	120.3
Indirect/Induced Jobs	9.6	12.0	13.4
Total Jobs	90.5	117.8	133.7
Total All Users/Visitors (with events)			
Direct Jobs	80.9	113.1	131.4
Indirect/Induced Jobs	9.6	13.9	15.9
Total Jobs	90.5	127.1	147.3

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

12.2 Jobs by Industry

On a sector basis, the jobs (FTE - direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

The following table shows estimates for day visitors and overnight visitors.

The development of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 32.8 jobs (year 10)
- transport (including shuttles) 12.8 FTE jobs
- accommodation 35.3 jobs
- food and beverage 38.5 jobs.
-

Table 37. Case 2 Reduced Trails Network Total Jobs Generated by Industry (no events) (FTE no.)

Case 2 No National Park Trails	Year 1	Year 5	Year 10
All Jobs			
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	9.4	11.1	12.4
Other retail	2.8	3.4	3.7
Health	0.3	0.3	0.3
Transportation	3.2	3.8	4.2
Communication	0.1	0.1	0.1
Recreation Services/Other Services	10.8	12.8	14.2
Education	0.2	0.2	0.2
Miscellaneous	0.4	0.4	0.5
Total	27.2	32.1	35.6
Overnight Visitors			
Accommodation	22.6	30.7	35.3
Food & Beverage	16.8	22.8	26.1
Other retail	4.5	6.0	6.9
Health	0.5	0.7	0.8
Transportation	5.6	7.5	8.6
Communication	0.2	0.2	0.3
Recreation Services/Other Services	12.0	16.3	18.7
Education	0.3	0.4	0.4
Miscellaneous	0.7	1.0	1.1
Total	63.3	85.6	98.1
Total All Jobs			
Accommodation	22.6	30.7	35.3
Food & Beverage	26.3	33.9	38.5
Other Retail	7.3	9.4	10.6
Health	0.8	1.0	1.1
Transportation	8.8	11.3	12.8
Communication	0.3	0.3	0.4
Recreation Services/Other Services	22.8	29.1	32.8
Education	0.5	0.6	0.6
Miscellaneous	1.1	1.4	1.6
Total	90.5	117.8	133.7

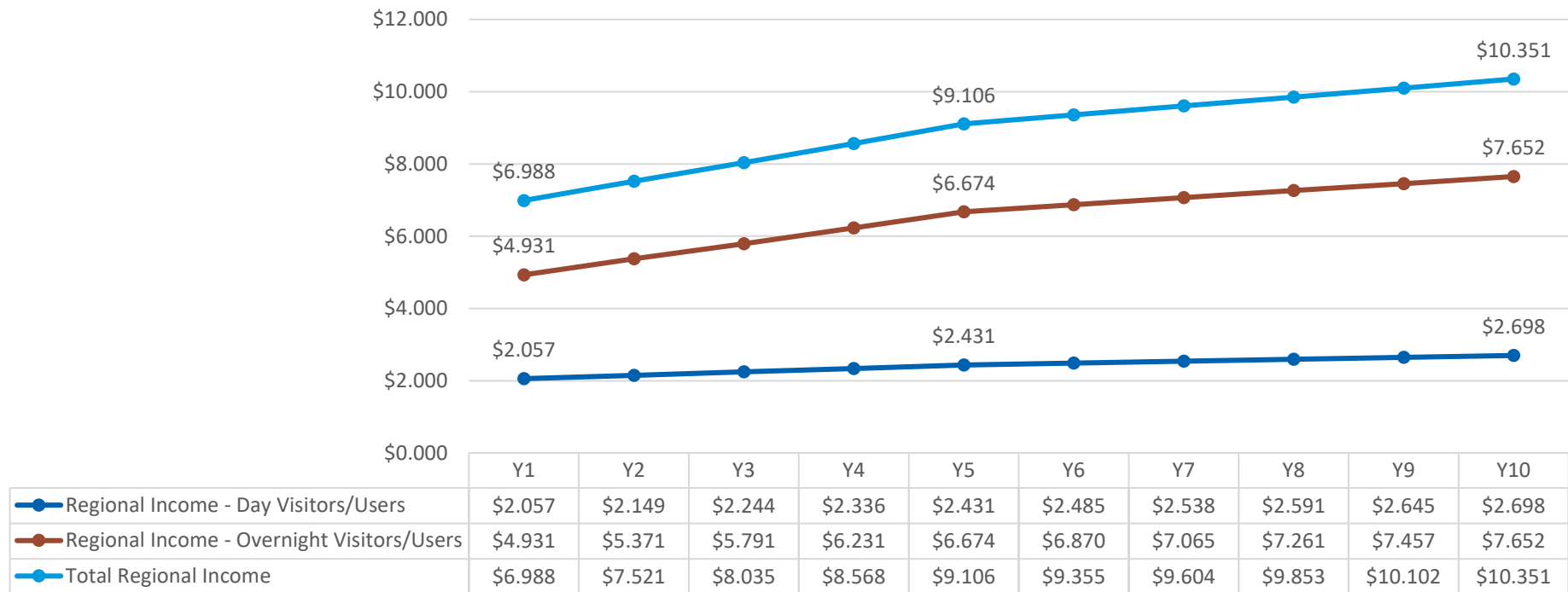
SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

12.3 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals \$6.9 million in year 1, increasing to \$10.4 million in year 10.⁷⁴

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is \$2.1 million in year 1 and \$2.7 million in year 10. Overnight users/visitors boost total regional income by \$4.9 million in year 1 and \$7.7 million in year 10.

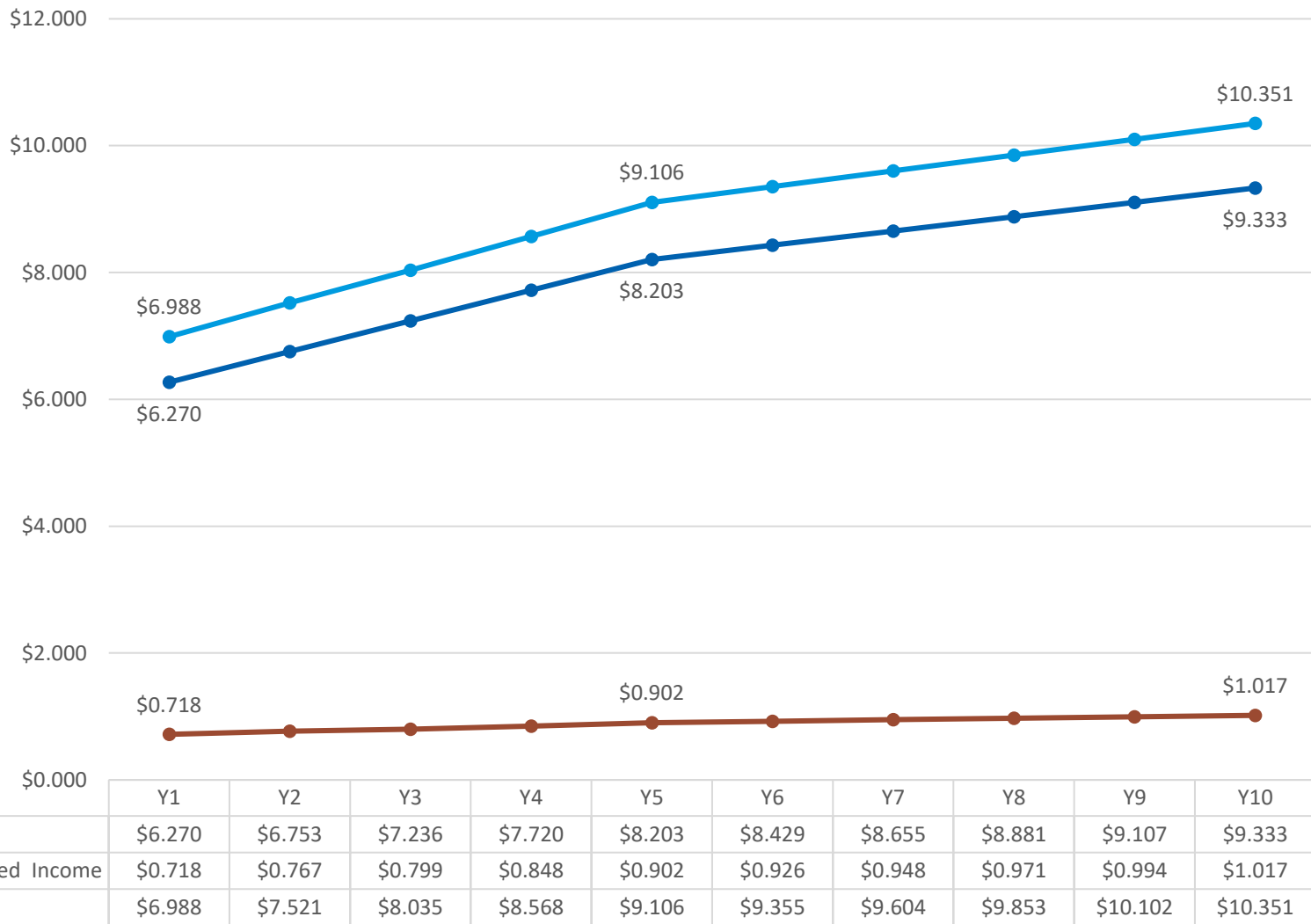
Figure 36. Case 2 Reduced Trails Network Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

⁷⁴ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated income tax and GST on spending, are both treated as leakages from the region.

Figure 37. Case 2 Reduced Trails Network Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 38. Case 2 Reduced Trails Network Regional Income Generated (\$million 2021 prices)

Case 2 Regional Income \$ million (2021 prices)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Day Visitors											
Direct Income	\$1.820	\$1.902	\$1.984	\$2.067	\$2.149	\$2.197	\$2.245	\$2.293	\$2.340	\$2.388	\$21.385
Indirect/Induced	\$0.238	\$0.247	\$0.260	\$0.270	\$0.282	\$0.288	\$0.293	\$0.299	\$0.304	\$0.310	\$2.791
Total Income	\$2.057	\$2.149	\$2.244	\$2.336	\$2.431	\$2.485	\$2.538	\$2.591	\$2.645	\$2.698	\$24.176
Overnight Visitors											
Direct Income	\$4.450	\$4.851	\$5.252	\$5.653	\$6.054	\$6.232	\$6.410	\$6.589	\$6.767	\$6.945	\$59.204
Indirect/Induced	\$0.481	\$0.520	\$0.539	\$0.578	\$0.620	\$0.638	\$0.655	\$0.672	\$0.690	\$0.707	\$6.101
Total Income	\$4.931	\$5.371	\$5.791	\$6.231	\$6.674	\$6.870	\$7.065	\$7.261	\$7.457	\$7.652	\$65.305
Total Visitors											
Direct Income	\$6.270	\$6.753	\$7.236	\$7.720	\$8.203	\$8.429	\$8.655	\$8.881	\$9.107	\$9.333	\$80.589
Indirect/Induced	\$0.718	\$0.767	\$0.799	\$0.848	\$0.902	\$0.926	\$0.948	\$0.971	\$0.994	\$1.017	\$8.892
Total Income	\$6.988	\$7.521	\$8.035	\$8.568	\$9.106	\$9.355	\$9.604	\$9.853	\$10.102	\$10.351	\$89.481

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Total regional income over 10 years for all visitors accounted for a total of \$89.5 million.

Table 39. Case 2 Reduced Trail Network Regional Income Generated 10 Years (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$21.385	\$59.204	\$80.589
Indirect/Induced Income	\$2.791	\$6.101	\$8.892
Total Income	\$24.176	\$65.305	\$89.481

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

12.4 Benefit Cost Analysis Case 2 Reduced Trail Network

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

12.4.1 Trail Costs 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million (see Appendix D).⁷⁵

12.4.2 Measuring Benefits – 10 Years

The measured benefits of the Warburton MTB Trails comprise the increase in regional income generated by trail users, the health benefits, and a notional consumer value to users of the trails.

Increase in Regional income

The increase in regional income generated by trail users spending over a 10-year period totals \$89.5 million (in constant \$2021 prices).

Table 40. Case 2 Reduced Trails Network Regional Income Generated by Trail Users (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$21.385	\$59.204	\$80.589
Indirect/Induced Income	\$2.791	\$6.101	\$8.892
Total Regional Income	\$24.176	\$65.305	\$89.481

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).⁷⁶

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices (and average of \$10 per hour) and 4 hours for advanced and experts. Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$31.5 **million** (in constant prices \$2021) over the 10-year period or an average of \$3.1 million per year.

⁷⁵ Yarra Ranges Council September 2020

⁷⁶ Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 41. Case 2 Reduced Trails Network Health Benefit Estimates (\$million 2021 prices)

Case 2	Health Benefits Valuation	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Ave hours	\$ million 2021 prices											
2.5	Beginner	\$0.603	\$0.648	\$0.692	\$0.737	\$0.781	\$0.804	\$0.826	\$0.848	\$0.870	\$0.892	\$7.701
2.5	Novice	\$0.764	\$0.814	\$0.865	\$0.916	\$0.966	\$0.993	\$1.019	\$1.046	\$1.072	\$1.099	\$9.554
4	Intermediate	\$1.364	\$1.431	\$1.499	\$1.567	\$1.635	\$1.667	\$1.699	\$1.731	\$1.763	\$1.795	\$16.150
4	Advance & Expert	\$0.479	\$0.501	\$0.522	\$0.544	\$0.566	\$0.577	\$0.587	\$0.598	\$0.609	\$0.620	\$5.603
	Total All	\$3.209	\$3.394	\$3.579	\$3.764	\$3.948	\$4.040	\$4.131	\$4.223	\$4.314	\$4.406	\$39.008
4	Interstate & Internationals	\$0.372	\$0.481	\$0.589	\$0.697	\$0.806	\$0.843	\$0.880	\$0.917	\$0.955	\$0.992	\$7.533
	Total less interstate & internationals	\$2.837	\$2.914	\$2.990	\$3.066	\$3.142	\$3.197	\$3.251	\$3.305	\$3.360	\$3.414	\$31.476

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Consumer/User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$18.5 million (constant prices \$2021) over 10 years for all trail users or an average of \$1.8 million per year.

Table 42. Case 2 Reduced Trail Network Consumer Value Estimates (\$million 2021 prices)

Case 2: Reduced Trail Network	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Consumer Value \$ million 2021 prices											
Beginner	\$0.362	\$0.389	\$0.415	\$0.442	\$0.469	\$0.482	\$0.495	\$0.509	\$0.522	\$0.535	\$4.621
Novice	\$0.458	\$0.489	\$0.519	\$0.549	\$0.580	\$0.596	\$0.612	\$0.628	\$0.643	\$0.659	\$5.732
Intermediate	\$0.511	\$0.537	\$0.562	\$0.588	\$0.613	\$0.625	\$0.637	\$0.649	\$0.661	\$0.673	\$6.056
Advance & Expert	\$0.180	\$0.188	\$0.196	\$0.204	\$0.212	\$0.216	\$0.220	\$0.224	\$0.228	\$0.232	\$2.101
Total All	\$1.511	\$1.602	\$1.692	\$1.783	\$1.874	\$1.919	\$1.964	\$2.010	\$2.055	\$2.100	\$18.511

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

12.4.3 Benefit Cost Analysis

All Benefits

The following table 41 and figure 37 show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

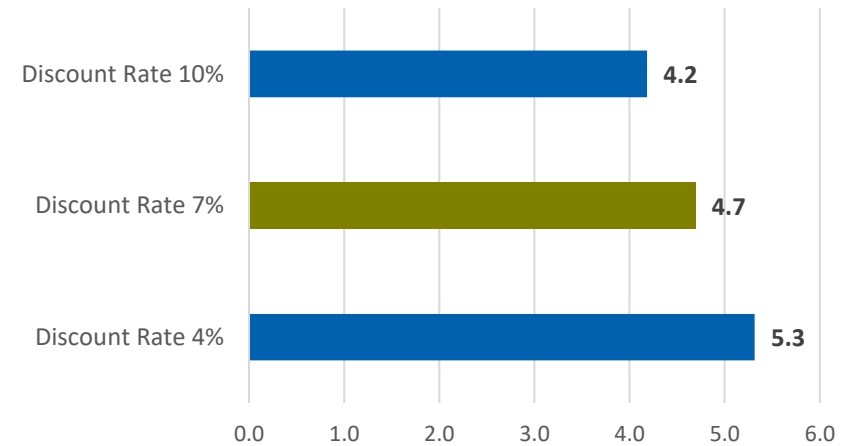
The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates. For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 4.7. The present value of total benefits generated by the investment are 4.7 times the total costs of the project over a 10-year period. If only the direct regional benefit of increase in regional income is included in the benefits, the BCR is 3.0 (for a 7% discount rate).

Figure 38. Case 2 Reduced Trails Network Benefit Cost Ratio (BCR- All Benefits) Warburton Trail Development



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 43. Case 2 Reduced Trails Network Benefits and Cost Analysis 10 Years (Constant prices \$2021)

Case 2 Reduce Trail Network Total Project	Discount Rate	Discount Rate	Discount Rate
Regional Cost Benefit (\$2021 prices) Period : 10Years	4%	7%	10%
Trail Extension			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Benefits (users) (10 years)			
Regional Income Increase	\$89,480,846	\$89,480,846	\$89,480,846
Health Benefits (Vic Users)	\$31,475,768	\$31,475,768	\$31,475,768
User Value (shadow user price)	\$18,510,519	\$18,510,519	\$18,510,519
Total Benefits	\$139,467,133	\$139,467,133	\$139,467,133
Total Benefits (\$) Present Value	\$116,368,001	\$102,702,209	\$91,585,820
Net Present Value (\$) Total Benefits	\$94,480,501	\$80,814,709	\$69,698,320
Benefit Cost Ratio (BCR - All Benefits)	5.3	4.7	4.2
NPV/Cost	4.3	3.7	3.2
Regional Income Only (PV)	\$74,464,097	\$65,675,785	\$58,481,289
BCR (Regional Income only)	3.4	3.0	2.7

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

13 Operations Phase - Case 3 No Drop A K Trail Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region. This analysis is for the trail network with no Drop A K trail.

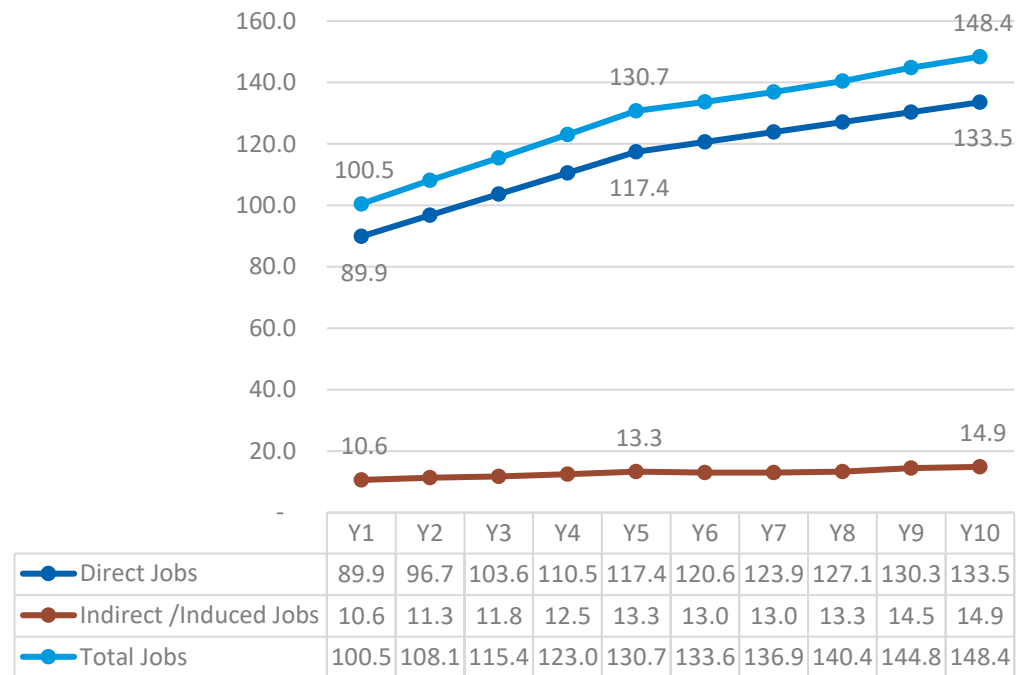
MCA’s regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.⁷⁷

13.1 Employment Impacts

The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups.

- The operation of the trails would generate a total of 100.5 full-time equivalent jobs in year 1, increasing to 148.4 FTE jobs in year 10.
- Of the direct jobs in year 10, day visitors would account for 39.3 FTE jobs, overnight visitors for 109.1 jobs.
- An events program would create an equivalent of 13.5 FTE additional jobs in year 10 (see Appendix B).
-

Figure 39. Case 3 No Drop A K Jobs Generated by Trail Operations (no events) (FTE no.)

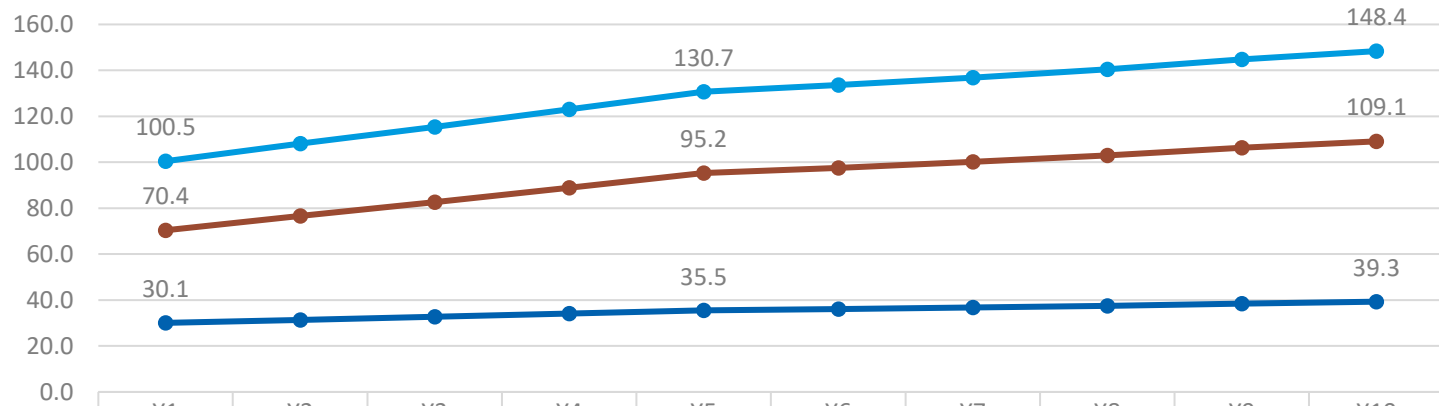


SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING

⁷⁷ The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to : the GST (10%); and a

significant component of the value of services and products purchased by visitors comes from outside the region (e.g., food ingredients, soft drinks, beer, consumer products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Figure 40. Case 3 No Drop A K Trail Total Jobs Generated (no events) (FTE no.)



	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors - Total Jobs	30.1	31.4	32.8	34.1	35.5	36.1	36.7	37.5	38.5	39.3
Overnight Visitors - Total Jobs	70.4	76.7	82.6	88.9	95.2	97.6	100.2	102.9	106.3	109.1
Total Jobs	100.5	108.1	115.4	123.0	130.7	133.6	136.9	140.4	144.8	148.4

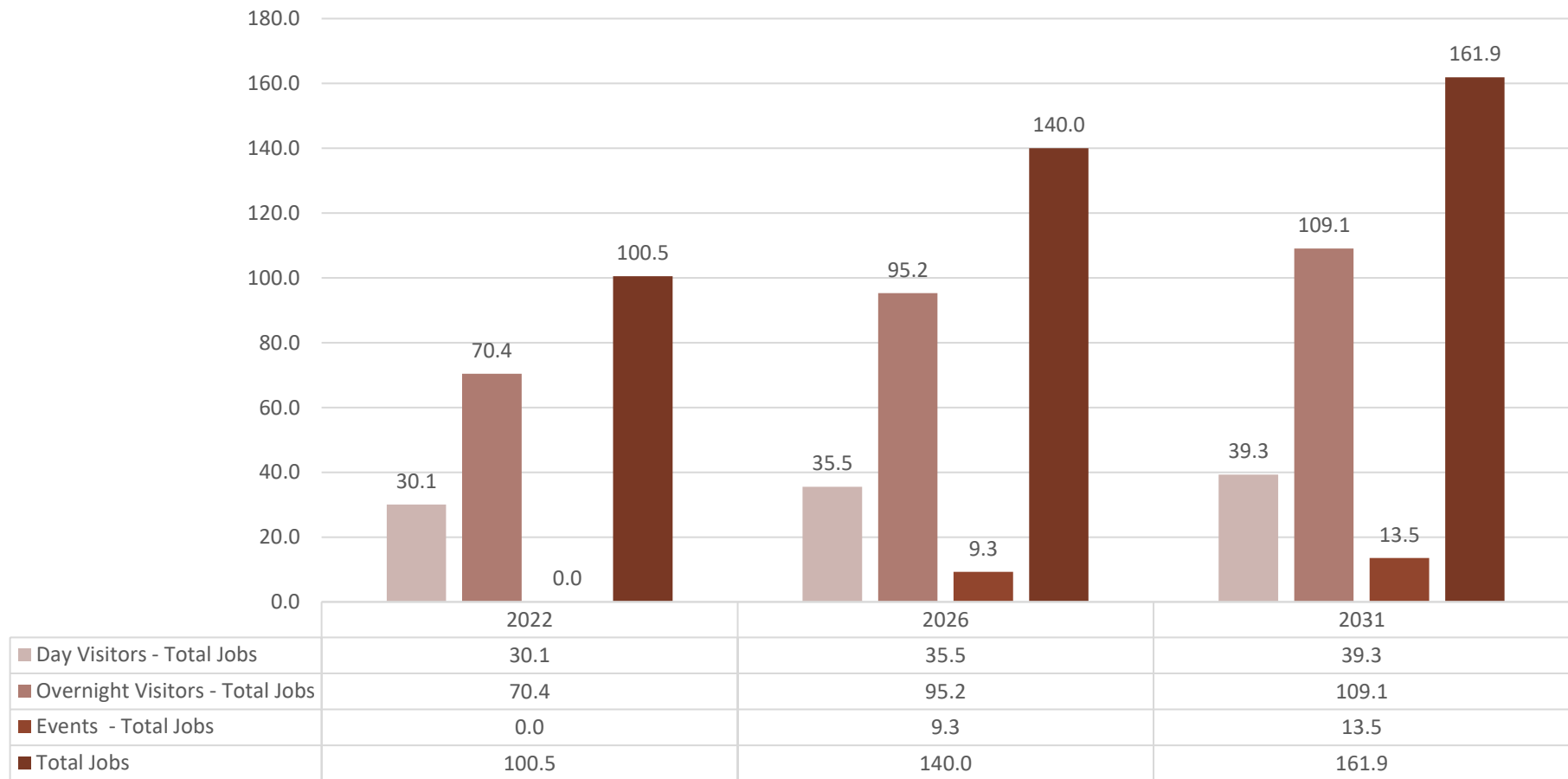
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 44. Case 3 No Drop A K Trail Jobs Generated by Trail Operations (no events) (FTE no.)

Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	26.6	27.8	29.0	30.2	31.4	32.0	32.7	33.4	34.1	34.8
Indirect/Induced	3.5	3.6	3.8	3.9	4.1	4.0	4.0	4.1	4.4	4.5
Total Jobs - Day Visitors	30.1	31.4	32.8	34.1	35.5	36.1	36.7	37.5	38.5	39.3
Overnight Visitors – Trail Users										
Direct Jobs	63.3	69.0	74.7	80.4	86.1	88.6	91.1	93.7	96.2	98.7
Indirect/Induced	7.1	7.7	8.0	8.6	9.2	9.0	9.0	9.3	10.1	10.4
Total Jobs - Overnight Visitors	70.4	76.7	82.6	88.9	95.2	97.6	100.2	102.9	106.3	109.1
Total Visitors – Trail Users										
Direct Jobs	89.9	96.7	103.6	110.5	117.4	120.6	123.9	127.1	130.3	133.5
Indirect/Induced	10.6	11.3	11.8	12.5	13.3	13.0	13.0	13.3	14.5	14.9
Total All Jobs	100.5	108.1	115.4	123.0	130.7	133.6	136.9	140.4	144.8	148.4

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 41. Case 3 No Drop A K Trail Total Job (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 45. Case 3 No Drop A K Total Jobs Generated by Trail Operations (FTE no.)

Case 3: No Drop A K Trail	Year 1	Year 5	Year 10
Day Users/Visitors			
Direct Jobs	26.6	31.4	34.8
Indirect/Induced Jobs	3.5	4.1	4.5
Total Jobs	30.1	35.5	39.3
Overnight User/Visitors			
Direct Jobs	63.3	86.1	98.7
Indirect/Induced Jobs	7.1	9.2	10.4
Total Jobs	70.4	95.2	109.1
Events			
Direct Jobs	0	7.4	11.1
Indirect/Induced Jobs	0	1.9	2.5
Total Jobs	0	9.3	13.5
Total All Users/Visitors (no events)			
Direct Jobs	89.9	117.4	133.5
Indirect/Induced Jobs	10.6	13.3	14.9
Total Jobs	100.5	130.7	148.4
Total All Users/Visitors (with events)			
Direct Jobs	89.9	124.8	144.5
Indirect/Induced Jobs	10.6	15.2	17.4
Total Jobs	100.5	140.0	161.9

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

13.2 Jobs by Industry

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

The following table shows estimates for day visitors and overnight visitors.

The development of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 36.4 jobs
- transport (including shuttles) 14.2 FTE jobs
- accommodation 39.2 jobs
- food and beverage 42.7 jobs.
-
-

Table 46. No Drop A K Trail Total Jobs Generated by Industry (no events) (FTE no.)

Case 3 No National Park Trails	Year 1	Year 5	Year 10
All Jobs			
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	10.4	12.3	13.6
Other retail	3.1	3.7	4.1
Health	0.3	0.4	0.4
Transportation	3.6	4.2	4.7
Communication	0.1	0.1	0.1
Recreation Services/Other Services	12.0	14.1	15.6
Education	0.2	0.2	0.2
Miscellaneous	0.4	0.5	0.5
Total	30.1	35.5	39.3
Overnight Visitors			
Accommodation	25.1	34.2	39.2
Food & Beverage	18.7	25.4	29.0
Other retail	5.0	6.7	7.7
Health	0.6	0.7	0.8
Transportation	6.2	8.4	9.6
Communication	0.2	0.3	0.3
Recreation Services/Other Services	13.4	18.1	20.8
Education	0.3	0.4	0.5
Miscellaneous	0.8	1.1	1.2
Total	70.4	95.2	109.1
Total All Jobs			
Accommodation	25.1	34.2	39.2
Food & Beverage	29.1	37.7	42.7
Other Retail	8.1	10.4	11.8
Health	0.9	1.1	1.2
Transportation	9.8	12.6	14.2
Communication	0.3	0.4	0.4
Recreation Services/Other Services	25.3	32.2	36.4
Education	0.5	0.6	0.7
Miscellaneous	1.2	1.6	1.7
Total	100.5	130.7	148.4

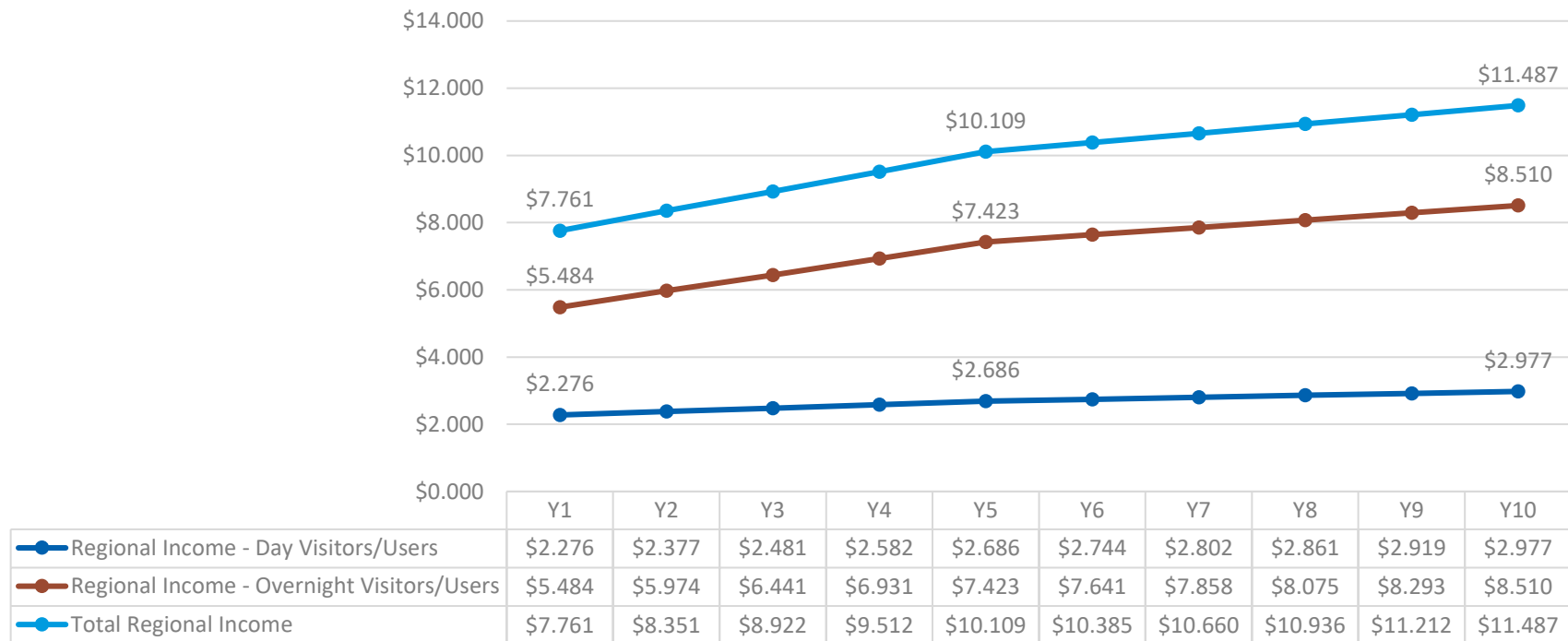
SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

1.1 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals \$6.4 million in year 1, increasing to \$9.4 million in year 10.⁷⁸

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is \$2.3 million in year 1 and \$2.9 million in year 10. Overnight users/visitors boost total regional income by \$4.1 million in year 1 and \$6.4 million in 2031.

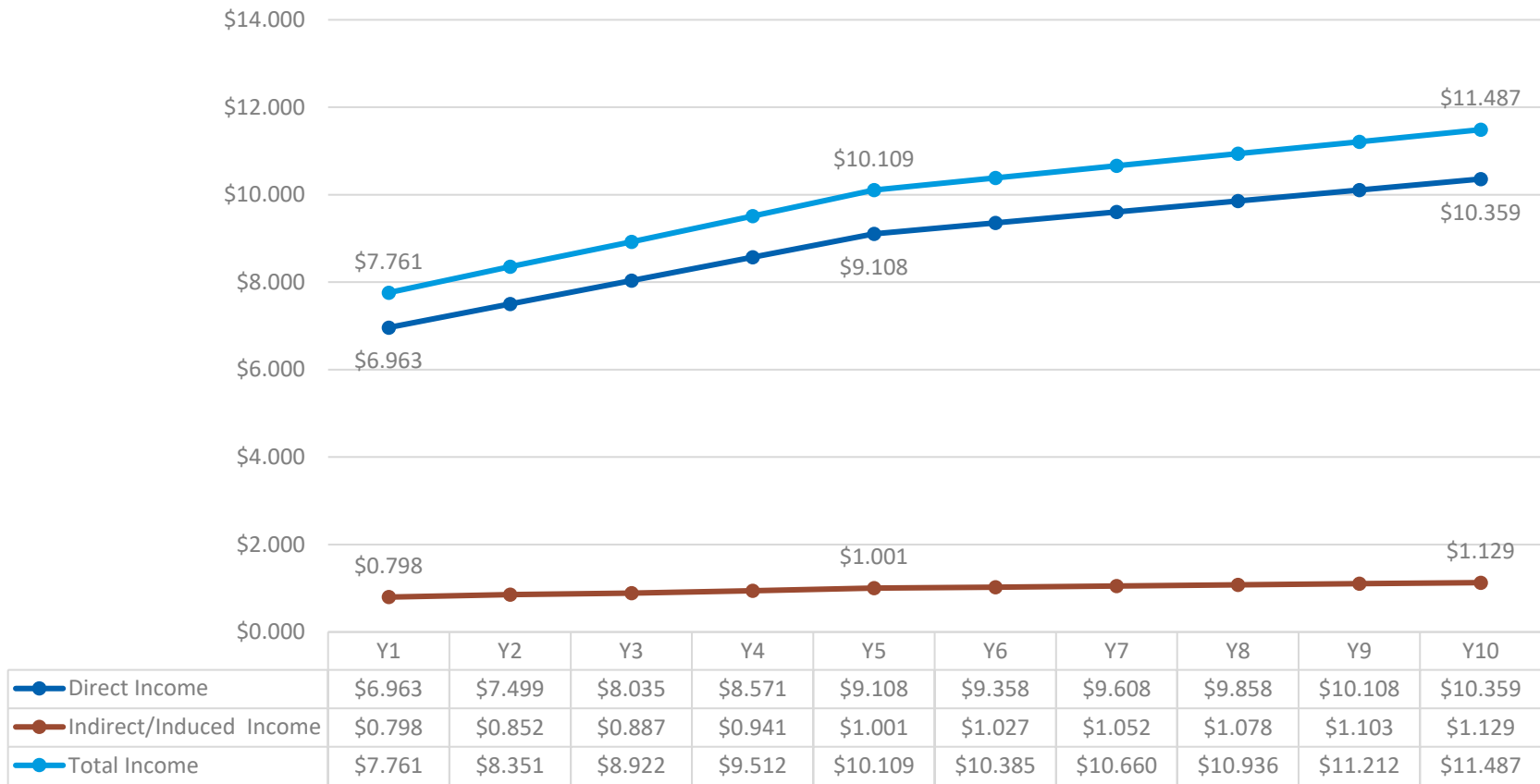
Figure 42. Case 3 No Drop A K Trail Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

⁷⁸ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated income tax and GST on spending, are both treated as leakages from the region.

Figure 43. Case 3 No Drop A K Trail – Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 47. Case 3 No Drop A K Regional Income Generated (\$million 2021 prices)

Case 3 Regional Income \$ million (2021 prices)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Day Visitors											
Direct Income	\$2.013	\$2.104	\$2.194	\$2.284	\$2.374	\$2.426	\$2.479	\$2.531	\$2.583	\$2.635	\$23.622
Indirect/Induced	\$0.263	\$0.274	\$0.287	\$0.298	\$0.312	\$0.318	\$0.324	\$0.330	\$0.336	\$0.342	\$3.083
Total Income	\$2.276	\$2.377	\$2.481	\$2.582	\$2.686	\$2.744	\$2.802	\$2.861	\$2.919	\$2.977	\$26.706
Overnight Visitors											
Direct Income	\$4.950	\$5.396	\$5.842	\$6.288	\$6.734	\$6.932	\$7.129	\$7.327	\$7.525	\$7.723	\$65.845
Indirect/Induced	\$0.535	\$0.578	\$0.599	\$0.643	\$0.690	\$0.709	\$0.728	\$0.748	\$0.767	\$0.786	\$6.784
Total Income	\$5.484	\$5.974	\$6.441	\$6.931	\$7.423	\$7.641	\$7.858	\$8.075	\$8.293	\$8.510	\$72.629
Total Visitors											
Direct Income	\$6.963	\$7.499	\$8.035	\$8.571	\$9.108	\$9.358	\$9.608	\$9.858	\$10.108	\$10.359	\$89.468
Indirect/Induced	\$0.798	\$0.852	\$0.887	\$0.941	\$1.001	\$1.027	\$1.052	\$1.078	\$1.103	\$1.129	\$9.867
Total Income	\$7.761	\$8.351	\$8.922	\$9.512	\$10.109	\$10.385	\$10.660	\$10.936	\$11.212	\$11.487	\$99.335

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Over 10 years all trail users boosted regional income by \$99.335 million .

Table 48. Case 3 No Drop A K Trail Regional Income Generated 10 Years (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$23.622	\$65.845	\$89.468
Indirect/Induced Income	\$3.083	\$6.784	\$9.867
Total Income	\$26.706	\$72.629	\$99.335

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

1.2 Cost Benefit Analysis Case 3 No Drop A K Trail

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

13.2.1 Trail Costs 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million (see Appendix D).

Increase in Regional Income

The increase in regional income generated by trail users spending over a 10-year period totals \$81.360 million (in constant \$2021 prices).

Table 49. Case 3 No Drop A K Trail Regional Income Generated by Trail Users (\$million 2021 prices)

Case 2 Regional Income	Day Visitors/Users	Overnight Visitors/Users	Total Visitors/Users
Total 10 Years	\$m	\$m	\$m
Direct Income	\$23.622	\$65.845	\$89.468
Indirect/Induced Income	\$3.083	\$6.784	\$9.867
Total Regional Income	\$26.706	\$72.629	\$99.335

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).⁷⁹

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices (and average of \$10 per hour) and 4 hours for advanced and experts. Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$42.1 million (in constant prices \$2021) over the 10-year period or an average of \$4.2 million per year.

⁷⁹ Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 50. Case 3 No Drop A K Health Benefit Estimates (\$million 2021 prices)

Case 3	Health Benefits Valuation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Ave hours	\$ million 2020 prices											
2.5	Beginner	\$0.603	\$0.648	\$0.692	\$0.737	\$0.781	\$0.804	\$0.826	\$0.848	\$0.870	\$0.892	\$7.701
2.5	Novice	\$0.850	\$0.906	\$0.962	\$1.019	\$1.075	\$1.104	\$1.134	\$1.163	\$1.192	\$1.222	\$10.626
4	Intermediate	\$1.632	\$1.713	\$1.794	\$1.875	\$1.956	\$1.995	\$2.033	\$2.071	\$2.110	\$2.148	\$19.327
4	Advance & Expert	\$0.480	\$0.501	\$0.523	\$0.545	\$0.566	\$0.577	\$0.588	\$0.599	\$0.610	\$0.620	\$5.609
	Total All	\$3.564	\$3.768	\$3.972	\$4.175	\$4.379	\$4.480	\$4.580	\$4.681	\$4.782	\$4.882	\$43.263
4	Interstate & Internationals	\$0.406	\$0.525	\$0.644	\$0.762	\$0.881	\$0.922	\$0.962	\$1.003	\$1.044	\$1.085	\$8.234
	Total less interstate & internationals	\$3.158	\$3.243	\$3.328	\$3.413	\$3.498	\$3.558	\$3.618	\$3.678	\$3.738	\$3.798	\$35.029

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Consumer/User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$22.1 million (constant prices \$2021) over 10 years for all trail users or an average of \$2.2 million per year.

Table 51. Case 3 No Drop A K Trail Consumer Value Estimates (\$million 2021 prices)

Case 3 Consumer Value \$ million 2020 prices	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Beginner	\$0.362	\$0.389	\$0.415	\$0.442	\$0.469	\$0.482	\$0.495	\$0.509	\$0.522	\$0.535	\$4.621
Novice	\$0.510	\$0.544	\$0.577	\$0.611	\$0.645	\$0.663	\$0.680	\$0.698	\$0.715	\$0.733	\$6.376
Intermediate	\$0.612	\$0.642	\$0.673	\$0.703	\$0.734	\$0.748	\$0.762	\$0.777	\$0.791	\$0.806	\$7.248
Advance & Expert	\$0.180	\$0.188	\$0.196	\$0.204	\$0.212	\$0.216	\$0.220	\$0.225	\$0.229	\$0.233	\$2.103
Total All	\$1.664	\$1.763	\$1.862	\$1.961	\$2.060	\$2.109	\$2.158	\$2.208	\$2.257	\$2.307	\$20.347

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

13.2.2 Cost Benefit Analysis

All Benefits

The following table and chart show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

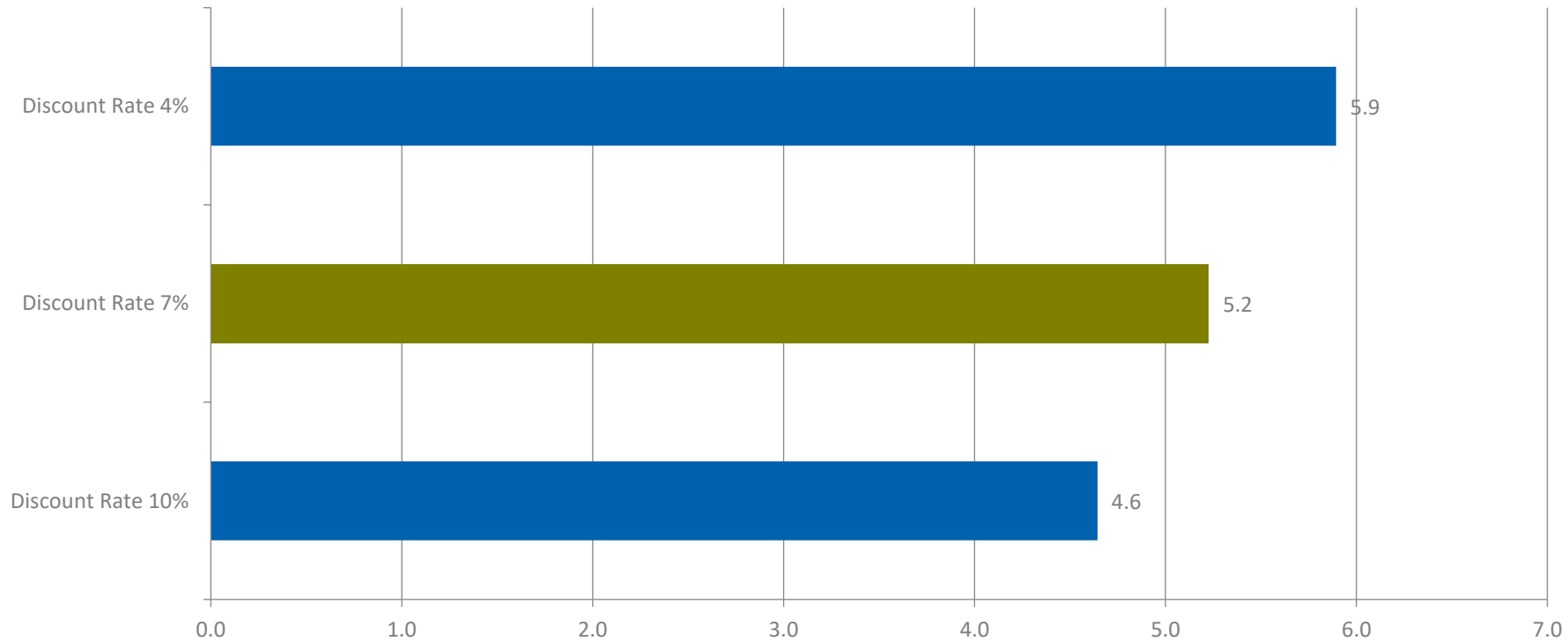
Table 52. Case 3 No Drop A K Trail Benefits and Cost Analysis 10 Years (Constant 202 prices)

Case 3 No Drop A K Trail Total Project	Discount Rate	Discount Rate	Discount Rate
Regional Cost Benefit (\$2021 prices) Period : 10Years	4%	7%	10%
Trail Extension			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Benefits (users) (10 years)			
Regional Income Increase	\$99,334,711	\$99,334,711	\$99,334,711
Health Benefits (Vic Users)	\$35,028,607	\$35,028,607	\$35,028,607
User Value (shadow user price)	\$20,347,339	\$20,347,339	\$20,347,339
Total Benefits	\$154,710,656	\$154,710,656	\$154,710,656
Total Benefits (\$) Present Value	\$128,985,934	\$114,397,967	\$101,635,957
Net Present Value (\$) Total Benefits	\$107,098,434	\$92,510,467	\$79,748,457
Benefit Cost Ratio (BCR – All Benefits)	5.9	5.2	4.6
NPV/Cost	4.9	4.2	3.6
Regional Income Only			
Regional Income Only (PV)	\$82,670,806	\$72,926,567	\$64,956,741
BCR (Regional Income only)	3.8	3.3	3.0

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates (for all trail benefits). For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 5.2. The present value of total benefits generated by the investment are 5.2 times the total costs of the project over a 10-year period. If only the direct regional benefit of increase in regional income is included, the BCR is 3.3 (for a 7% discount rate).

Figure 44. Case 3 No Drop A K Benefit Cost Analysis (BCR) (all benefits)



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021

14 Conclusion

14.1 Insights

14.1.1 Participation

- Top reasons for undertaking MTB experience are for - Health and fitness, being outside in the open air, sightseeing, relaxation, recreation and socialization.
- It is estimated that 1 million people currently participate in mountain biking. Actual likelihood to participate in mountain biking during a holiday experience grows to 6 million Australian adults.
- Membership to mountain bike clubs and MTBA has continued to grow year after year, covering youth and adults from beginner to competition riders.
- The school and event markets are potential areas of growth for Victoria, who rates behind several other states who have higher representation in these sectors.
- Majority of MTB participants are either beginners (13%) older riders looking to undertake a new experience; and intermediate riders (19%) who are undertake recreational activities together with their families.
- 60% of Australians participate in cycling activities at least once per week
- 56% of Australians have at least one bicycle at home in working order
- Cycling is in the Top 5 most popular sports undertaken by Australians
- Victorians have the highest level of cycling participation, accounting for 28.7% of all Australian cyclists
- High value – 20% of cycling participants have an income of over \$200,000 per annum.

14.1.2 Health and wellbeing impacts

- Mountain biking trails with national parks and natural spaces can facilitate the delivering of commitments within the Parks Victoria Healthy Parks Healthy People Framework 2020, Protecting Victoria's Environment: Biodiversity 2037 and Victorian Health and Wellbeing Plan 2019-23.
- Cycling is proven to have substantial benefits on physical and mental health and wellbeing, reducing professional medical expense and interventions.

14.1.3 Environmental benefits

- Cycling supports green transport initiatives and safer off-road options.
- Mountain biking has a relatively low environmental impact. Well-designed trails prevent off trail riding and unsanctioned trail development.
- MTB trails provide opportunities for people to connect with and appreciate nature, resulting in increased awareness and advocacy for protection of our natural spaces.
- Experiences in nature are highly desirable, demonstrated by the increase in intended conversion when an MTB experience within a national park and the value-add of a park ranger talk were offered.
- International and national Code of Conducts exist for mountain bikers, incorporating the importance of environmental respect and Leave No Trace principles.
- There are a range of technologies available to monitor the impact of riders on trails.

-

14.1.4 Economic benefits

- Participation affordability
- Reduced transport costs through Green Transport initiatives
- Improved property prices and liveability benefits
- Flow on benefits for local people and communities offering support services as trail towns and trail hubs.
- Events are also an opportunity to draw awareness and attract increased participation on MTB trails
- Nature based tourism and experiences within national parks are proven to increase visitation and economic benefits for protected area management and local communities.
- COVID-19 is demonstrating strong uptake in outdoor recreational activities, with huge growth in Australia and globally in bicycle purchase and participation in cycling.

National Parks and protected areas are committed to providing sustainable trail experiences, evidenced by substantial funding commitments both in the past and on the horizon in MTB trails.

The economic benefits of the full development of the planned Warburton MTB project outweigh the benefits of the reduced project.

-

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Marsden Jacobs Associates, January 2016

APPENDIX A MODELLING AND SPENDING ASSUMPTIONS

MODELLING ASSUMPTIONS

Table 53. Trail Use Modelling Assumptions

Modelling	Description	Source
Population Data	Population projections by LGA 2021 to 2031. Note 2021 estimates are assumed to apply for year 1, when Stage 1 trail becomes operational.	Victoria in Future 2019 (VIF2019) projections by LGA, June 2019
Mountain Bike Participants	Estimate for LGAs based on 1.4% participation rate for year 2. (AusPlay Survey 2019) Assumed increase to 1.5% 2026; and 1.7% in year 10.	Participation rate: 1.4% AusPlay Survey Results January 2019 - December 2019. Released 30 April 2020 (and re-issued 24 June 2020) Assumed increases with MTB becoming more popular as a sport/recreation activity.
Participant Types	<p>Categories</p> <ul style="list-style-type: none"> • Beginner • Novice • Intermediate • Advance & Expert <p>Shares applied to all regional groupings to provide estimates of number of riders by type. (See Table A.2)</p>	Based on I & R survey data Report Page 16
Catchment Areas for Trails	Based on clustering of LGAs into regions	Clusters based on LGA locations
Interstate /internationals/other regional/intrastate	Numbers are assumed and increase over time	MCA assumptions
Likelihood of visiting the trails	% of MTB participants that would visit the Warburton Trails. <ul style="list-style-type: none"> • Differences in assumptions for regions are based on proximity. • Likelihood of visiting trails increases as trails network is extended. (see Table A.3)	MCA assumptions
Number of uses of trails per year (Ave rides per year)	Assumptions based on proximity to trails. Adjacent areas and eastern metropolitan areas would have more average rides. Average annual rides are assumed for each local government area/cluster.	MCA assumptions

Modelling	Description	Source
Interstate /internationals/other regionals. Intrastate (Ave rides per visit = 2)	Assumes they are mainly overnight visitors (80%) and use trails over 2 days = average 2 rides during stay.	MCA assumptions
International visitors	Covid-19 limitations on international visitors in 2022. Assumes zero in year 1; increasing to 6000 in 2026; and 8000 in year 10.	MCA assumptions
Spending in Region	Base on average spending rates (see Table A.4)	

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021

The assumptions users in modelling Case 2: Reduced Trails Network are in Table A.5.

Table 54. Trail User Categories

Experience Level	Total (n=702) 100%	Melbourne (n=302) 43%	Rest of Vic (n=100) 14%	Sydney (n=200) 28%	New Zealand (n=100) 14%
Beginner	23%	22%	23%	23%	25%
Novice	30%	33%	33%	30%	27%
Intermediate	36%	36%	34%	35%	39%
Advanced & Expert	11%	10%	10%	13%	9%
Total	100%	100%	100%	100%	100%

SOURCE: WARBURTON MTB TRAIL ADDITIONAL RESEARCH -QUANTITATIVE FINDINGS, INSTINCT AND REASON, MAY 2021

Table 55. Trail Use Assumptions Base Case – Likely to Visit and Type of Visit

Regions	Visit Trails			Type of Visit	
	Likely Visit	Likely Visit	Likely Visit	Overnight visit	Day Visit
	Year 1	Year 5	Year 10		
Local -Yarra Ranges					
Beginner	75%	80%	90%	0%	100%
Novice	75%	80%	90%	0%	100%
Intermediate	75%	80%	90%	0%	100%
Advance & Expert	75%	80%	90%	0%	100%
Adjacent Regional					
Beginner	60%	60 %	60 %	20%	80%
Novice	60%	60 %	60 %	20%	80%
Intermediate	60%	60 %	60 %	20%	80%
Advance & Expert	60%	60 %	60 %	20%	80%
Adjacent Urban					
Beginner	50%	55 %	60 %	20%	80%
Novice	50%	55 %	60 %	20%	80%
Intermediate	50%	55 %	60 %	20%	80%
Advance & Expert	50%	55 %	60 %	20%	80%
Eastern Suburbs					
Beginner	50%	.55 %	55 %	30%	70%
Novice	50%	.55 %	55 %	30%	70%
Intermediate	50%	.55 %	55 %	30%	70%
Advance & Expert	50%	.55 %	55 %	30%	70%
Northern Suburbs					
Beginner	40%	45 %	45 %	30%	70%
Novice	40%	45 %	45 %	30%	70%
Intermediate	40%	45 %	45 %	30%	70%
Advance & Expert	40%	45 %	45 %	30%	70%
Other - West	20%	25%	25 %	40%	60%
Beginner	20%	25%	25 %	40%	60%
Novice	20%	25%	25 %	40%	60%
Intermediate	20%	25%	25 %	40%	60%
Advance & Expert	20%	25%	25 %	40%	60%
South East					

Regions	Visit Trails			Type of Visit	
	Likely Visit	Likely Visit	Likely Visit	Overnight visit	Day Visit
	Year 1	Year 5	Year 10		
Beginner	30%	30%	40%	30%	70%
Novice	30%	30%	40%	30%	70%
Intermediate	30%	30%	40%	30%	70%
Advance & Expert	30%	30%	40%	30%	70%
Other Regional/Intrastate					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%
Interstate					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%
Internationals					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021

SPENDING ASSUMPTIONS

Assumptions are based on a combination of TRA 2019 data for Yarra Ranges Shire and experience with other MTB trail networks.

- Overnight spend: \$167 (TRA data average spend); \$217 is a simple average of \$167 average spend for domestic overnight visitors and spend per night commercial accommodation (\$245). Intermediates and advance & expert spend more on average
- Assumed that intermediates and advance & expert riders stay an average of 3 nights and beginners and novices an average of 2 nights.

Table 56. Spending Assumptions

			Case 1 : Base Case	Case 2: Reduce Trails Network	Case 3 : No Drop A K Trail
Modelling Assumptions	Day	Overnight	Duration Stay - Overnights	Duration Stay - Overnights	Duration Stay - Overnights
Spending	Ave Spend	Ave Spend	Ave Nights	Ave Nights	Ave Nights
Yarra Ranges (\$)					
Beginner	\$30	\$167	na	na	na
Novice	\$30	\$167	na	na	na
Intermediate	\$50	\$217	na	na	na
Advance & Expert	\$50	\$217	na	na	na
Adjacent Urban					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Eastern Suburbs					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Northern Suburbs					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Other - including West					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5

			Case 1 : Base Case	Case 2: Reduce Trails Network	Case 3 : No Drop A K Trail
Modelling Assumptions	Day	Overnight	Duration Stay - Overnights	Duration Stay - Overnights	Duration Stay - Overnights
Spending	Ave Spend	Ave Spend	Ave Nights	Ave Nights	Ave Nights
South East					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Adjacent Regional					
Beginner	\$50	\$167	2	1.5	1.5
Novice	\$50	\$167	2	1.5	1.5
Intermediate	\$88	\$217	3	2.5	2.5
Advance & Expert	\$88	\$217	3	2.5	2.5
Other Regional					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Interstate					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5
Internationals					
Beginner	\$88	\$167	2	1.5	1.5
Novice	\$88	\$167	2	1.5	1.5
Intermediate	\$120	\$217	3	2.5	2.5
Advance & Expert	\$120	\$217	3	2.5	2.5

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021 & TRA SPENDING DATA

Case 2 Reduced Trail Network – Modelling Assumptions

The reduced trails network (no national park trails and drop) would result in lower levels of trail use by visitors from outside the region (mainly by the more experienced riders).

For estimating the impacts of these changes in the trails network, the following changes were made for the Case 2 modelling. These were based on the findings of the instinct and reason surveys (December 2020 & May 2021) in relation to impacts of removing all National Park Trails .

These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays. The changes in the modelling assumptions used are outlined in the following table.

Table 57. Case 2 Reduced Trail Network Assumptions

Case 2: Reduced Trails Network – No National Park Trails		
Changes to Modelling Assumptions	Adjustment	
MTB Participation rate	Held at 2019 population average of participation rate of 1.4% In base case the rate was increased to 2026 1.5%; and 2031 1.7% .	MCA assumption
Likely to visit Warburton Trails	Visit rate (%) held at year 1 level in year 5 and year 10 for Intermediate and Advance & Expert categories	MCA assumption
Yarra Ranges Locals	No change in users due to proximity to trails	
Reduction in Trail User Visits	Covers: metro, regional, intrastate and internationals (Reductions on Base Case)	
Beginner	Reduce trail user numbers by 8%	Composite: I and R survey findings May 2021 & I and R survey findings December 2020 ⁸⁰
Novice	Reduce trail user numbers by 21%	
Intermediate	Reduce trail user numbers by 33.5%	
Advance & Expert	Reduce trail user numbers by 21.5%	
Overnight Stays (Ave)	Reductions on Base Case	
Beginner	Reduce from 2 nights to 1.5 nights stay	MCA assumptions
Novice	Reduce from 2 nights to 1.5 nights stay	
Intermediate	Reduce from 3 nights to 2.5 nights stay	
Advance & Expert	Reduce from 3 nights to 2.5 nights stay	

SOURCE: MCA MODELLING, JULY 2021

⁸⁰ Warburton MTB trail research - quantitative findings, instinct and reason, December 2020 ; Warburton MTB trail additional research -quantitative findings, instinct and reason, May 2021
[Developing Warburton as a World Class Mountain Bike Destination, and Economic Feasibility Study](#) | Three Case Economic Impact Assessment – Spend Assumption 1 (TRA)

Case 3 No Drop A K Modelling Assumptions

The removal of the Drop A K Trail would result in lower levels of trail use by visitors from outside the region (with reductions in all user categories, particularly Novices and Intermediates). For estimating the impacts of these changes in the trails network, the following changes were made for the Case 3 modelling. These were based on the findings of the *instinct and reason* survey (May 2021) in relation to impacts of removing National Park Trails. Compared with the Base Case projections, these changes would lead to a reduction in visits in all rider categories, a slower growth in user numbers and likely reductions in average length of overnight stays in the region. The changes in the modelling assumptions used are outlined in the following table.

Table 58. Case 3 No Drop A Trail Assumptions

Case 3 : No Drop A K Trail		
Changes to Modelling Assumptions	Adjustment	
MTB Participation rate	Held at 2019 population average of participation rate of 1.4% In base case the rate was increased to 2026 1.5%; and 2031 1.7% .	MCA assumption
Likely to visit Warburton Trails	Visit rate (%) held at year 1 level in year 5 and year 10 for Intermediate and Advance & Expert categories	MCA assumption
Yarra Ranges Locals	No change in users due to proximity to trails	
Reduction in Trail User Visits	Covers: metro, regional , intrastate and internationals (Reductions on Base Case)	
Beginner	Reduce trail user numbers by 8%	I and R survey findings May 2021 ⁸¹
Novice	Reduce trail user numbers by 13%	
Intermediate	Reduce trail user numbers by 20%	
Advance & Expert	Reduce trail user numbers by 8%	
Overnight Stays	Reductions on Base Case	
Beginner	Reduce from 2 nights to 1.5 nights stay	MCA assumptions
Novice	Reduce from 2 nights to 1.5 nights stay	
Intermediate	Reduce from 3 nights to 2.5 nights stay	
Advance & Expert	Reduce from 3 nights to 2.5 nights stay	

SOURCE: MCA MODELLING, JULY 2021

⁸¹ Warburton MTB trail additional research -quantitative findings, instinct and reason, May 2021

APPENDIX B - EVENT ANALYSIS

The follow shows the modelling of major events and associated spending in the region. It is assumed that events held are: 1 event is held in year 2; 2 in year 3; 4 in years 4-5; and 6 events in years 7-10. All are assumed to attract 300 participants and additional spectators/accompanying persons of 2 per participant. Total spending by participants and spectators/accompanying persons increases from \$777,600 in year 2 to \$2.333 million from year 7 onwards.⁸²

Table 59. Assumptions Used in Modelling Events

Event Modelling	Assumptions
Events & Participants	All Events are 3 days
Number of Events (per year)	Year 1 = 0; Year 2=2; Years 4-5=4 ; Years 6-10 =6 All 3 -day events
Number of participants	Ave. 300 per event
Accompanying Persons/Spectators	Average 2 per participant
Visitor types	
Day Visitors	20%
Overnight visitors	80% Stay = 3 nights; assume twin share
Spending	
Day visitors (average per person)	\$120 per day (constant prices \$2020)
Overnight Visitors (average per person)	\$300 per day (constant prices \$2020)

SOURCE: MCA MODELLING & ESTIMATES, SEPT 2020

Table 60. Spending in Region from Trails Events Years 1 to 10 (estimates)

Events	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
10 Year Analysis										
No. Events	0	2	4	4	4	6	6	6	6	6
Participants										
Participants per event		300	300	300	300	300	300	300	300	300
Total participants	0	600	1200	1200	1200	1800	1800	1800	1800	1800
Accompanying persons										
(Ave 2 per participant)	0	1200	2400	2400	2400	3600	3600	3600	3600	3600
Total Participants & Accompanying Persons	0	1800	3600	3600	3600	5400	5400	5400	5400	5400
Visitor Types										
Day visitors (20%)	0	360	720	720	720	1080	1080	1080	1080	1080
Overnight visitors (80%)	0	1440	2880	2880	2880	4320	4320	4320	4320	4320
Stay overnight (3 nights)	0	4320	8640	8640	8640	12960	12960	12960	12960	12960
Room nights	0	2160	4320	4320	4320	6480	6480	6480	6480	6480

⁸² Spending is in constant prices - 2020 dollars

Events	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
10 Year Analysis										
(Assume Twin Share)										
Spending in Region (\$ 2021 prices)										
Day Visitors	\$0	\$129,600	\$259,200	\$259,200	\$259,200	\$388,800	\$388,800	\$388,800	\$388,800	\$388,800
Overnight visitors	\$0	\$648,000	\$1,296,000	\$1,296,000	\$1,296,000	\$1,944,000	\$1,944,000	\$1,944,000	\$1,944,000	\$1,944,000
Total Spending	\$0	\$777,600	\$1,555,200	\$1,555,200	\$1,555,200	\$2,332,800	\$2,332,800	\$2,332,800	\$2,332,800	\$2,332,800

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021

The jobs generated increase from 5.9 FTE (2 events) to 13.6 FTE (6 events) as the number of events are increased. By their nature events are made of a larger number of short term and casual jobs which aggregate to the annual full time equivalent jobs. One of the advantages of events is that they put the trail network on the map for intermediate and advanced & expert users.

Table 61. Total Jobs Generated by Events (FTE Number)

Jobs Generate by Events	Year 1	Year 2	Year 3-5	Year 6-10
Events	0	2	4	6
Accommodation	0.0	1.6	3.1	4.6
Food & Beverage	0.0	1.6	3.0	4.4
Other Retail	0.0	0.6	0.7	1.0
Health	0.0	0.2	0.2	0.2
Transportation	0.0	0.3	0.3	0.4
Communication	0.0	0	0.0	0.0
Recreation Services/Other Services	0.0	1.1	1.8	2.6
Education	0.0	0.1	0.1	0.1
Miscellaneous Services	0.0	0.2	0.2	0.3
Total	0.0	5.9	9.3	13.6

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

APPENDIX C – CATCHMENT AREA REGIONS

The following table shows the LGAs that are included in each of the catchment areas.

Table 62. LGAs in catchment areas

Region	LGAs
Local - Yarra Ranges	Yarra Ranges (S)
Adjacent Regional	Baw Baw (S) Mansfield (S) Murrindindi (S)
Adjacent Urban	Cardinia (S) Casey (C) Knox (C) Maroondah (C) Nillumbik (S)
Eastern Suburbs	Boroondara (C) Manningham (C) Monash (C) Stonnington (C) Whitehorse (C) Yarra (C)
Northern Suburbs	Banyule (C) Darebin (C) Whittlesea (C)
Other & West	Brimbank (C) Hobsons Bay (C) Hume (C) Maribyrnong (C) Melbourne (C) Melton (C) Moonee Valley (C) Wyndham (C)
South East	Bayside (C) Frankston (C) Glen Eira (C) Greater Dandenong (C) Kingston (C) (Vic.) Mornington Peninsula (S)

APPENDIX D PROJECT CAPITAL COSTS

The following are the construction and maintenance costs for the trail network.

Table 63. Total Costs Stage 1 and Stage 1 and 2 Warburton Trails Project – 10 Years (constant prices \$2021)

Summary - 10 Years	Trail Development <\$ 2020 Prices>
Design, Development and Planning Costs	\$2,000,000
Project Cost Stage 1	
Construction	
Trail Construction (105kms)	\$4,200,000
Other Infrastructure	\$7,100,000
Total Construction	\$11,300,000
Maintenance	
Trails	
Annual Maintenance Cost (\$2000 per km – 105 kms) ⁸³	\$210,000
Total (10 years)	\$2,100,000
Other Infrastructure	
Annual Maintenance Cost (1.5% of cost)	\$106,500
Total (10 years)	\$1,065,000
Total Maintenance Cost (10 Years)	\$3,165,000
Total Project Costs Stage 1 (10 Years)	
Total Construction & Maintenance (Stage 1)	\$14,465,000
Project Cost Stage 2	
Construction	
Trail Construction (76kms)	\$3,040,000
Other Infrastructure	\$750,000
Total Construction	\$3,790,000
Maintenance	
Trails	
Annual Maintenance Cost (\$2000 per km – 76 kms) ⁸⁴	\$152,000
Total (10 years)	\$1,520,000
Other Infrastructure	

⁸³ TRAIL MAINTENANCE COST \$2000 PER KM/YEAR . WARBURTON DRAFT MASTER PLAN REPORT, JANUARY 2020, YARRA RANGES COUNCIL

⁸⁴ TRAIL MAINTENANCE COST \$2000 PER KM/YEAR . WARBURTON DRAFT MASTER PLAN REPORT, JANUARY 2020, YARRA RANGES COUNCIL

Summary - 10 Years	Trail Development <\$ 2020 Prices>
Annual Maintenance Cost (1.5% of cost)	\$11,250
Total (10 years)	\$112,500
Total Maintenance Cost (10 Years)	\$1,632,500
Total Project Costs Stage 2 (10 Years)	
Total Construction & Maintenance (Stage 2)	\$5,422,500
Project Cost Development & Stage 1 & 2	
Construction	
Design, Development and Planning Costs	\$2,000,000
Trail Construction Trails	\$7,240,000
Infrastructure Costs	\$7,850,000
Total Construction	\$17,090,000
Maintenance	
Trails	\$3,620,000
Other Infrastructure	\$1,177,500
Total Maintenance (10 Years)	\$4,797,500
Total Project Costs 10 Years	
Total Design, Construction & Maintenance	\$21,887,500

SOURCE: YARRA RANGES COUNCIL SEPTEMBER 2020



Attachment 1

Warburton MTB Destination Economic Impact Assessment Spend Assumption 2 – Derby (Xyst) Survey Data

**Three Case Economic Impact Assessment
– Spend Assumption 2 (XYST Spend Data)**



August 2021

This report was prepared by TRC Tourism for Yarra Ranges Shire Council in relation to the development of Warburton MTB Destination. It provides an Economic Impact Assessment for 3 Cases and average expenditure data is based on a combination of mountain biker survey data (XYST Survey 2021) and the Tourism Research Australia LGA Profile for Yarra Ranges.

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ACKNOWLEDGEMENT

We acknowledge the Indigenous peoples of the lands, waters and communities we work together with. We pay our respects to their cultures; and to their Elders – past, present and emerging.

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Executive Summary

This report provides an economic impact assessment of the proposed Warburton MTB Trails development using the spending assumptions based on unpublished survey data from Derby undertaken by Xyst Pty Ltd. The modelling is based on estimates of annual uses/users of the trails and other assumptions utilised in quantifying spending and benefits in the region.

This report is an attachment to the main report – ‘**Developing Warburton as a World Class Mountain Bike Destination, and Economic Feasibility Study.**’

It is attached due to the nature of the data being used in the assumptions. The unpublished survey data used in this attachment is felt to reflect user and visitor spending more accurately in mountain bike destinations, but it has not been published.

Accordingly, the TRA spend data is used as the main body of economic work, with this attachment included as a reference document.

Average expenditure levels are used in the modelling for trail users (who are visitors to the region) and based on mountain bike survey data from Derby in Tasmania, Tourism Research Australia (TRA) data for tourism visitors to the Yarra Ranges LGA.¹

The analysis is for a 10-year period of operations. Three cases are examined:

- Case 1 Base Case: Full Trails Network - covering the full development of the trails network
- Case 2 Reduced Trail Network, with no trails in the National Park Areas,
- Case 3 with No Drop A K trail.

¹ Local Government Area Profiles, 2019, Yarra Ranges (S) LGA, Tourism Research Australia . Mountain Bikers, Derby Tasmania Survey Data, XYST May 2021

In modelling of trail users, we have drawn of the market segment profile from the surveys conducted by instinct and reason.²

The Warburton Trails will generate substantial positive economic benefits for the Yarra Ranges LGA during the construction phase and in the operations phase.

1.1 Trails Use

The modelling has identified the potential number of trail users over a 10-year period of operations.

- For Case 1 Base Case Full Trails Network, user numbers would increase from 131,217 in year1 to 221,454 in year 10.
- For Case 2: Reduced Trails Network (no national park trails) , user numbers would increase from around 110,700 in year 1 to 140,000 in year 10.
- For Case 3: No Drop A K Trail, user numbers would increase from around 110,900 in year 1 to 153,800 in year 10.

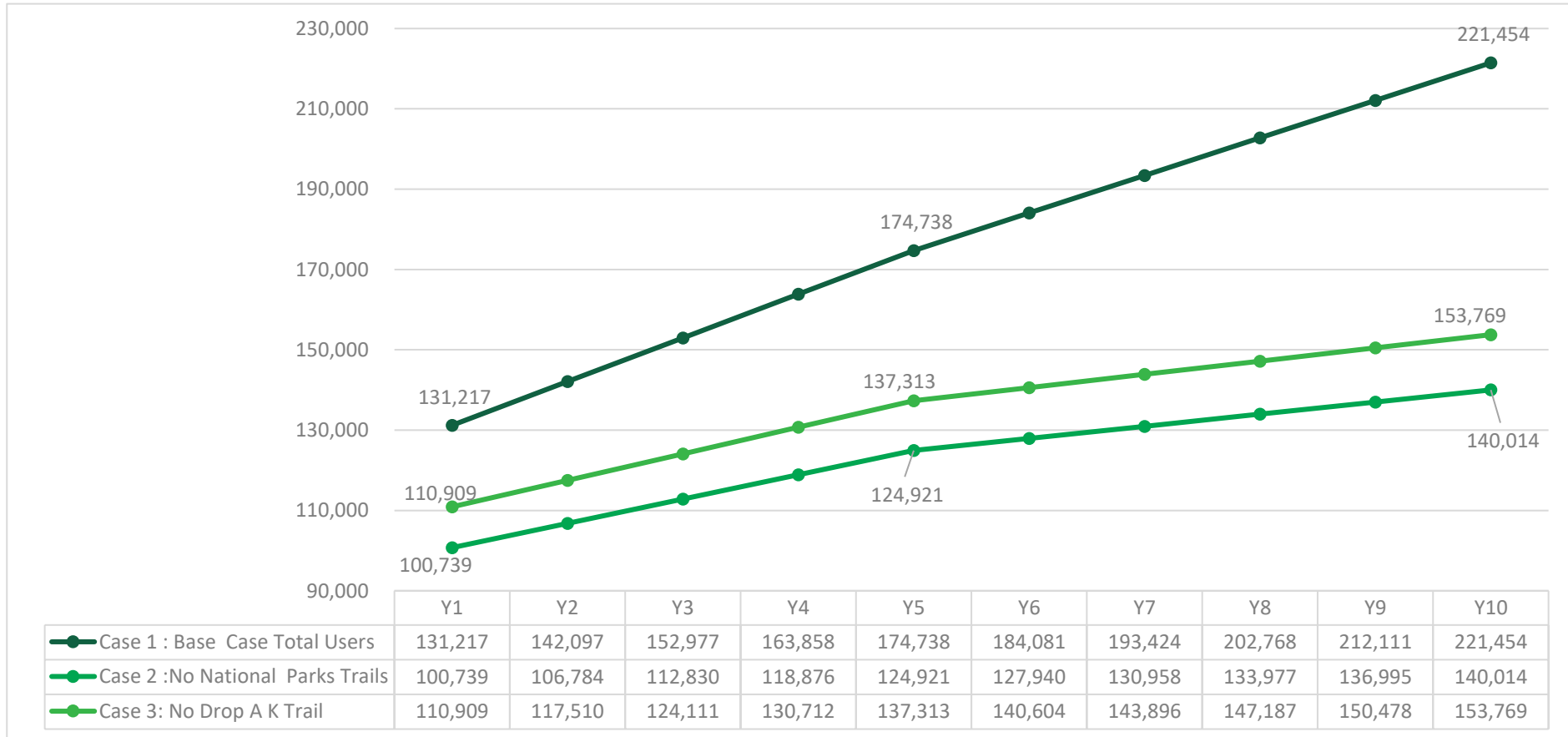
Around two thirds of trail users would be day visitors and one third overnight visitors. The trails will generate a significant increase in visitors to the region and provide a major boost to accommodation and food service businesses.

The differences are show in the following charts. Case 2 delivers significantly lower visitor numbers compared with the Case 1 Base Case, with a difference in year 10 of around 81,000 annual users. For Case 3, visitor numbers in year 10 are around 68,000 lower than the Base Case.

These differences have impacts on trail users, spending in the region, jobs generated, regional income generated and benefit cost ratios (BCRs).

² Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 & Additional Findings May 2021.

Figure 1. Warburton Trails Network – Total Trail Users Years 1-10



SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

1.2 Regional Spending

For **Case 1: Base Case Full Trails Network** - estimated spending in the Yarra Ranges LGA by trail users would increase from \$31.1 million in year 1 (\$24.2 million overnights and \$6.8 million day visitors) to \$55.0 million in 2031 (\$43.7 million overnights and \$11.4 million day visitors).

For **Case 2: Reduced Trails Network (no National Park Trails)** - estimated spending in the Yarra Ranges LGA by trail users would increase from \$19.9 million in year 1 (\$14.6 million overnights and \$5.3 million day visitors) to \$30.7 million in 2031 (\$23.8 million overnights and \$6.9 million day visitors).

For **Case 3: Case 3 No Drop A K Trail**- estimated spending in the Yarra Ranges LGA by trail users would increase from \$21.9 million in year 1 (\$16.1 million overnights and \$5.8 million day visitors) to \$33.9 million in year 10 (\$26.3 million overnights and \$7.6 million day visitors).

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay
- spending on other recreational and tourism services.

1.3 Economic Impacts

The economic impacts of the trail's development are modelled for both the construction phase and the operations phase. The impacts are measured in terms of full-time equivalent jobs (FTE) and the increase in regional income that is generated by trail users and their spending in the region.

1.4 Constructions Phase

In modelling construction jobs, the cost components that are associated with trails and other facilities construction are used, and these total \$15.1 million for Stage 1 and Stage 2.

A total of 84.1 FTE jobs (70.1 direct jobs and 14.1 indirect/induced jobs) would be generated during the construction period. The direct jobs (70.1) comprise 50.3 jobs in on-site construction and 19.8 jobs in materials/equipment supply.

The EEC Report indicates that construction of the trails would be undertaken by teams of 3-4 persons.³

1.5 Operations Phase

The operations phase economic impacts are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader Yarra Ranges region. MCA's regional economic model is used to estimate the employment and income impacts of the trail.

- For Case 1 Base Case, the operation of the trails would generate a total of 146.9 full-time equivalent jobs in year 1, increasing to 258.2 FTE jobs in year 10.
- For Case 2 Reduced Network – No National Park Trails, the operation of the trails would generate a total of 94.4 full-time equivalent jobs in year 1, increasing to 144.6 FTE jobs in year 10.
- For Case 3 No Drop A K, the operation of the trails would generate a total of 104.0 full-time equivalent jobs in year 1, increasing to 159.2 FTE jobs in year 10.

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

³ EES Chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council
P24

1.6 Benefit Cost Analysis

The benefits and costs of the operations of the trails are analysed over a 10 -year period. The benefits are measured by:

- direct - the increase in regional income generated by trail users over a 10-year period
- indirect - the estimated health benefits and the trail user value.

The costs include design and planning costs, construction costs, and asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

A 7% discount rate is appropriate for a trail project. The BCRs including all benefits are:

- Case 1: Base Case yields a positive BCR of 8.2
- Case 2 : Reduced Trail Network yields a positive BCR of 4.9
- Case 3: No Drop A K Trail yields a positive BCR of 5.4.⁴

If only regional income is included the BCRs are:

Case 1 - 4.9

Case 2 - 3.2

Case 3 - 3.5.

⁴ The measured benefits include the increase in regional income, health benefits of exercise and a notional valuation of the consumer benefit of the trail.

2 Introduction

This report provides an economic impact assessment of the development of the Warburton Mountain Bike Trails Network. The results are indicative of the potential benefits from the development and operation of the trail network. The modelling is based on estimates of annual rides/users (in different categories, and other assumptions utilised in quantifying spending in the region.⁵

The modelling has estimated the potential number of trail users over a 10-year period of operations from the completion of the trail network.

Three cases are examined:

- Case 1 Base Case: Full Trails Network - covering the full development of the trails network
- Case 2 Reduced Trail Network, with no trails in the National Park Areas
- Case 3 with no Drop A K trail.

In modelling of trail users, we have drawn of the market segment profile from the surveys conducted by Instinct and Reason.⁶

The economic impacts of the trails arise from:

- spending by these users/visitors in the towns adjacent to the trail and other spending in the broader region
- spending associated with events
- health benefits of active recreation activities
- a notional value of the trails for users.

Visitors from outside the region (particularly overnight visitors/users) generate significant expenditure covering:

- food and beverage
- accommodation (for overnight stayers)
- recreation and other services
- transport.

Average spending per user has been estimated using a combination of LGA level tourist data and the findings of a survey of mountain bikers using trails in Derby Tasmania.

The economic impact analysis has been undertaken by MCA <Michael Connell & Assocs.> - economic consultants.

⁵ Average spending per visitor is based on Tourism Research Data for the Yarra Ranges LGA.

⁶ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 & Additional Findings May 2021.

3 Warburton MTB Trails Development

3.1 Project Objectives

The project involves developing a proposed world-class mountain biking destination centred around Warburton, approximately 70 kilometres north east of Melbourne. The new trails build on the existing informal network of mountain bike trails. Yarra Ranges Council has identified mountain biking as an opportunity for tourism growth within the region, which would also support the region and the health and well-being of its residents. The trails would position Warburton as an internationally significant mountain biking destination and outdoor active destination.

The project objectives are to:

- Facilitate tourism growth and associated positive economic and jobs growth in the Yarra Valley Region
- Create iconic mountain bike trails eligible for International Mountain Bike Association Gold Ride Centre status
- Create spectacular riding experiences that have a competitive advantage over existing mountain bike destinations and leverage Warburton's beautiful township, rural valley and surrounding forested slopes
- Enhance the health and well-being of the community
- Maintain the significant biodiversity and heritage values within the project area and provide opportunities for the community to connect with and appreciate their importance.⁷

⁷ EES chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council . P3

3.2 Project Components

The project consists of approximately 186 kilometres of mountain bike trails providing a range of experiences to suit all levels of riding.

The main project components proposed are:

The proposed mountain bike trail network consists of:

- An upgrade of existing mountain bike trails - approximately 15 kilometres
- new mountain bike trails - approximately 164 kilometres
- existing vehicle roads and tracks to be incorporated into the mountain bike trail network (approximately seven kilometres).

Some of the trails are returning loops, while others are point-to-point trails. A new visitor's hub and main trail head at the Warburton Golf Course is planned, along with new trail head facilities at Mount Tugwell and Mount Donna Buang.⁸

⁸ EES chapter 3 – Project Description Warburton Mountain Bike Destination Project. Yarra Ranges Council P6

3.3 Development Timing

The following is the staging for the development and operations of the Warburton MTB trails. Stage 2 is subject to acquiring future funding. This timing is indicative and is subject to approval processes.

Table 1. Staging of Warburton Trail Development

Warburton MTB Trail	
Staging of Trail	Indicative Timing Only
Construction	
Stage 1	
Construction Stage 1 (110 kms)	Sept 2021
Section 1 35 kms	Sept 2021-Feb 2022
Section 2 35 kms	Mar 2022-Aug 2022
Section 3 35 kms	Sept 2022-Jan 2023
Stage 2	
Construction Stage 2 Section 4 (76 kms)	6 months
Subject to funding - indicative only	Sept 2024-Jan 2025
Operations	
Stage 1	
Section 1 35 kms	March 2022
Section 2 35 kms	Sept 2022
Section 3 35 kms	Feb 2023
Stage 2	
Section 4	Feb.2025

SOURCE: YARRA RANGES SHIRE COUNCIL SEPTEMBER 2020

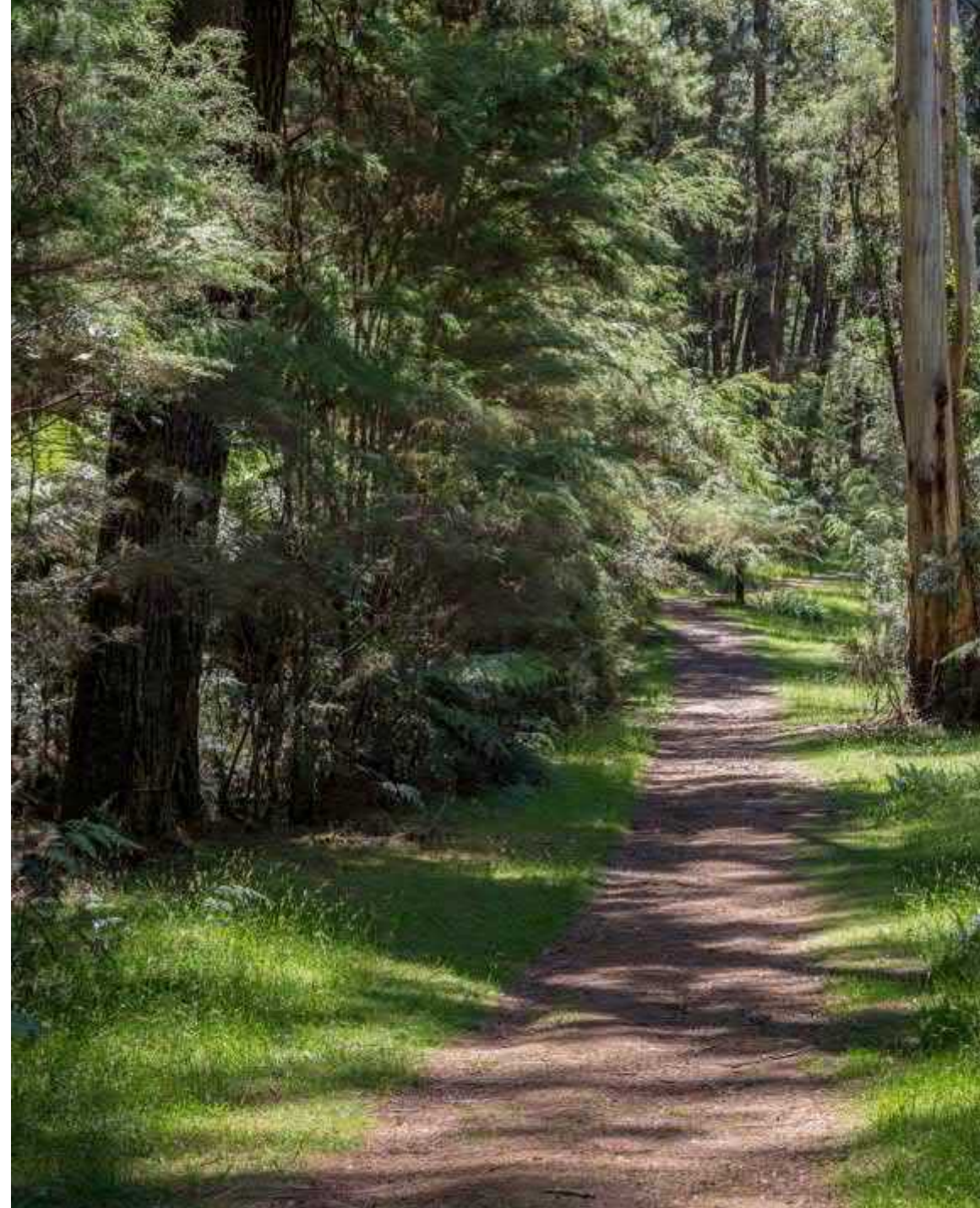
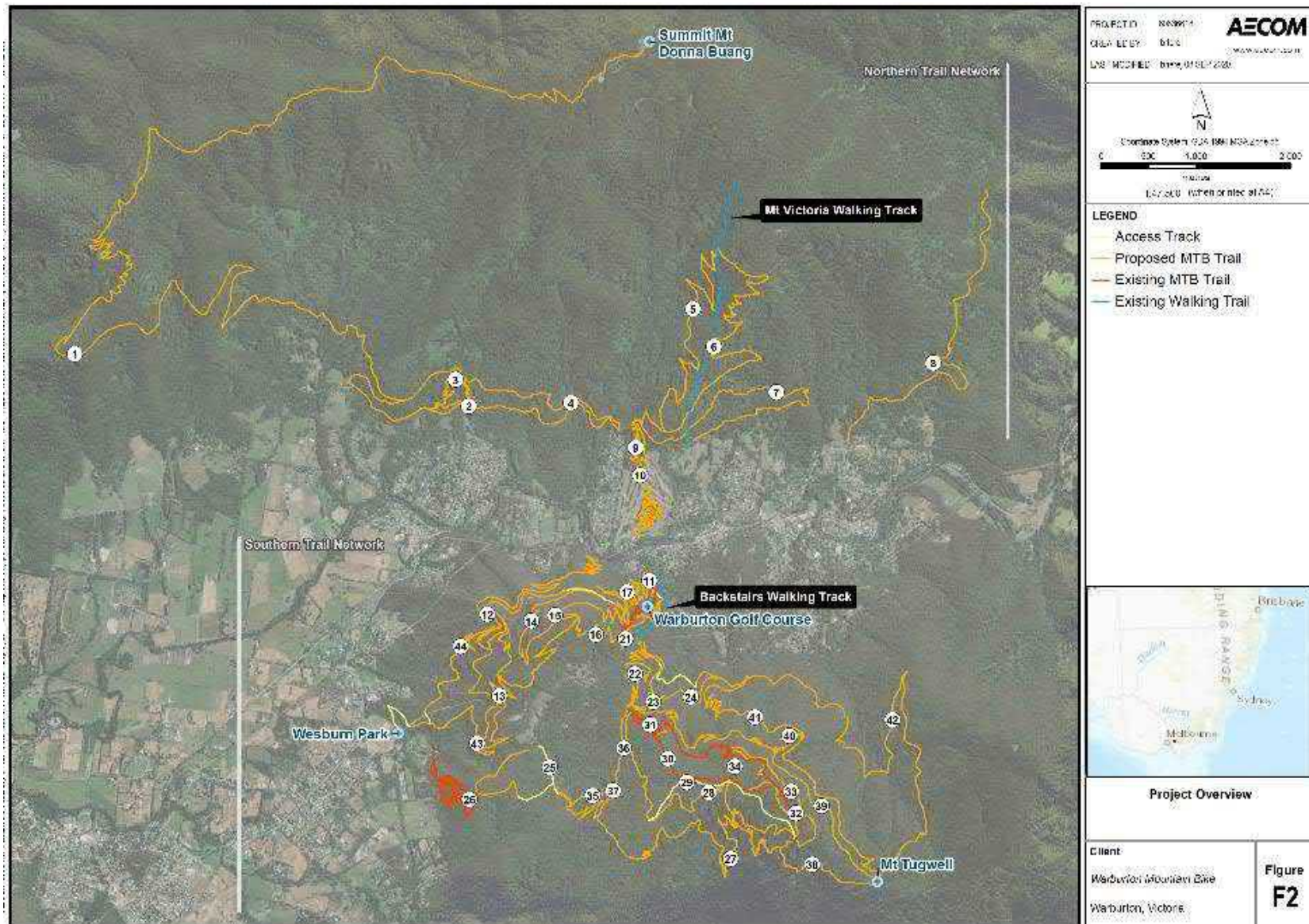


Figure 2. Proposed Network – Yarra Ranges MTB Network



SOURCE: EES CHAPTER 3 – PROJECT DESCRIPTION WARBURTON MOUNTAIN BIKE DESTINATION PROJECT. YARRA RANGES COUNCIL P5

4 Modelling of Trail Operations

For the economic impact assessment, the construction phase (staged over a three-year period) and operations phase from year 1 of trails completion were covered. The operations phase covers trail users over the year. An assessment was also made of potential major state and national events that could be staged.

For operations, the modelling has estimated the potential number of trail users over a 10-year period. Three cases are examined:

- *Case 1 Base Case Full Network* - covering the full development of the trails network
- *Case 2 Reduced Trail Network* - with no trails in the National Park Areas
- *Case 3 No Drop A K Trail* included.

In modelling of trail users, the market segment profiles from the surveys conducted by research company Instinct and Reason are used.⁹

4.1 Mountain Biking Participation

The recent AusPlay survey for 2019 shows that 1.4% of the Australian population participated in mountain biking or a total 289,600 nationally. This participation rate was used to estimate potential users of the Warburton MTB trails network in metro and regional areas. The MTB participation rate is similar to that for ski and snowboarding (1.3%) and around half of that for surfing (2.5%).

The participation rate for mountain biking (1.4%) has been used in the modelling of trail user numbers. At present, males dominate the activity. For the 10-year modelling of operations the participation rate was increased reflecting growth in popularity and more women likely to participate.

⁹ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020. P16; Additional Findings on Drop A K Trail , May 2021.

Table 2. Sport Participation in Australia (2019)

		Age							Males	Females
Activities	Total	15-17	18-24	25-34	35-44	45-54	55-64	65+	Total	Total
Estimate (000s)										
Bush walking	1,310.9	26.6	110.9	304.8	254.2	245.8	222.0	146.5	616.8	694.1
Cycling	2,374.8	44.6	143.9	387.9	472.3	523.3	456.3	346.5	1,510.3	864.5
Mountain biking	289.6	13.0	13.7	57.0	81.6	80.1	34.6	9.8	245.0	44.6
Ski & snowboard	278.8	9.3	18.1	64.1	52.6	59.8	52.5	22.3	172.1	106.7
Surfing	527.6	18.2	43.4	122.1	117.6	114.6	77.8	33.9	391.6	136.0
Participation rate (%)										
Bush walking	6.3%	3.1%	4.6%	8.0%	7.4%	7.6%	7.5%	3.6%	6.0%	6.6%
Cycling	11.5%	5.3%	6.0%	10.2%	13.8%	16.1%	15.5%	8.5%	14.8%	8.2%
Mountain biking	1.4%	1.5%	0.6%	1.5%	2.4%	2.5%	1.2%	0.2%	2.4%	0.4%
Ski & snowboard	1.3%	1.1%	0.8%	1.7%	1.5%	1.8%	1.8%	0.6%	1.7%	1.0%
Surfing	2.5%	2.1%	1.8%	3.2%	3.4%	3.5%	2.6%	0.8%	3.8%	1.3%

SOURCE: AUSPLAY SURVEY RESULTS JANUARY 2019 - DECEMBER 2019. RELEASED 30 APRIL 2020 (AND RE-ISSUED 24 JUNE 2020)

[HTTPS://WWW.CLEARINGHOUSEFORSPORT.GOV.AU/RESEARCH/SMI/AUSPLAY/RESULTS/SPORT](https://www.clearinghouseforsport.gov.au/research/smi/ausplay/results/sport)

4.2 Modelling Assumptions

Trail users were modelled based on several assumptions. Given the proximity of the trails to Melbourne a large number of trail users will be day visitors. Potential user numbers for the trail network have been modelled based on several assumptions listed below. Modelling of events was undertaken separately.

Potential users were estimated based on population data for local government areas, with proximity affecting the likelihood of visiting and the average number of rides per year. The likelihood of visiting the trail was assumed to increase over time as recognition of the trails increase. The analysis was at a local government area level and these LGAs were then clustered into regions.

A range of assumption were utilised in modelling trail user numbers, and these are detailed in Appendix A.

4.3 Summary Comparison of Cases

The results for cases are detailed in the following chapters. The cases are:

1. Case 1 Base Case: Full Trails Network (Chapters 4 & 8)
2. Case 2 Reduced Trails Network (Chapter 5 & 9)
3. Case 3 No Drop a K Trail (Chapter 6 & 10).

In summary, Case 2 Reduced Trails Network (no national park trails) would result in substantially lower levels of trail use by visitors from outside the region (in all rider categories). For Case 3 No Drop a K Trail the impact is not as great.

The changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

The following charts compare the modelling results for the 3 cases. The change in users is based on research by instinct and reason.¹⁰

For Case 2 the National Park Trails are not included. The impacts of this change have been modelled by reducing Intermediate users by 33.5% , Advanced & Expert trail users by 21.5% (compared with the Base Case), reducing Novices by 21%, and Beginners by 8%.

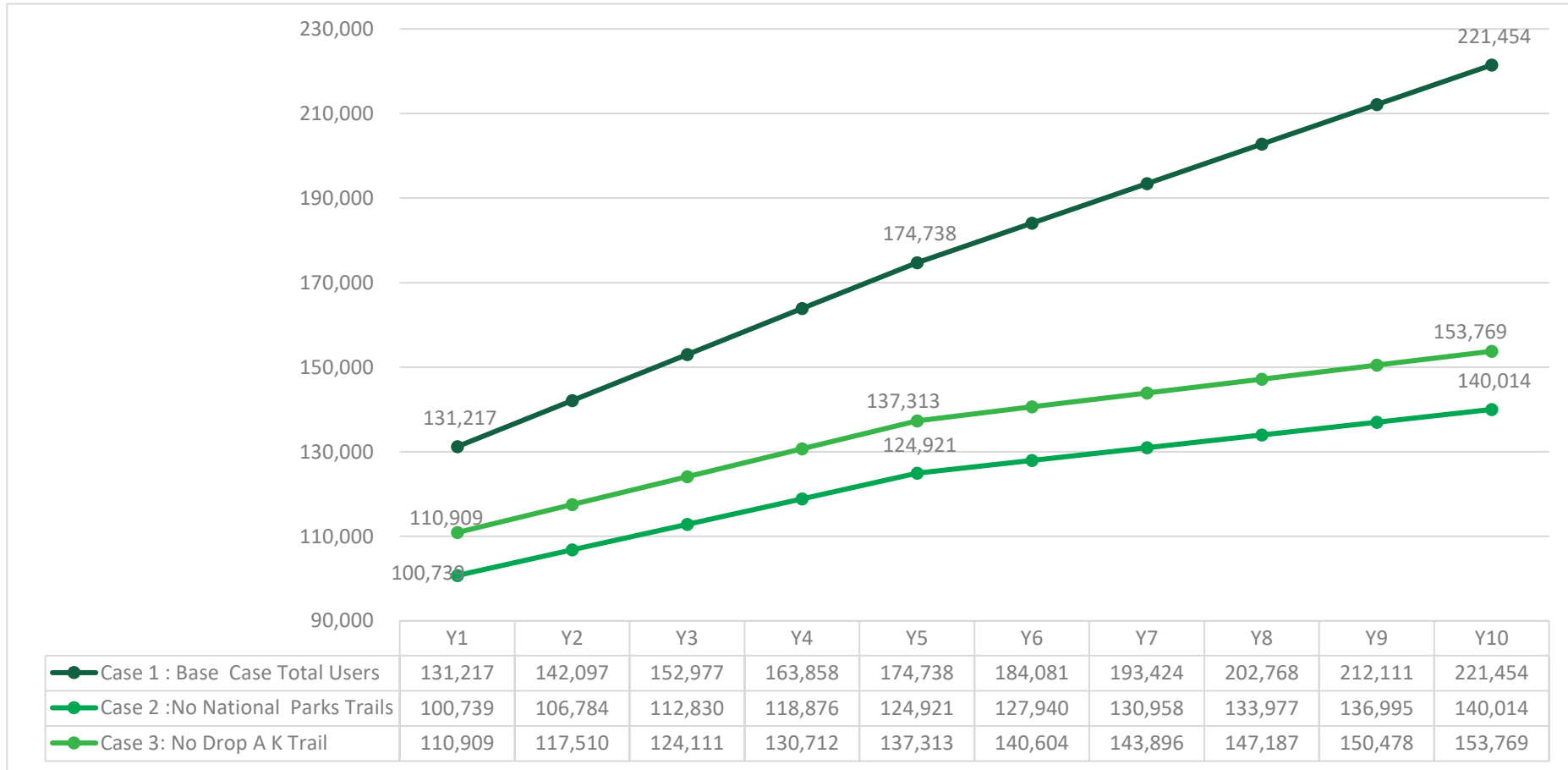
Case 3 No Drop A K Trail, has a different pattern of reductions in users (Beginners -8%, Novices -13%, Intermediates -20%, and Advanced/Expert -8%).

The number of trail users is substantially lower and there is a reduction in length of overnight stays, for both cases.

The changes have impacts on trail users' spending in the region, jobs generated, regional income generated and benefit cost ratios (BCRs). The differences are show in the following charts. Case 2 delivers lower visitor numbers compared with the Case 1 Base Case, with a difference in year 10 of around 81,000 annual users. For Case 3 visitor numbers in year 10 are around 68,000 lower than the Base Case.

¹⁰ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16; Additional Findings on Drop A K Trail , May 2021.

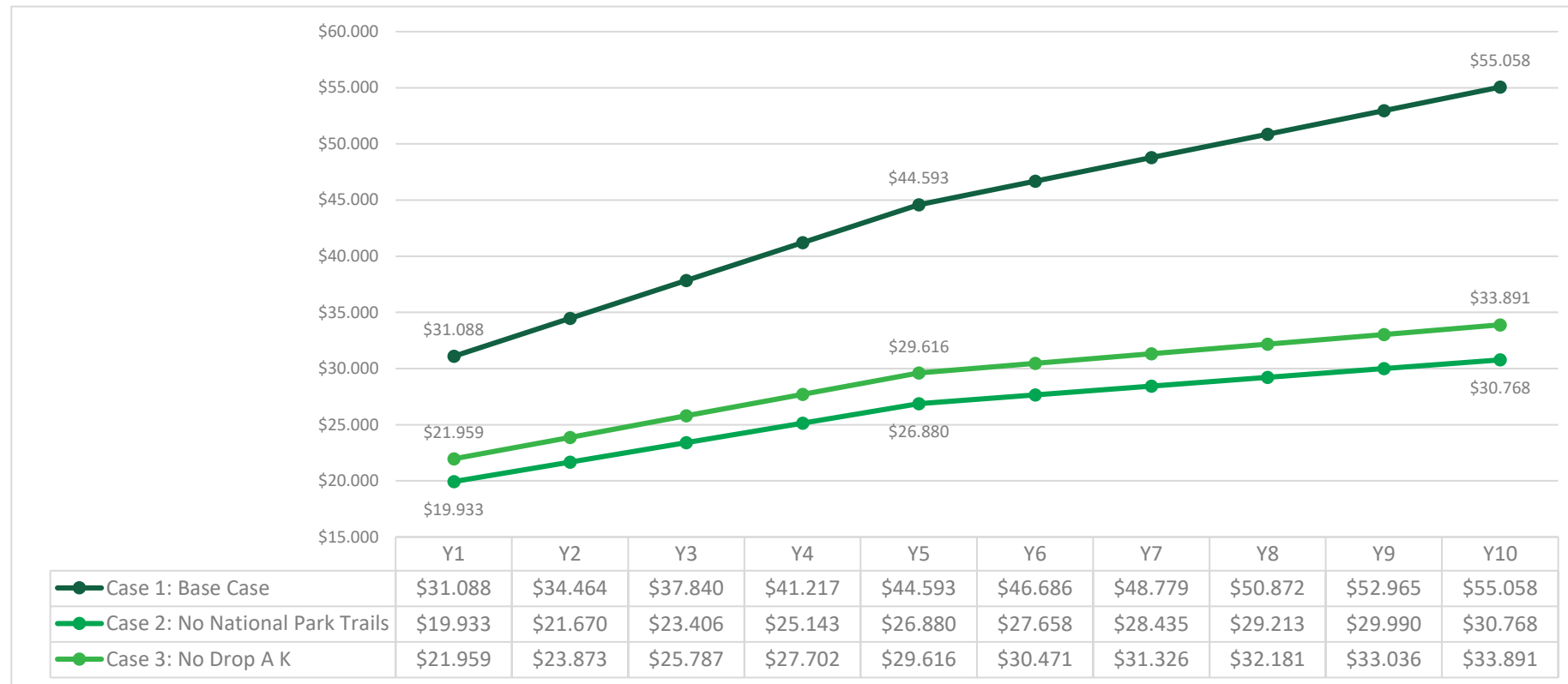
Figure 3. Warburton Trails Network Comparison – Estimated Trail Users Years 1-10



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

As a consequence of the substantially lower user numbers in the categories, and a reduced length of stay, in year 10 trail user spending in the region is around \$24 million lower for Case 2 and \$21 million lower for Case 3.

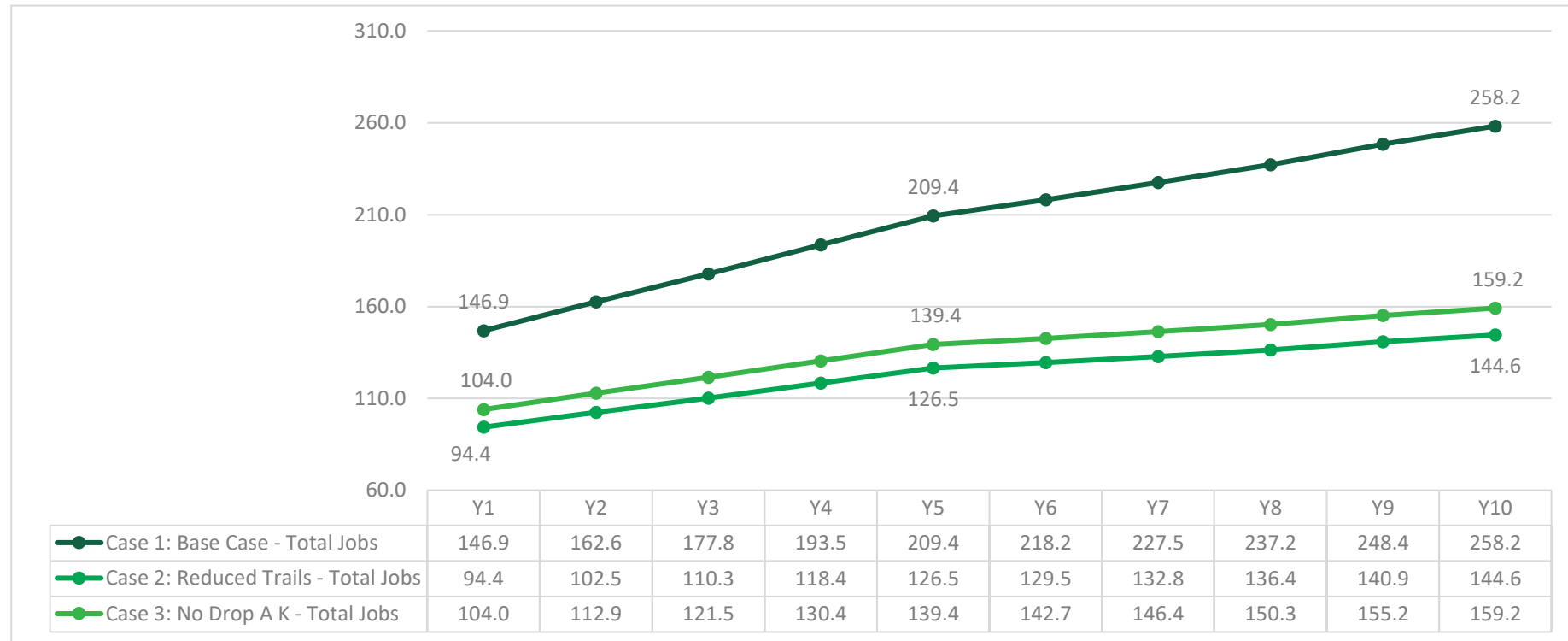
Figure 4. Warburton Trails Network – Spending in Region by Trail Users Years 1-10 (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

As a consequence of lower user numbers, stays and spending, the total jobs generated in the region are lower for Case 2 and Case 3. In year 10 the jobs generated in the region are around 80-100 lower compared with the Base Case (Case 1: Base Case 258 jobs; Case 2 144 jobs; and Case 3 159 jobs).

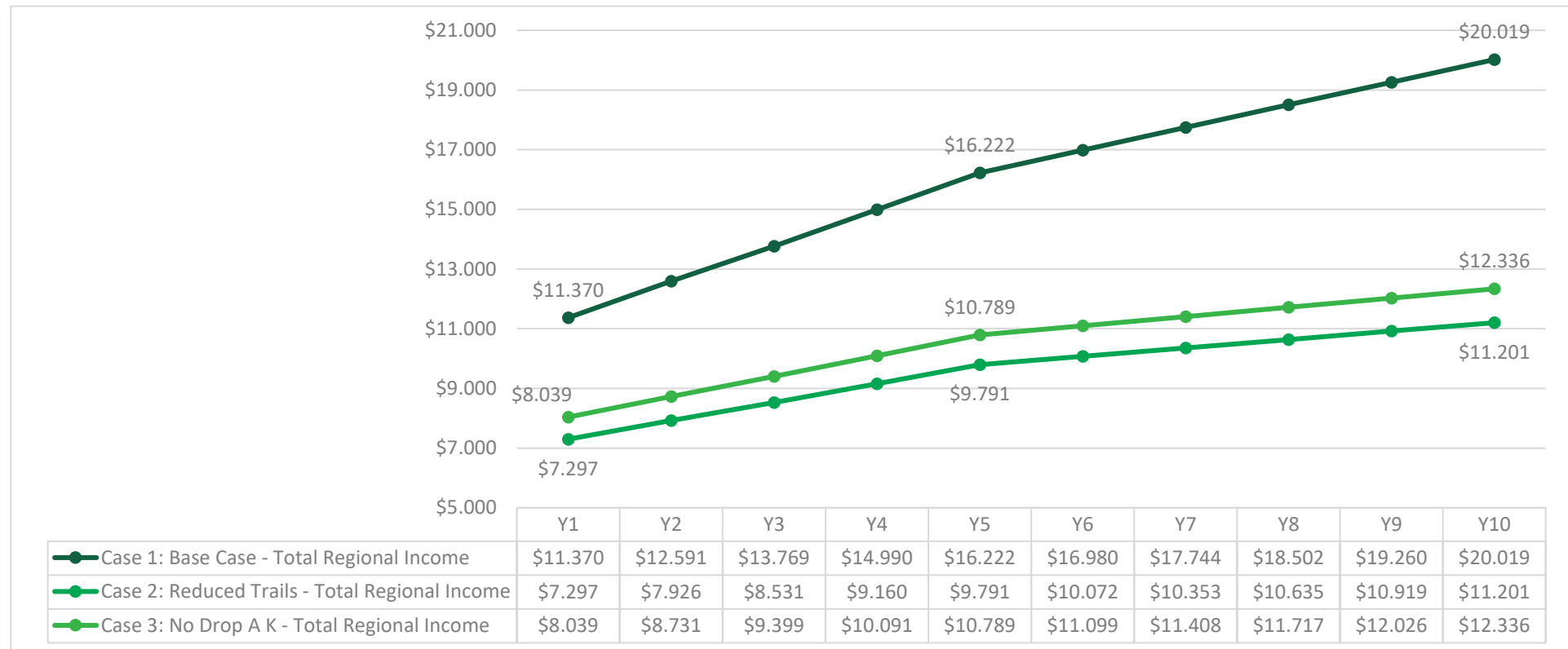
Figure 5. Warburton Trails Network – Total Jobs in Region Generated by Trail Users (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

With the reduced trail network and the consequent lower trail users, spending and length of stays, the regional income generated is lower than for the Base Case (Case 2 \$11.2 million in year 10; Case 3 \$12.3 million compared to Case 1 Base Case around \$20.0 million in year 10).

Figure 6. Warburton Trail Network – Regional Income Generated by Trail Users (\$million 2021 prices)

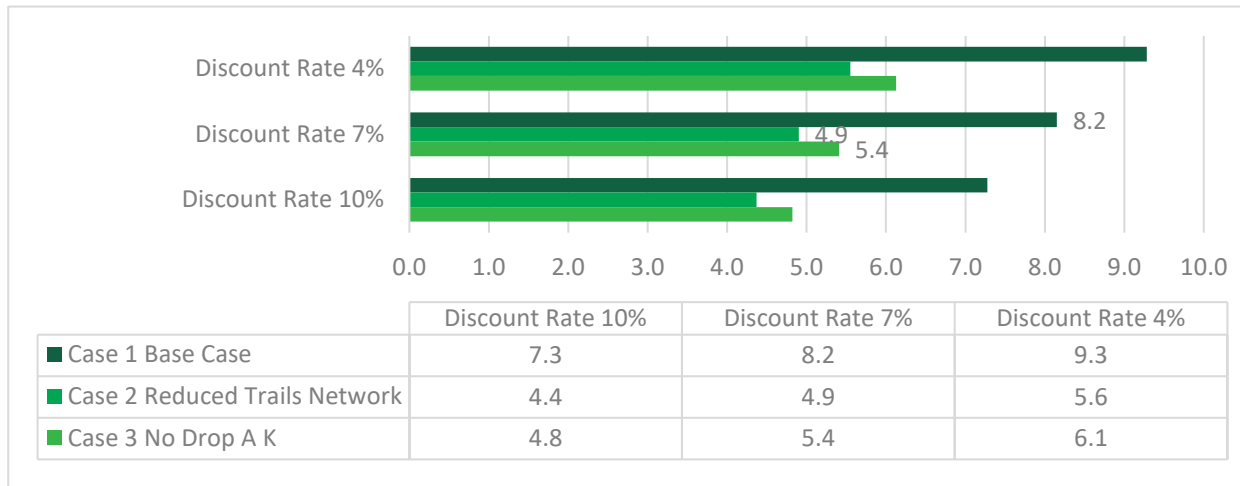


SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

The measurement of benefits includes both direct benefits (the increase in regional income) and indirect benefits (estimated health benefits and the value to users measured by a shadow price of \$15 per ride).

- For Case 2 and Case 3 the benefit cost ratios are lower than those for the Case 1 Base Case. For all benefits a 7% discount rate the BCRs are Case 1 8.2 and Case 2 4.9 and Case 3 5.4.
- If only regional income is included the BCRs are Case 1 4.9 and Case 2 3.2 and Case 3 3.5.

Figure 7. Benefit Cost Ratios (BCR) – Warburton Trails Development (All Benefits)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 8. Benefit Cost Ratios (BCR) – Warburton Trails Development (Regional Income Only)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

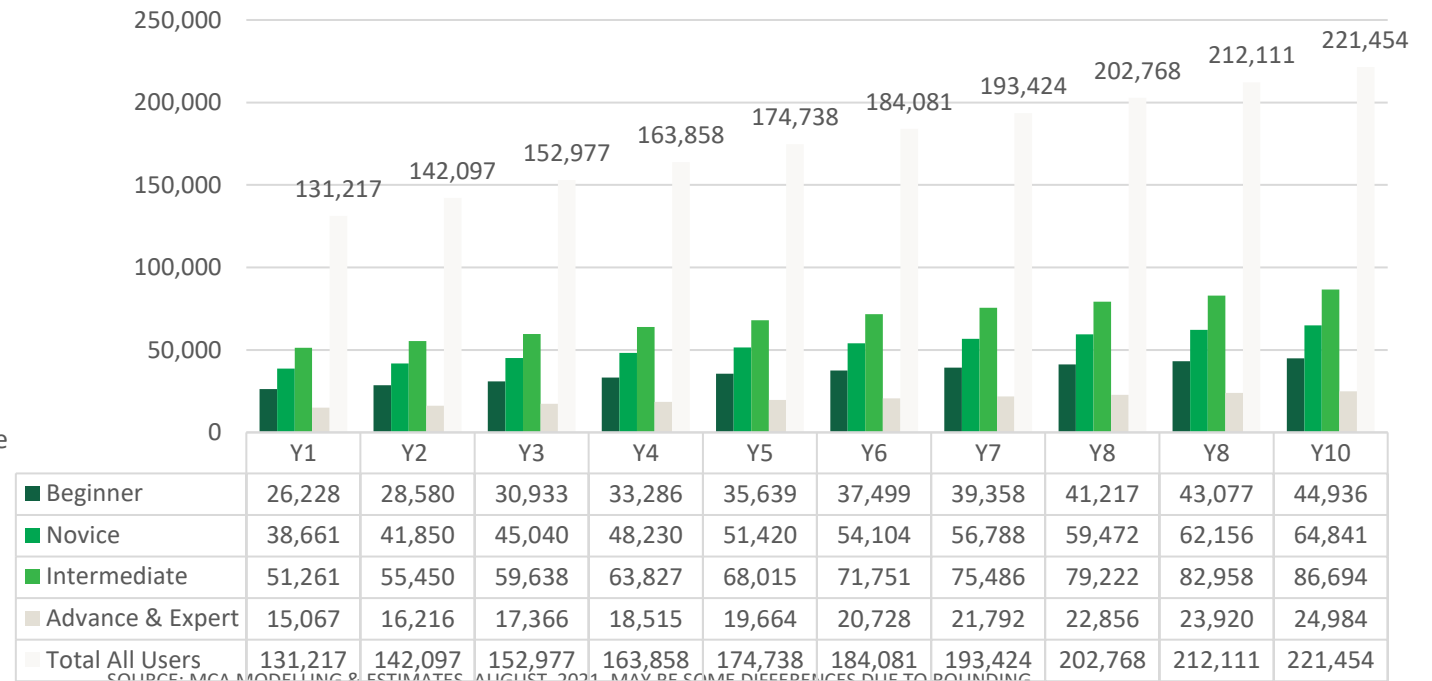
5 Case 1: Base Case Full Trail Network – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 1 Base Case - Full Trail Network, which includes trails in the National Park and the Drop A K trail.

5.1 Trail User Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 131,200 in year 1 to 178,700 in year 5 and reach 221,500 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. This represents a significant increase in visitors to the region, in this specialised category of trail users. The tables below show the estimated numbers by user category (using the rider profile developed by *Instinct and Reason*).

Figure 9. Base Case – Trail Users by Type – 10 Years (no.)



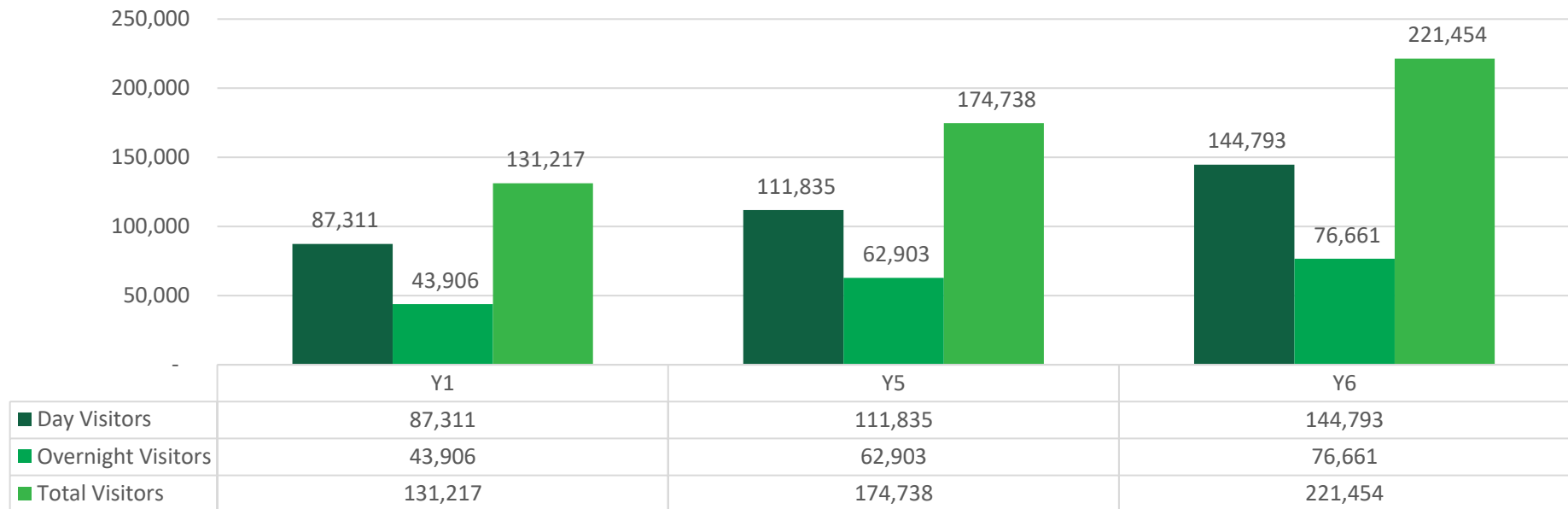
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 3. Case 1 – Base Case: Estimated Trail Users by Category

Case 1 Base Case	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Total Trail Users										
Beginner	26,228	28,580	30,933	33,286	35,639	37,499	39,358	41,217	43,077	44,936
Novice	38,661	41,850	45,040	48,230	51,420	54,104	56,788	59,472	62,156	64,841
Intermediate	51,261	55,450	59,638	63,827	68,015	71,751	75,486	79,222	82,958	86,694
Advance & Expert	15,067	16,216	17,366	18,515	19,664	20,728	21,792	22,856	23,920	24,984
Total All Users	131,217	142,097	152,977	163,858	174,738	184,081	193,424	202,768	212,111	221,454

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 10. Case 1 – Base Case – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

The tables below show the mix of day and overnight visitors for each of the trail user categories (for selected years).

Table 4. Case 1 Base Case: Total Trail Users – Day and Overnights

Case 1 Base Case	Y1			Y5			Y10		
Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Beginner	16,418	9,810	26,228	21,345	14,294	35,639	27,501	17,435	44,936
Novice	24,460	14,201	38,661	31,574	19,846	51,420	40,694	24,146	64,841
Intermediate	36,045	15,216	51,261	45,783	22,232	68,015	59,536	27,158	86,694
Advance & Expert	10,389	4,679	15,067	13,134	6,530	19,664	17,062	7,922	24,984
Total All Users	87,311	43,906	131,217	111,835	62,903	174,738	144,793	76,661	221,454

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 5. Case 1 Base Case: Trail Users by Type by Residence Location

Trail Users	Y1			Y5			Y10		
Case 1 Base Case	Users			Users			Users		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	26,538	0	26,538	31,641	0	31,641	42,150	0	42,150
Total Metro & Adjacent Areas	54,773	19,906	74,679	70,995	26,103	97,097	91,843	33,461	125,304
Total Yarra Ranges & Areas	81,311	19,906	101,217	102,635	26,103	128,738	133,993	33,461	167,454
Other									
Other Regional/Intrastate	3,600	14,400	18,000	4,000	16,000	20,000	4,400	17,600	22,000
Interstate	2,400	9,600	12,000	2,800	11,200	14,000	3,200	12,800	16,000
Internationals	0	0	0	2,400	9,600	12,000	3,200	12,800	16,000
Total Other	6,000	24,000	30,000	9,200	36,800	46,000	10,800	43,200	54,000
Total All Trail Users	87,311	43,906	131,217	111,835	62,903	174,738	144,793	76,661	221,454

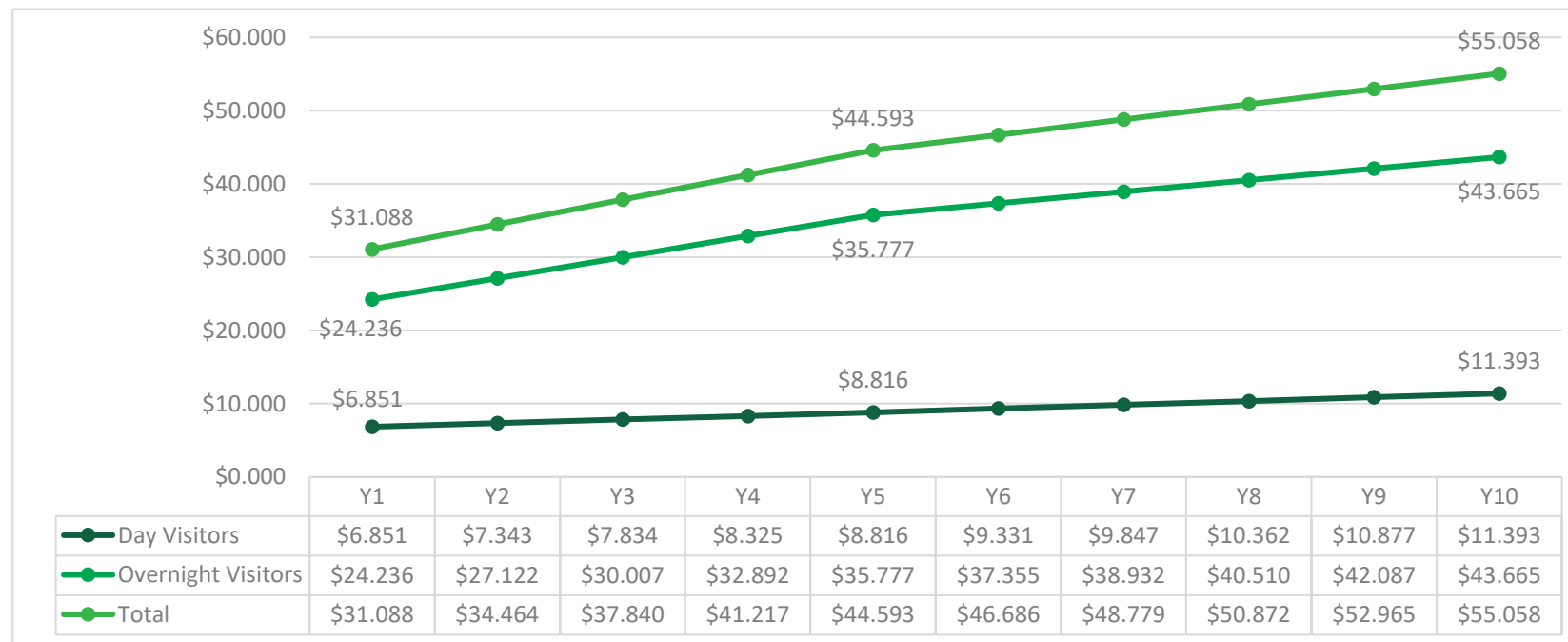
SOURCE: MCA MODELLING AUGUST 2021 . OTHER REGIONAL/INTERSTATE/INTERNATIONALS = RIDES PER VISIT. NOTE 2021 POPULATION ESTIMATES ARE USED FOR 2022.

5.2 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$31.1 million in year 1 (\$24.2 million overnights and \$6.8 million day visitors) to \$55.0 million in year 10 (\$43.6 million overnights and \$11.4 million day visitors).

Figure 11. Case 1 Base Case – Spending in Region by Trail Users (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 6. Case 1 Base Case – Trail User Spending in the Region (\$million 2021 prices)

Case 1 Base Case	Year 1			Year 5			Year 10		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Yarra Ranges	\$1.759	\$0.000	\$1.759	\$2.098	\$0.000	\$2.098	\$2.795	\$0.000	\$2.795
Total Metro & Adjacent Area	\$4.590	\$10.521	\$15.111	\$5.949	\$13.797	\$19.746	\$7.696	\$17.687	\$25.383
Total Yarra Ranges & Areas	\$6.349	\$10.521	\$16.871	\$8.047	\$13.797	\$21.844	\$10.491	\$17.687	\$28.177
Other									
Other Regional/Intrastate	\$0.302	\$7.590	\$7.892	\$0.336	\$8.433	\$8.769	\$0.370	\$9.276	\$9.646
Interstate	\$0.200	\$6.125	\$6.325	\$0.233	\$7.146	\$7.379	\$0.266	\$8.167	\$8.433
Internationals	\$0.000	\$0.000	\$0.000	\$0.200	\$6.401	\$6.601	\$0.266	\$8.535	\$8.801
Total Other	\$0.502	\$13.715	\$14.217	\$0.769	\$21.980	\$22.749	\$0.902	\$25.978	\$26.880
Total All Areas	\$6.851	\$24.236	\$31.088	\$8.816	\$35.777	\$44.593	\$11.393	\$43.665	\$55.058

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

5.3 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$55.0 million in the region, up from \$31.1 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails,
- spending on accommodation (for overnight stayers) and meals during their stay, and
- spending on other recreational and tourism services.

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service a growing visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 7. Case 1 Base Case – Spending by Type (\$million – constant \$2021)

Case 1 Base Case Type of Spending (\$ million)	Share of Spending %	Year 1	Year 5	Year 10
Total Day Visitors				
Food	65%	\$4.453	\$5.730	\$7.405
Bike Hire	15%	\$1.028	\$1.322	\$1.709
Guides	5%	\$0.343	\$0.441	\$0.570
Shuttle	15%	\$1.028	\$1.322	\$1.709
Total Spending - Day Visitors		\$6.851	\$8.816	\$11.393
Total Overnight Visitors				
Food & Accommodation	60%	\$14.542	\$21.466	\$26.199
Bike Hire	20%	\$4.847	\$7.155	\$8.733
Guides	5%	\$1.212	\$1.789	\$2.183
Shuttle	15%	\$3.635	\$5.367	\$6.550
Total Spending Overnights		\$24.236	\$35.777	\$43.665
Total Users				
Food & Accommodation		\$18.995	\$27.197	\$33.604
Bike Hire		\$5.875	\$8.478	\$10.442
Guides		\$1.554	\$2.230	\$2.753
Shuttle		\$4.663	\$6.689	\$8.259
Total Spending Users		\$31.088	\$44.593	\$55.058

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

6 Case 2: Reduced Trail Network (No National Park) – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 2 Reduced Trails Network, with no trails in the National Park areas.

The reduced trails network (no national park trails) would result in lower levels of trail use by visitors from outside the region (mainly by the more experienced riders). These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

The impact of the reduced trail network was that modelled based on changes in assumptions, which are outlined in Appendix A (Table A.7).

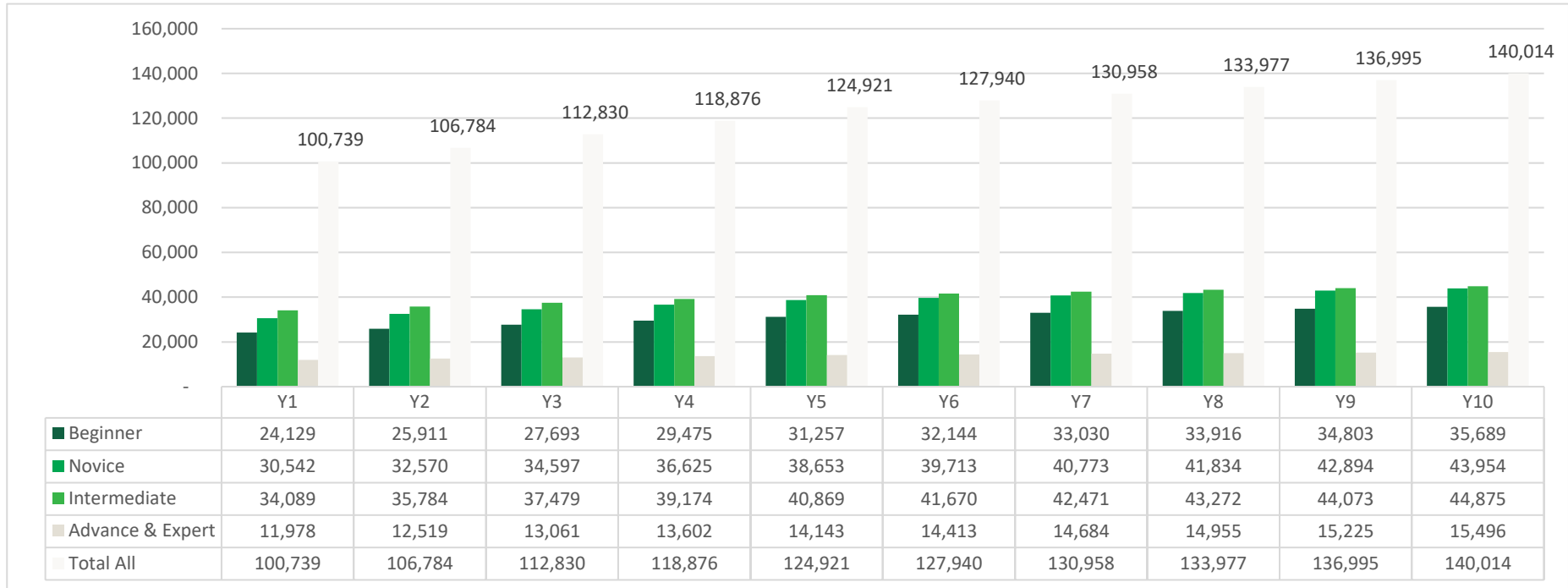
Survey research by *Instinct and Reason*, indicates an overall reduction in users (comprising Beginner – 8%; Novice-21%; Intermediate -33.5%; and Advanced/Expert -21.5%).¹¹ These reductions were applied to each of these user categories.

6.1 Trail Use Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 100,750 in year 1 to 124,900 in year 5 and reach 140,000 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. The tables below show the estimated numbers by user category (using the rider profile developed by Instinct and Reason). The year 10 users are around 81,000 below Case 1 Base Case numbers.

¹¹ Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 and Additional Findings May 2021.

Figure 12. Case 2 Reduced Trails Network – Trail Users by Type (no.)



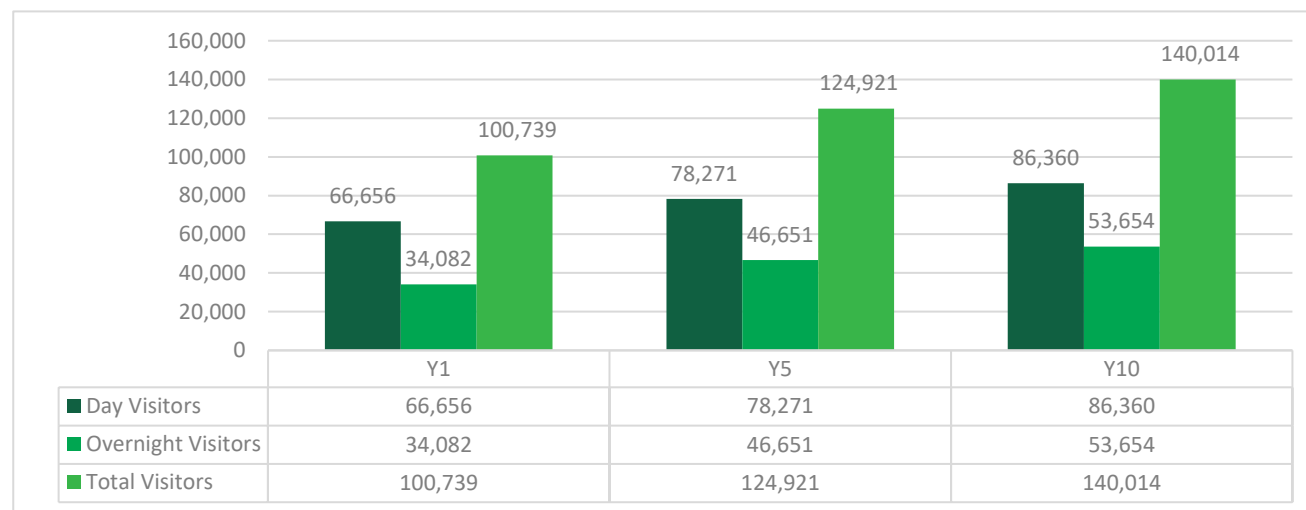
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 8. Case 2 Reduced Trails Network: Estimate Trail Users by Category

Case 2 Reduced Trails Network	Year 1			Year 5			Year 10		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Beginner	15,104	9,025	24,129	18,459	12,798	31,257	20,845	14,844	35,689
Novice	19,323	11,219	30,542	23,428	15,225	38,653	26,418	17,536	43,954
Intermediate	23,970	10,119	34,089	27,089	13,780	40,869	29,113	15,762	44,875
Advance & Expert	8,259	3,719	11,978	9,294	4,848	14,143	9,983	5,513	15,496
Total All Users	66,656	34,082	100,739	78,271	46,651	124,921	86,360	53,654	140,014

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 13. Case 2 Reduced Trails Network – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 9. Case 2 Reduced Trails Network: Estimated Trail Users by Category

Case 2 Reduced Trails Network	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Beginner	24,129	25,911	27,693	29,475	31,257	32,144	33,030	33,916	34,803	35,689
Novice	30,542	32,570	34,597	36,625	38,653	39,713	40,773	41,834	42,894	43,954
Intermediate	34,089	35,784	37,479	39,174	40,869	41,670	42,471	43,272	44,073	44,875
Advance & Expert	11,978	12,519	13,061	13,602	14,143	14,413	14,684	14,955	15,225	15,496
Total All Users	100,739	106,784	112,830	118,876	124,921	127,940	130,958	133,977	136,995	140,014

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 10. Case 2 Reduced Trails Network: Trail Users by Residence Location

Case 2 Reduced Trails Network	Year 1			Year 5			Year 10		
	Users			Users			Users		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	19,520	0	19,520	21,721		21,721	22,695		22,695
Urban & Adjacent									
Total Metro & Adjacent Areas	42,475	15,436	57,911	49,408	18,086	67,495	55,283	20,127	75,410
Total Yarra Ranges & Areas	61,995	15,436	77,430	71,130	18,086	89,216	77,978	20,127	98,105
Other									
Other Regional/Intrastate	2,800	11,202	14,002	3,112	12,446	15,558	3,423	13,691	17,114
Interstate	1,861	7,445	9,306	2,171	8,686	10,857	2,482	9,926	12,408
Internationals				1,858	7,432	9,290	2,477	9,910	12,387
Total Other	4,662	18,647	23,308	7,141	28,564	35,705	8,382	33,527	41,909
Total All Trail Users	66,656	34,082	100,739	78,271	46,651	124,921	86,360	53,654	140,014

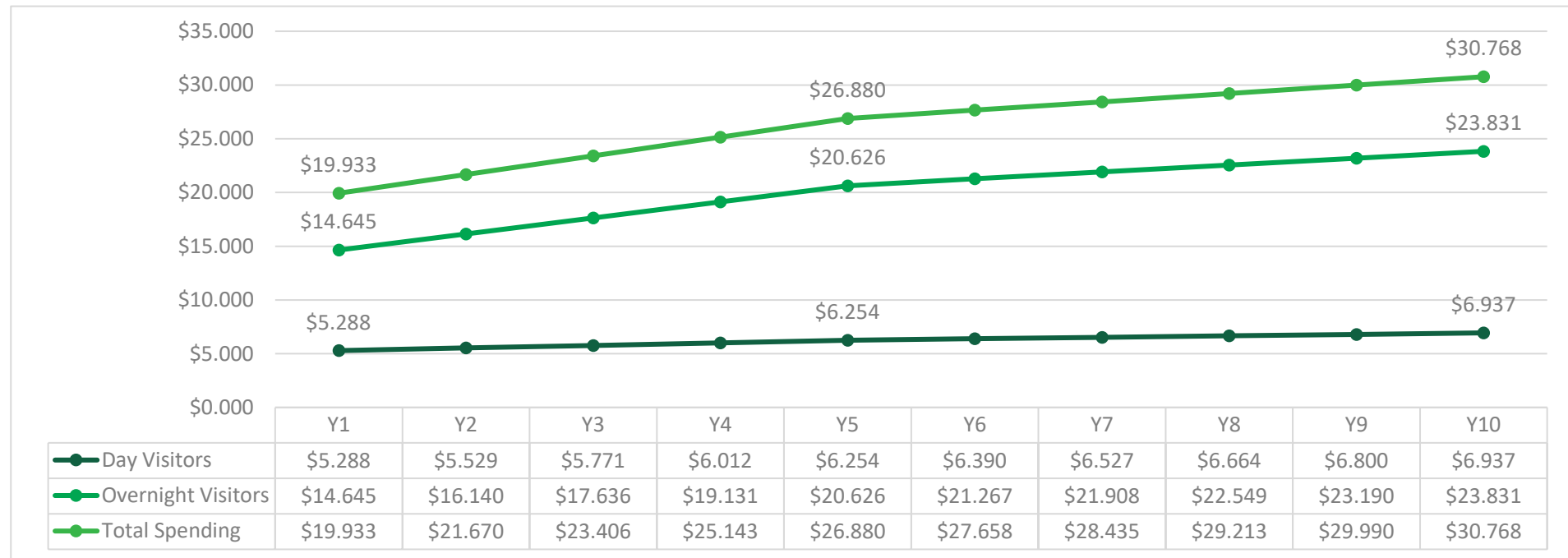
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

6.2 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$19.9 million in year 1 (\$14.6 million overnights and \$5.3 million day visitors) to \$30.8 million in 2031 (\$23.8 million overnights and \$6.9 million day visitors).

Figure 14. Case 2 Reduced Trail Network – Spending in Region by Trail Users (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 11. Case 2 Reduced Trails Network: Trail User Spending in the Region (\$million 2021 prices)

Case 2 : Reduced Trail Network	Y1			Y5			Y10		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Yarra Ranges LGA	\$1.294	\$0.000	\$1.294	\$1.440	\$0.000	\$1.440	\$1.505	\$0.000	\$1.505
Total Metro & Adjacent Areas	\$3.599	\$6.352	\$9.951	\$4.210	\$7.363	\$11.573	\$4.724	\$8.160	\$12.884
Total Yarra Ranges & Metro	\$4.893	\$6.352	\$11.246	\$5.650	\$7.363	\$13.013	\$6.229	\$8.160	\$14.388
Other									
Other Regional	\$0.238	\$4.592	\$4.830	\$0.264	\$5.102	\$5.367	\$0.291	\$5.613	\$5.903
Interstate	\$0.157	\$3.701	\$3.857	\$0.183	\$4.318	\$4.500	\$0.209	\$4.934	\$5.143
Internationals	\$0.000	\$0.000	\$0.000	\$0.157	\$3.843	\$4.000	\$0.209	\$5.125	\$5.333
Total Other	\$0.394	\$8.293	\$8.687	\$0.603	\$13.263	\$13.867	\$0.708	\$15.671	\$16.380
Total All Areas	\$5.288	\$14.645	\$19.933	\$6.254	\$20.626	\$26.880	\$6.937	\$23.831	\$30.768

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

6.3 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$30.8 million in the region, up from \$19.9 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay
- spending on other recreational and tourism services.

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service this growth in a specialised visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 12. Case 2 Reduced Trail Network: Spending Type (\$million 2021 prices)

CASE 2 : REDUCED TRAIL NETWORK				
Type of Spending	Share of Spending	Year 1	Year 5	Year 10
(\$ million)	%			
Total Day Visitors				
Food	65%	\$3.437	\$4.065	\$4.509
Bike Hire	15%	\$0.793	\$0.938	\$1.041
Guides	5%	\$0.264	\$0.313	\$0.347
Shuttle	15%	\$0.793	\$0.938	\$1.041
Total Spending - Day Visitors		\$5.288	\$6.254	\$6.937
Total Overnight Visitors				
Food & Accommodation	60%	\$8.787	\$12.376	\$14.299
Bike Hire	20%	\$2.929	\$4.125	\$4.766
Guides	5%	\$0.732	\$1.031	\$1.192
Shuttle	15%	\$2.197	\$3.094	\$3.575
Total Spending Overnights		\$14.645	\$20.626	\$23.831
Total Users				
Food & Accommodation		\$15.153	\$20.566	\$23.574
Bike Hire		\$3.722	\$5.063	\$5.807
Guides		\$0.997	\$1.344	\$1.538
Shuttle		\$2.990	\$4.032	\$4.615
Total Spending Users		\$19.933	\$26.880	\$30.768

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

7 Case 3: No Drop A K Trail – Trail Users and Spending

This chapter provides estimates of trail users and spending for Case 3 No Drop A K Trail. This is the trails network, with the proposed Drop a Kilometre trail not included.

This would result in lower levels of trail use by visitors from outside the region (mainly by novice and intermediate riders). These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays, compared with the Base Case.

Survey research by *Instinct and Reason*, indicates an overall reduction in users (comprising Beginner – 8%; Novice-13%; Intermediate -20%; and Advanced/Expert -8%).¹² These reductions were applied to each of these user categories.

The impact of the removal of the Drop A K Trail were modelled based on the assumptions, which are outlined in Appendix A (Table A.8).

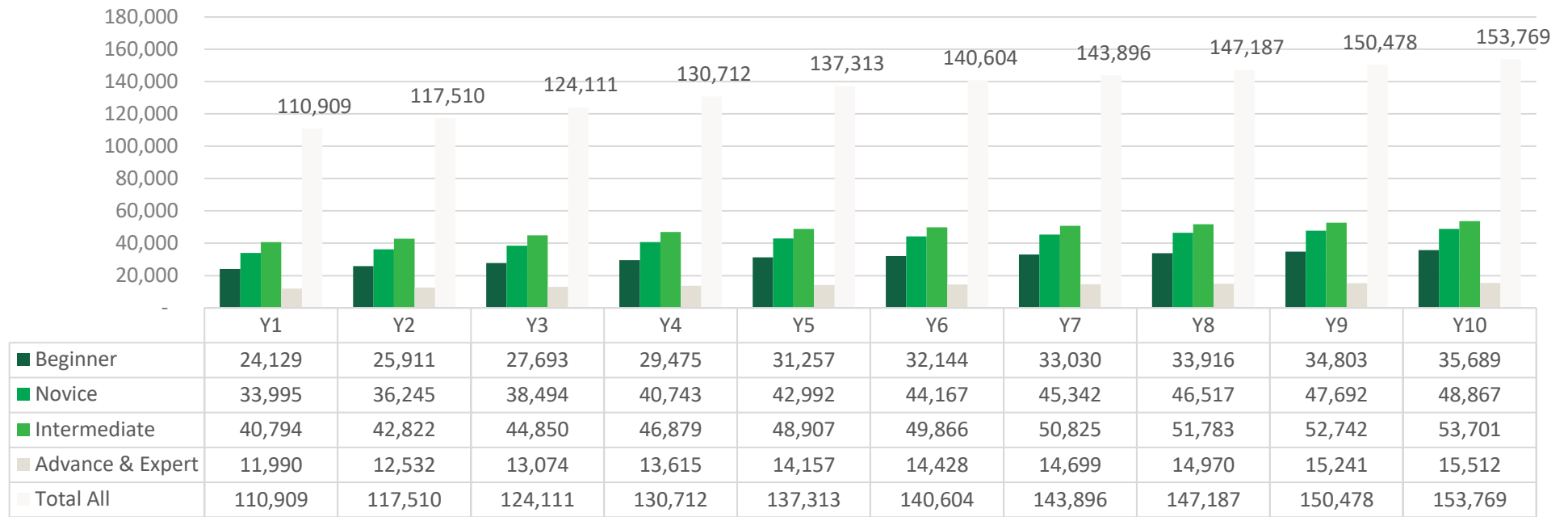
7.1 Trail User Estimates

Based on the modelling of trail operations, the annual number of trail users would increase from around 110,900 in year 1 to 137,300 in year 5 and reach 153,800 in year 10. Given the proximity to the Melbourne metropolitan area, around two thirds would be day visitors and one third overnight visitors. The tables below show the estimated numbers by user category (using the rider profile developed by instinct and reason).

These user numbers are substantially below the Base Case user numbers – 20,000 lower in year 1 and around 68,000 lower in year 10.

¹² Warburton MTB trail research -quantitative findings, instinct and reason, December 2020 P16 and Additional Findings May 2021.

Figure 15. Case 3 – No Drop A K – Trail Users by Type (no.)



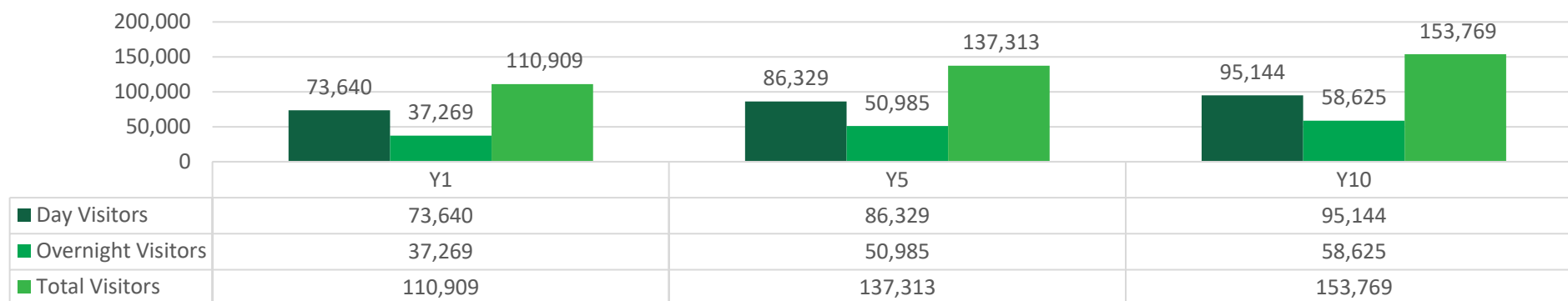
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 13. Case 3 No Drop A K: Estimated Trail Users by Category

Case 3 No Drop A K	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Beginner	24,129	25,911	27,693	29,475	31,257	32,144	33,030	33,916	34,803	35,689
Novice	33,995	36,245	38,494	40,743	42,992	44,167	45,342	46,517	47,692	48,867
Intermediate	40,794	42,822	44,850	46,879	48,907	49,866	50,825	51,783	52,742	53,701
Advance & Expert	11,990	12,532	13,074	13,615	14,157	14,428	14,699	14,970	15,241	15,512
Total All Users	110,909	117,510	124,111	130,712	137,313	140,604	143,896	147,187	150,478	153,769

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 16. Case 3 No Drop A K – Total Riders on Trails – Selected Years



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 14. Case 3 No Drop A K: Estimated Trail Users by Residence Location

Case 3 No Drop A K	Year 1			Year 5			Year 10		
	Users			Users			Users		
	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Local -Yarra Ranges (S)	22,046	0	22,046	24,532	-	24,532	25,632	-	25,632
Total Metro & Adjacent Areas	46,502	16,899	63,401	53,990	19,760	73,750	60,349	21,971	82,321
Total Yarra Ranges & Areas	68,548	16,899	85,447	78,522	19,760	98,282	85,981	21,971	107,952
Other									
Other Regional/Intrastate	3,061	12,242	15,303	3,401	13,603	17,003	3,741	14,963	18,704
Interstate	2,032	8,127	10,159	2,370	9,482	11,852	2,709	10,836	13,545
Internationals	0	0	0	2,035	8,140	10,176	2,713	10,854	13,567
Total Other	5,092	20,370	25,462	7,806	31,225	39,031	9,163	36,653	45,817
Total All Trail Users	73,640	37,269	110,909	86,329	50,985	137,313	95,144	58,625	153,769

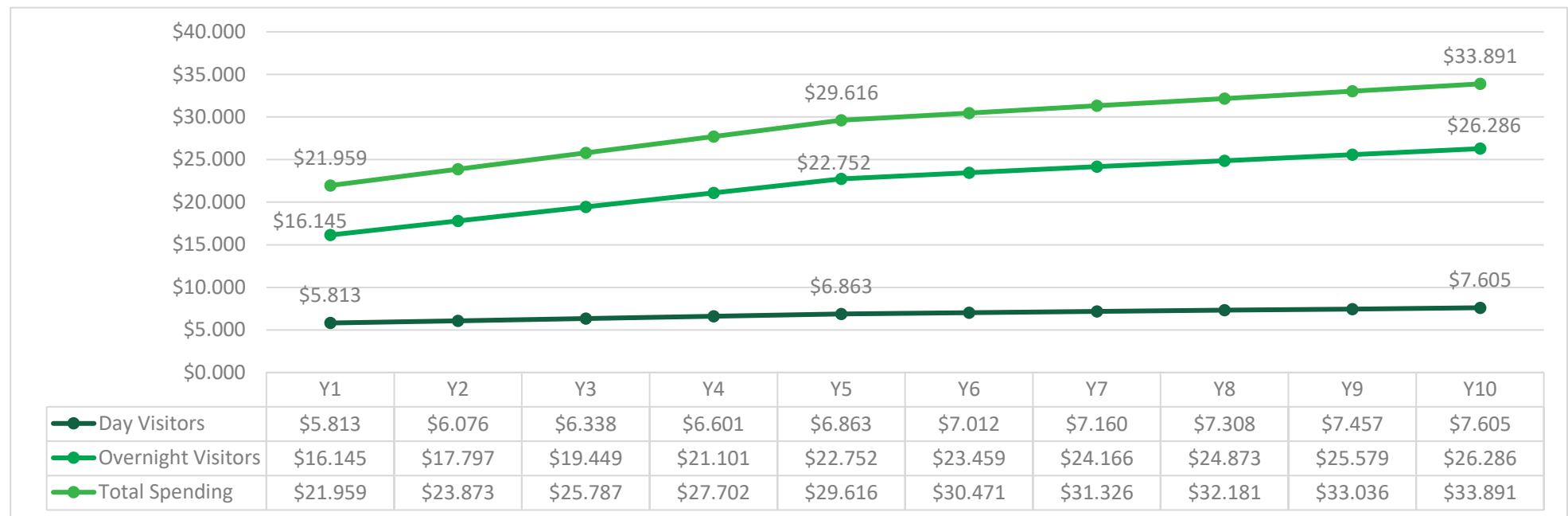
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

7.2 Spending in Region by Trail Users

Spending in the region by MTB users was analysed and estimated. The assumptions used in estimation are outlined in Appendix A. Spending estimates are based on assumed average spending per person, for each category of rider. For example, intermediate and advanced and experts spend more than beginners and novices and stay for a longer period. All spending is in constant 2021 dollars.

Estimated spending in the Yarra Ranges LGA by trail users would increase from \$21.9 million in year 1 (\$16.1 million overnights and \$5.8 million day visitors) to \$33.9 million in year 10 (\$26.3 million overnights and \$7.6 million day visitors).

Table 15. Case 3 No Drop A K – Spending in Region (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Spending was estimated for the locations that the trail users come from and is in the table below.

Table 16. Case 3 No Drop A K: Trail User Spending in the Region (\$million 2021 prices)

Case 3 No Drop A K	Year 1			Year 5			Year 10		
Residence of Trail Users	Day	Overnight	Total	Day	Overnight	Total	Day	Overnight	Total
Yarra Ranges LGA	\$1.462	\$0.000	\$1.462	\$1.626	\$0.000	\$1.626	\$1.699	\$0.000	\$1.699
Total Metro & Adjacent Areas	\$3.923	\$7.008	\$10.931	\$4.580	\$8.106	\$12.686	\$5.135	\$8.975	\$14.110
Total Yarra Ranges & Areas	\$5.384	\$7.008	\$12.393	\$6.207	\$8.106	\$14.313	\$6.834	\$8.975	\$15.809
Other									
Other Regional	\$0.259	\$5.057	\$5.316	\$0.288	\$5.619	\$5.907	\$0.316	\$6.181	\$6.498
Interstate	\$0.170	\$4.079	\$4.250	\$0.199	\$4.759	\$4.958	\$0.227	\$5.439	\$5.666
Internationals	\$0.000	\$0.000	\$0.000	\$0.171	\$4.268	\$4.438	\$0.227	\$5.691	\$5.918
Total Other	\$0.429	\$9.137	\$9.566	\$0.657	\$14.647	\$15.303	\$0.771	\$17.311	\$18.082
Total All Areas	\$5.813	\$16.145	\$21.959	\$6.863	\$22.752	\$29.616	\$7.605	\$26.286	\$33.891

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

7.3 Spending Mix

The following table shows indicative estimates of the mix of spending by category for day visitors and for overnight visitors. In year 10 trail users would be injecting \$33.9 million in the regional economy, up from \$21.9 million in year 1.

Total expenditure comprises:

- spending on trail-linked activities (including spending on bike related expenses and other spending - food and beverage etc.) in proximity to the trails
- spending on accommodation (for overnight stayers) and meals during their stay
- spending on other recreational and tourism services

While some of this spending would be serviced by existing businesses, it will encourage new businesses to service a growing visitor market. This is particularly the case with biking related spending (e.g., bike hire, guides/trainers and shuttles).

Table 17. Case 3 No Drop A K: Spending in the Region by Type (\$million 2021 prices)

Case 3 No Drop A K Type of Spending (\$ million)	Share of Spending	Year 1	Year 5	Year 10
	%			
Total Day Visitors				
Food	65%	\$3.779	\$4.461	\$4.943
Bike Hire	15%	\$0.872	\$1.030	\$1.141
Guides	5%	\$0.291	\$0.343	\$0.380
Shuttle	15%	\$0.872	\$1.030	\$1.141
Total Spending - Day Visitors		\$5.813	\$6.863	\$7.605
Total Overnight Visitors				
Food & Accommodation	60%	\$9.687	\$13.651	\$15.772
Bike Hire	20%	\$3.229	\$4.550	\$5.257
Guides	5%	\$0.807	\$1.138	\$1.314
Shuttle	15%	\$2.422	\$3.413	\$3.943
Total Spending Overnights		\$16.145	\$22.752	\$26.286
Total Users				
Food & Accommodation		\$16.695	\$22.663	\$25.972
Bike Hire		\$4.101	\$5.580	\$6.398
Guides		\$1.098	\$1.481	\$1.695
Shuttle		\$3.294	\$4.442	\$5.084
Total Spending Users		\$21.959	\$29.616	\$33.891

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

8 Economic Impacts of Warburton MTB Trails – Construction Phase

The economic impacts of the trail developments are modelled for both the construction phase and the operations phases.

The impacts are measured in terms of:

- full time equivalent jobs (FTE)
- the increase in regional income that is generated by trail users and their spending in the region.¹³

This section covers the construction phase impacts.

A significant number of jobs and an increase in regional income will be generated during the construction phase of the project.

8.1 Construction Costs

In modelling construction jobs, we used the cost components that are associated with trails and other facilities construction, and these total \$15.090 million for Stage 1 and Stage 2

¹³ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the

Table 18. Construction Costs – Warburton Trails Project (\$2020)

Staging of Trail	Timing	Costs
Construction		(\$2020)
STAGE 1		
Trail Construction Stage 1 (110 kms)	Sept .2021	
Section 1 35 kms	Sept 2021-Feb 2022	\$1,400,000
Section 2 35 kms	Mar 2022-Aug 2022	\$1,400,000
Section 3 35 kms	Sept 2022-Jan 2023	\$1,400,000
Total		\$4,200,000
Other Infrastructure - Stage 1		
Main Bridge Warby Highway		\$2,000,000
Bridge- Old Warby Highway		\$400,000
Trail Heads		\$1,500,000
Minor Bridges, trail infrastructures & boardwalks		\$2,000,000
Final design work		\$450,000
Signage, fencing, environmental works		\$750,000
Total Other		\$7,100,000
Stage 1 Cost		\$11,300,000
STAGE 2		
Construction Stage 2 Section 4 (76 kms)	Sept 2024-Jan 2025	\$3,040,000
Other Infrastructure – Stage 2		\$750,000
Stage 2 Cost		\$3,790,000
<Subject to funding - indicative only>		
Total Project Cost		\$15,090,000

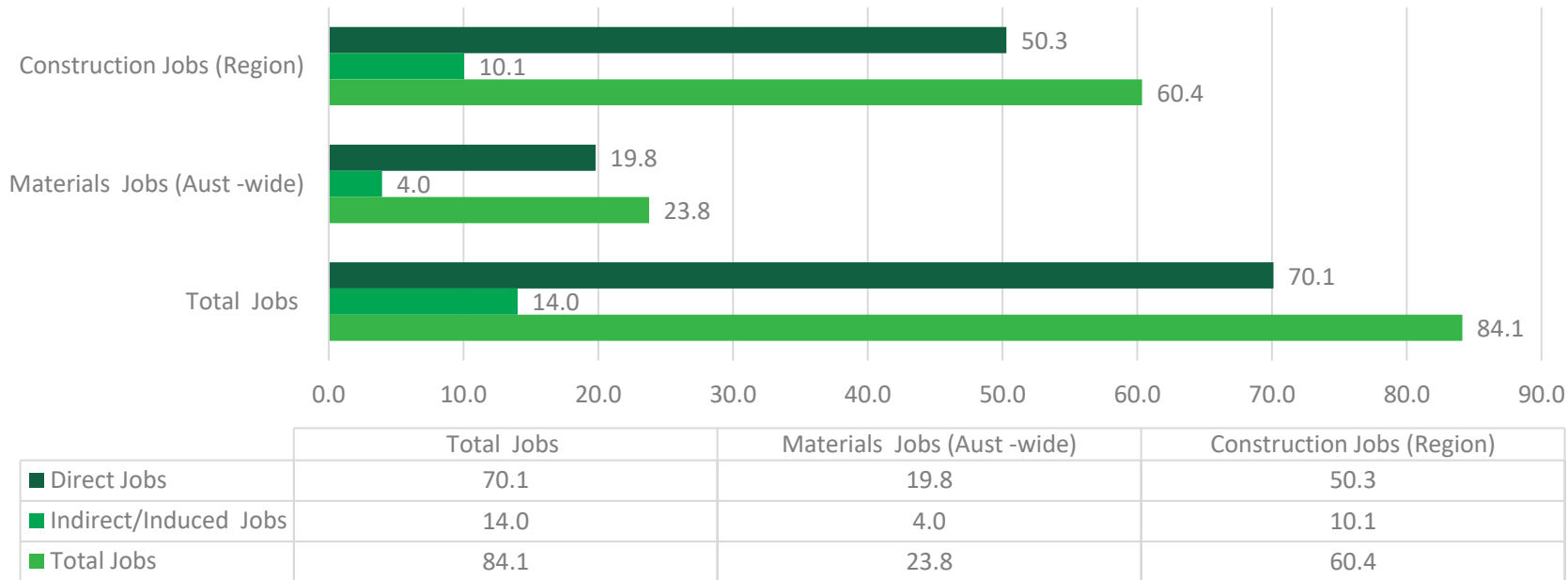
SOURCE: YARRA RANGES COUNCIL SEPTEMBER 2020. AN ADDITIONAL \$2 MILLION IS BEING SPENT ON DESIGN, STUDIES AND PLANNING APPROVAL COSTS.

modelling of income generated, income tax and GST on spending, are both treated as leakages from the region.

8.2 Jobs Generated

A total of 84.1 FTE jobs (70.1 direct jobs and 14.1 indirect/induced jobs) would be generated during the construction period. The direct jobs comprise 50.3 jobs in on-site construction and 19.8 jobs in materials/equipment supply. The EES Report indicates that construction of the trails would be undertaken by teams of 3-4 persons.¹⁴

Figure 17. Warburton Trails Construction (Stages 1 and 2) – Total FTE Jobs (no.)



SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

¹⁴ EES Report Chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council P24

Table 19. Warburton Trails Stage 1 Construction FTE Jobs (no.)

Warburton Trail Construction Jobs	Direct Jobs	Indirect/Induced Jobs	Total Jobs
Stage 1 - Trail			
Construction Jobs (Region)	14.0	2.8	16.8
Materials Jobs (Aust -wide)	5.5	1.1	6.6
Total Jobs - Construction Phase	19.5	3.9	23.4
Stage 1 - Infrastructure			
Construction Jobs (Region)	23.7	4.7	28.4
Materials Jobs (Aust -wide)	9.3	1.9	11.2
Total Jobs - Construction Phase	33.0	6.6	39.6
Total Stage 1			
Construction Jobs (Region)	37.7	7.5	45.2
Materials Jobs (Aust -wide)	14.8	3.0	17.8
Total Jobs - Construction Phase	52.5	10.5	63.0

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 20. Warburton Trails Stage 2 Construction FTE Jobs Generated (no.)

Warburton Trail Construction Jobs	Direct Jobs	Indirect/Induced Jobs	Total Jobs
Stage 2 - Trail			
Construction Jobs (Region)	10.1	2.0	12.2
Materials Jobs (Aust -wide)	4.0	0.8	4.8
Total Jobs - Construction Phase	14.1	2.8	16.9
Stage 2 - Infrastructure			
Construction Jobs (Region)	2.5	0.5	3.0
Materials Jobs (Aust -wide)	1.0	0.2	1.2
Total Jobs - Construction Phase	3.5	0.7	4.2
Total Stage 2			
Construction Jobs (Region)	12.6	2.5	15.2
Materials Jobs (Aust -wide)	5.0	1.0	6.0
Total Jobs - Construction Phase	17.6	3.5	21.1

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

8.3 Regional Income

Construction will provide a boost to regional income - a total of \$9.054 million over Stage 1 and Stage 2. This assumes that most of the construction workforce will be from the Warburton/Yarra Ranges LGA and adjacent areas.

Table 21. Warburton Trails Construction Regional Income Generated (\$million – 2021 prices)

Warburton Trail Construction Regional Income	Direct Regional Income	Indirect/Induced Income	Total Regional Income
Stage 1 - Total			
Regional Income	\$5.650	\$1.130	\$6.780
Stage 2 -Total			
Regional Income	\$1.895	\$0.379	\$2.274
Total Project			
Regional Income	\$7.545	\$1.509	\$9.054

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. NOTE SOME DIFFERENCES DUE TO ROUNDING.

9 Case 1: Base Case Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region.

MCA's regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.¹⁵

9.1 Employment Impacts – Jobs Generated

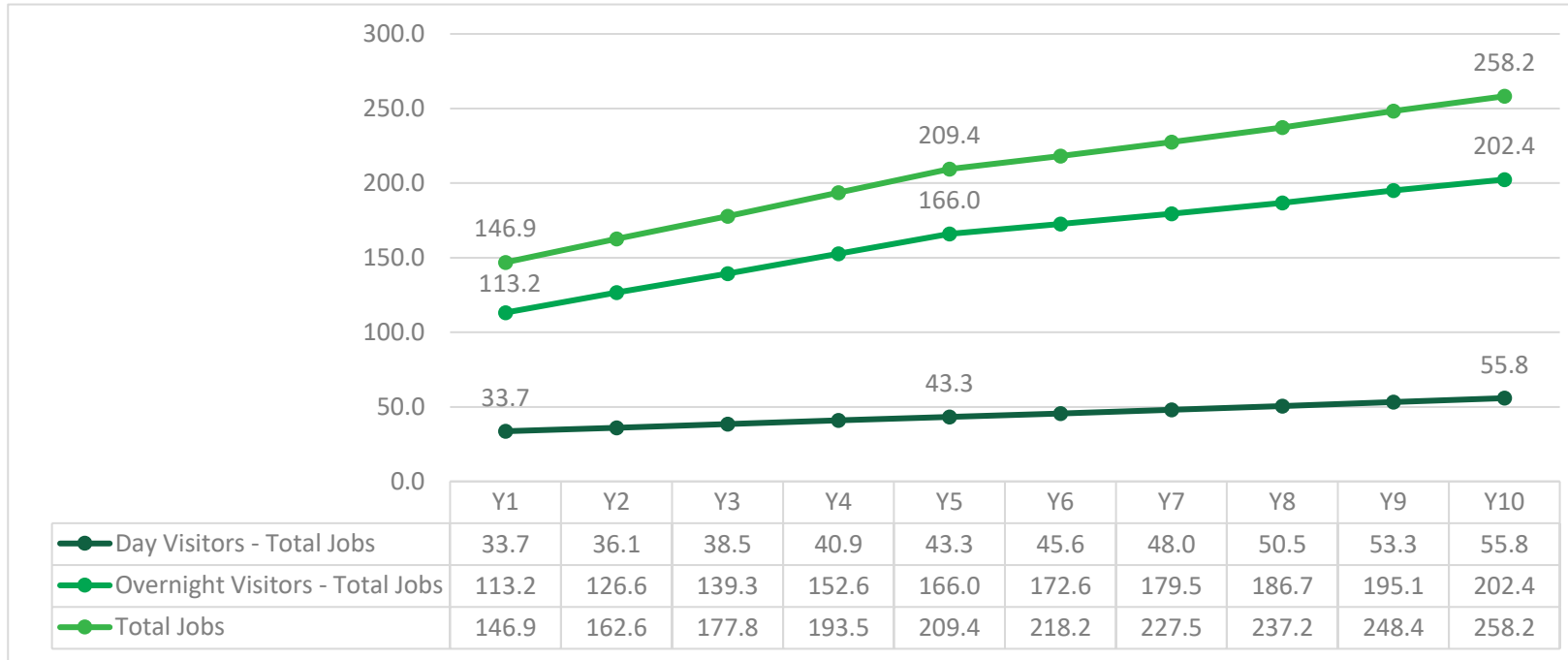
The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups. In summary:

- The operation of the trails (no events) would generate a total of 146.9 full-time equivalent jobs in year 1, increasing to 258.2 FTE jobs in year 10.
- Of the total jobs in year 10, day visitors would account for 55.8 FTE jobs, overnight visitors for 202.4 FTE jobs.
- An events program would create an equivalent of 13.8 FTE additional jobs in year 10 for a total of 272 FTE jobs (see Appendix B).

¹⁵ The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to: the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the region (e.g., food ingredients, soft drinks, beer, consumer

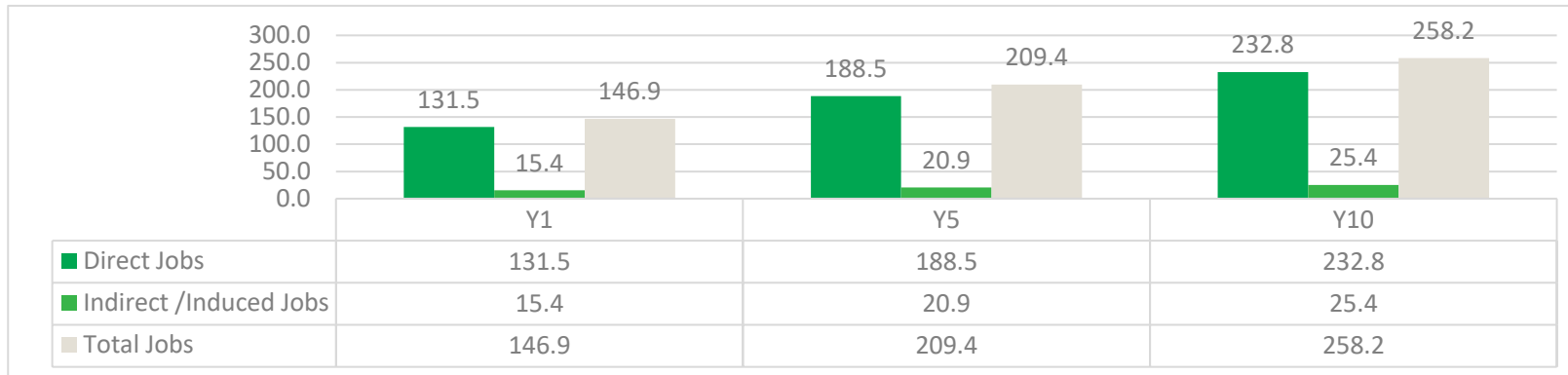
products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Figure 18. Case 1 Base Case Jobs Generated by Trail Operations (FTE no.)



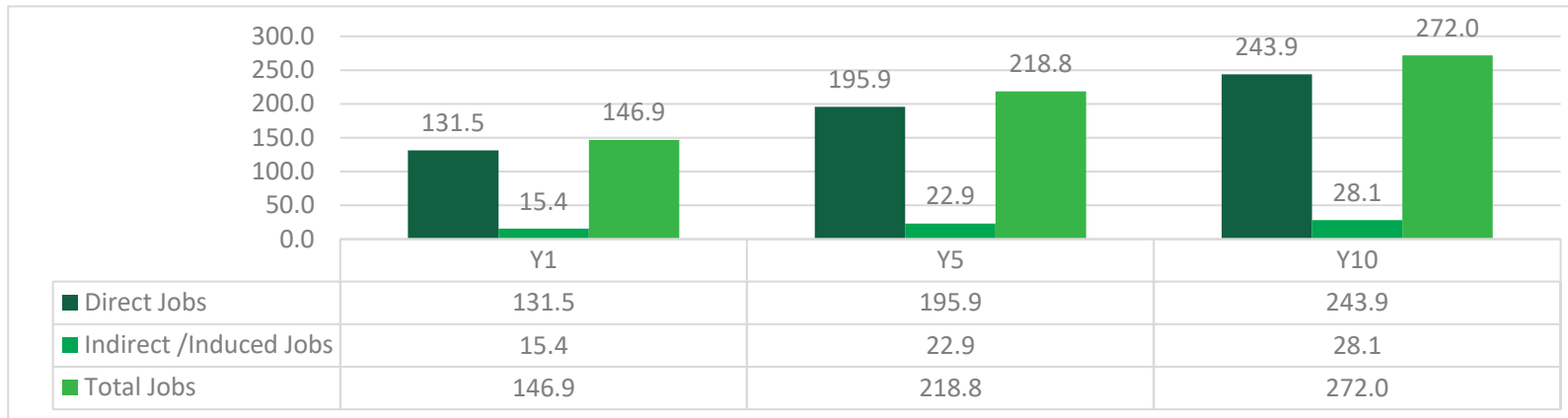
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 19. Case 1 Base Case Jobs Generated by Trail Operations (no events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021 NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 20. Case 1 Base Case Jobs Generated by Trail Operations (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021 NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 22. Case 1 Base Case Jobs Generated by Trail Operations (no events) (FTE no.)

Case 1. BASE CASE - Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	29.8	31.9	34.0	36.2	38.3	40.5	42.8	45.0	47.3	49.5
Indirect/Induced	3.9	4.2	4.5	4.7	5.0	5.1	5.2	5.5	6.0	6.3
Total Jobs - Day Visitors	33.7	36.1	38.5	40.9	43.3	45.6	48.0	50.5	53.3	55.8
Overnight Visitors – Trail Users										
Direct Jobs	101.8	113.9	126.0	138.1	150.2	156.8	163.5	170.1	176.7	183.3
Indirect/Induced	11.5	12.7	13.3	14.5	15.8	15.7	16.0	16.6	18.3	19.0
Total Jobs - Overnight Visitors	113.2	126.6	139.3	152.6	166.0	172.6	179.5	186.7	195.1	202.4
Total Visitors – Trail Users										
Direct Jobs	131.5	145.8	160.0	174.3	188.5	197.4	206.2	215.1	224.0	232.8
Indirect/Induced	15.4	16.8	17.8	19.2	20.9	20.8	21.2	22.1	24.4	25.4
Total All Jobs	146.9	162.6	177.8	193.5	209.4	218.2	227.5	237.2	248.4	258.2

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021 NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 23. Case 1 Base Case Total Jobs Generated by Trails Operations (with events) (FTE no.)

Operations: Jobs Generated by Trail Users/Visitors	Y1	Y5	Y10
Day Users/Visitors			
Direct Jobs	29.8	38.3	49.5
Indirect/Induced Jobs	3.9	5.0	6.3
Total Jobs	33.7	43.3	55.8
Overnight User/Visitors			
Direct Jobs	101.8	150.2	183.3
Indirect/Induced Jobs	11.5	15.8	19.0
Total Jobs	113.2	166.0	202.4
Events			
Direct Jobs	0	7.4	11.1
Indirect/Induced Jobs	0	2.1	2.7
Total Jobs	0	9.4	13.8
Total All Users/Visitors (no events)			
Direct Jobs	131.5	188.5	232.8
Indirect/Induced Jobs	15.4	20.9	25.4
Total Jobs	146.9	209.4	258.2
Total All Users/Visitors (with events)			
Direct Jobs	131.5	195.9	243.9
Indirect/Induced Jobs	15.4	23.0	28.1
Total Jobs	146.9	218.9	272.0

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

9.2 Jobs by Industry

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles), and
- other retail.

The creation of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 60.7 jobs
- transport (including shuttles and other transport) 24.4 jobs
- accommodation 72.8 jobs
- food and beverage 73.3 jobs.

The follow table shows estimates for day visitors and overnight visitors (no events).

Table 24. Case 1 Base Case Total Jobs Generated by Trail Operations y Industry (no events) (FTE no.)

Case 1 Base Case –ALL JOBS	Year 1	Year 5	Year 10
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	11.7	15.0	19.4
Other retail	3.5	4.5	5.8
Health	0.3	0.4	0.5
Transportation	4.0	5.2	6.6
Communication	0.1	0.1	0.2
Recreation Services/Other Services	13.4	17.2	22.2
Education	0.2	0.2	0.3
Miscellaneous	0.5	0.6	0.8
Total	33.7	43.3	55.8
Overnight Visitors			
Accommodation	40.4	59.7	72.8
Food & Beverage	30.1	44.2	53.9
Other retail	8.0	11.7	14.2
Health	0.9	1.3	1.6
Transportation	10.0	14.6	17.8
Communication	0.3	0.5	0.6
Recreation Services/Other Services	21.5	31.6	38.5
Education	0.5	0.7	0.9
Miscellaneous	1.3	1.8	2.2
Total	113.2	166.0	202.4
Total All Jobs (No Events)			
Accommodation	40.4	59.7	72.8
Food & Beverage	41.8	59.2	73.3
Other Retail	11.5	16.2	20.0
Health	1.3	1.7	2.1
Transportation	14.0	19.7	24.4
Communication	0.4	0.6	0.7
Recreation Services/Other Services	34.9	48.8	60.7
Education	0.7	1.0	1.2
Miscellaneous	1.8	2.4	3.0
Total All Jobs	146.9	209.4	258.2

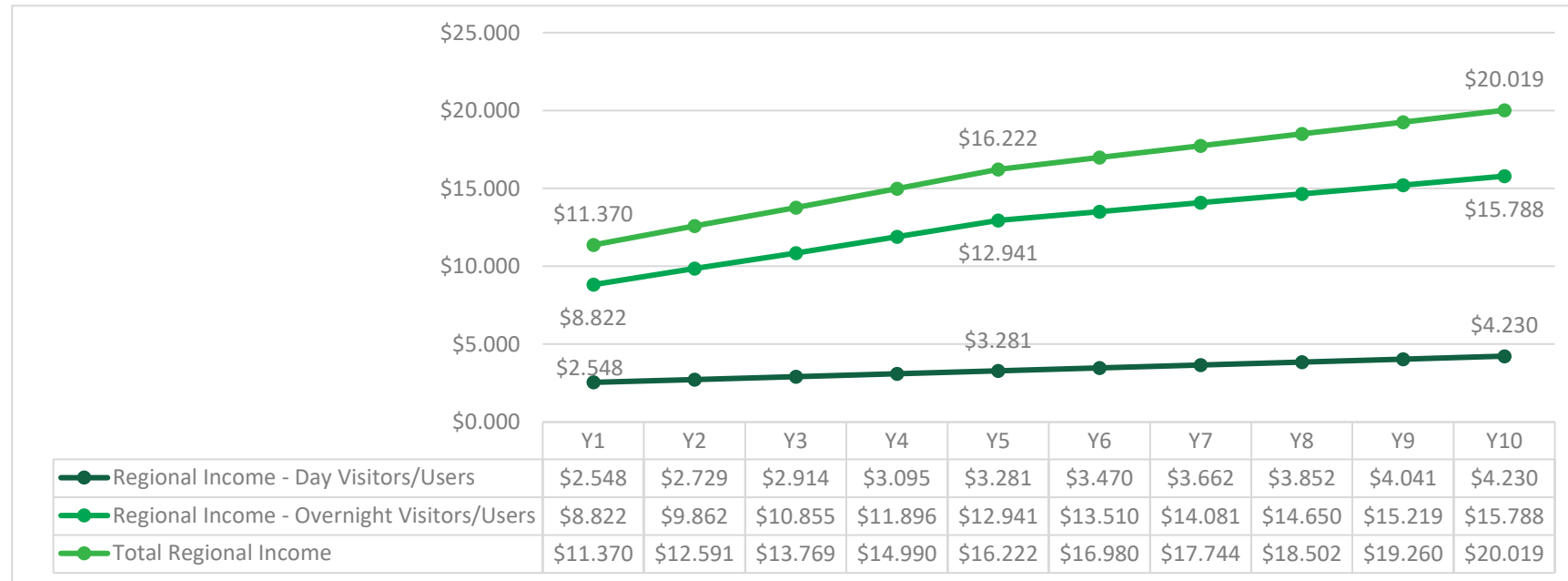
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

9.3 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals around \$11.4 million in year 1, increasing to \$20.0 million in year 10 .¹⁶

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is \$2.5 million in year 1 and \$4.2 million in year 10. Overnight users/visitors boost total regional income by \$8.8 million in year 1 and \$15.8 million in year 10.

Table 25. Case 1 Base Case – Regional Income Generated (no events) (\$ million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

¹⁶ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated, income tax and GST on spending, are both treated as leakages from the region.

Table 26. Case 1 Base Case Regional Income Generated (\$million 2021 prices)

CASE 1. BASE CASE Regional Income \$ million (2020 prices)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Day Visitors											
Direct Income	\$2.254	\$2.415	\$2.577	\$2.738	\$2.900	\$3.069	\$3.239	\$3.409	\$3.578	\$3.748	\$29.927
Indirect/Induced	\$0.294	\$0.313	\$0.338	\$0.356	\$0.381	\$0.401	\$0.423	\$0.443	\$0.463	\$0.483	\$3.895
Total Income	\$2.548	\$2.729	\$2.914	\$3.095	\$3.281	\$3.470	\$3.662	\$3.852	\$4.041	\$4.230	\$33.822
Overnight Visitors											
Direct Income	\$7.962	\$8.909	\$9.857	\$10.805	\$11.753	\$12.271	\$12.789	\$13.307	\$13.826	\$14.344	\$115.824
Indirect/Induced	\$0.860	\$0.953	\$0.998	\$1.090	\$1.188	\$1.239	\$1.292	\$1.343	\$1.394	\$1.444	\$11.801
Total Income	\$8.822	\$9.862	\$10.855	\$11.896	\$12.941	\$13.510	\$14.081	\$14.650	\$15.219	\$15.788	\$127.625
Total Visitors											
Direct Income	\$10.215	\$11.325	\$12.434	\$13.543	\$14.653	\$15.341	\$16.028	\$16.716	\$17.404	\$18.092	\$145.751
Indirect/Induced	\$1.155	\$1.266	\$1.335	\$1.447	\$1.569	\$1.640	\$1.715	\$1.786	\$1.856	\$1.927	\$15.696
Total Income	\$11.370	\$12.591	\$13.769	\$14.990	\$16.222	\$16.980	\$17.744	\$18.502	\$19.260	\$20.019	\$161.447

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Total regional income over 10 years for all visitors is \$161.5 million.

Table 27. Case 1 Base Case Increase in Regional Income – Total 10 Years (\$million 2021 prices)

Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$29.927	\$115.824	\$145.751
Indirect/Induced Income	\$3.895	\$11.801	\$15.696
Total Income	\$33.822	\$127.625	\$161.447

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

9.4 Benefit Cost Analysis

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

9.4.1 Trail Costs – 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million. See Appendix D for details.

9.4.2 Measuring Benefits – 10 Years

The measured benefits of the Warburton MTB Trails comprise the increase in regional income generated by trail users, the health benefits, and a notional consumer value to users of the trails.

Increase in Regional Income

The increase in regional income generated by trail users spending over a 10-year period totals \$161.4 million (in constant \$2021 prices).

¹⁷ Victoria’s Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 28. Case 1 Base Case Regional Income Generated by Trail Users (\$m 2021 prices)

Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$29.927	\$115.824	\$145.751
Indirect/Induced Income	\$3.895	\$11.801	\$15.696
Total Income	\$33.822	\$127.625	\$161.447

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).¹⁷

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices and 4 hours for advanced and experts (and average of \$10 per hour). Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$48.2 million (in constant prices \$2021) over the 10-year period or an average of \$4.8 million per year.

Table 29. Case 1 Base Case Health Benefits Estimates (\$ million 2021 prices)

Case 1. Base Case Health Benefits Valuation		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Ave hours	Standard											
2.5	Beginner	\$0.656	\$0.715	\$0.773	\$0.832	\$0.891	\$0.937	\$0.984	\$1.030	\$1.077	\$1.123	\$9.019
2.5	Novice	\$0.967	\$1.046	\$1.126	\$1.206	\$1.285	\$1.353	\$1.420	\$1.487	\$1.554	\$1.621	\$13.064
4	Intermediate	\$2.050	\$2.218	\$2.386	\$2.553	\$2.721	\$2.870	\$3.019	\$3.169	\$3.318	\$3.468	\$27.772
4	Advance & Expert	\$0.603	\$0.649	\$0.695	\$0.741	\$0.787	\$0.829	\$0.872	\$0.914	\$0.957	\$0.999	\$8.044
13	Total All	\$4.275	\$4.627	\$4.979	\$5.332	\$5.684	\$5.989	\$6.295	\$6.600	\$6.906	\$7.212	\$57.899
4	Interstate & Internationals	\$0.480	\$0.620	\$0.760	\$0.900	\$1.040	\$1.088	\$1.136	\$1.184	\$1.232	\$1.280	\$9.720
	Total (less interstate & internationals)	\$3.795	\$4.007	\$4.219	\$4.432	\$4.644	\$4.901	\$5.159	\$5.416	\$5.674	\$5.932	\$48.179

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Consumer User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$26.7 million (constant prices \$2021) over 10 years for all trail users or an average of \$2.6 million per year.

Table 30. Case 1 Base Case Consumer Value Estimates (\$million 2021 prices)

Case 1 Base Case Consumer Value \$ million 2021 prices	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Beginner	\$0.393	\$0.429	\$0.464	\$0.499	\$0.535	\$0.562	\$0.590	\$0.618	\$0.646	\$0.674	\$5.411
Novice	\$0.580	\$0.628	\$0.676	\$0.723	\$0.771	\$0.812	\$0.852	\$0.892	\$0.932	\$0.973	\$7.838
Intermediate	\$0.769	\$0.832	\$0.895	\$0.957	\$1.020	\$1.076	\$1.132	\$1.188	\$1.244	\$1.300	\$10.415
Advance & Expert	\$0.226	\$0.243	\$0.260	\$0.278	\$0.295	\$0.311	\$0.327	\$0.343	\$0.359	\$0.375	\$3.017
Total All	\$1.968	\$2.131	\$2.295	\$2.458	\$2.621	\$2.761	\$2.901	\$3.042	\$3.182	\$3.322	\$26.681

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

9.4.3 Benefit Cost Analysis

All Benefits

The following table and chart show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

Table 31. Case 1 Base Case Benefits and Cost Analysis – 10 Years (Constant 2021 prices)

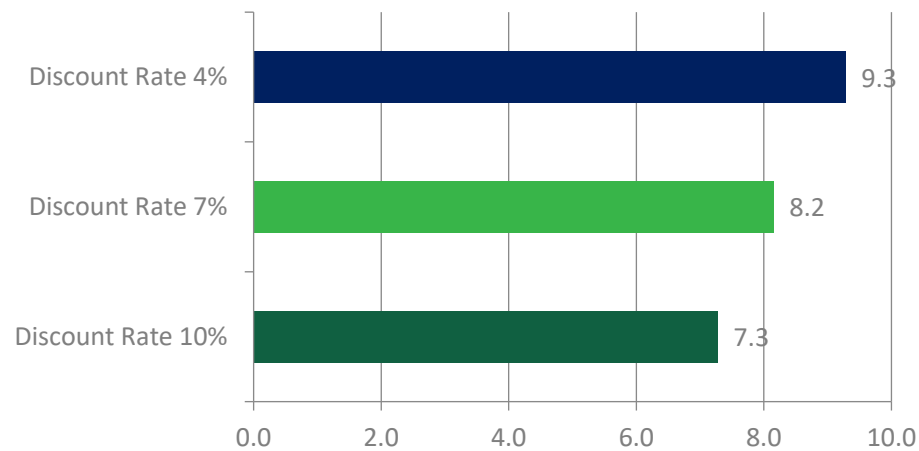
Case 1. Base Case - Total Project	Discount Rate	Discount Rate	Discount Rate
Regional Cost Benefit (\$2021 prices) Period : 10Years	4%	7%	10%
Trail Costs			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Direct Benefits (users) (10 years)			
Regional Income Increase	\$161,446,933	\$161,446,933	\$161,446,933
Health Benefits (Vic Users)	\$48,179,295	\$48,179,295	\$48,179,295
User Value (shadow user price)	\$26,680,891	\$26,680,891	\$26,680,891
Total Benefits	\$236,307,119	\$236,307,119	\$236,307,119
Total Benefits (\$) Present Value	\$203,137,640	\$178,426,071	\$159,255,993
Net Present Value (\$) Total Benefits	\$181,250,140	\$156,538,571	\$137,368,493
Benefit Cost Ratio (BCR- All Benefits)	9.3	8.2	7.3
NPV/Cost	8.3	7.2	6.3
Regional Income Only (PV)			
Regional Income Only (PV)	\$133,567,475	\$117,326,401	\$105,066,485
BCR (Regional Income only)	5.6	4.9	4.4

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates. For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 8.2. The present value of total benefits generated by the investment are 8.2 times the total costs of the project over a 10-year period.

If only the increase in regional income is include in the benefits, the BCR is 4.9 (for a 7% discount rate).

Figure 21. Case 1 Base Case Benefits Cost Ratio (BCR – All Benefits) Warburton Trail Development



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021.

10Case 2: Reduced Trail Network Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region.

MCA's regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.¹⁸

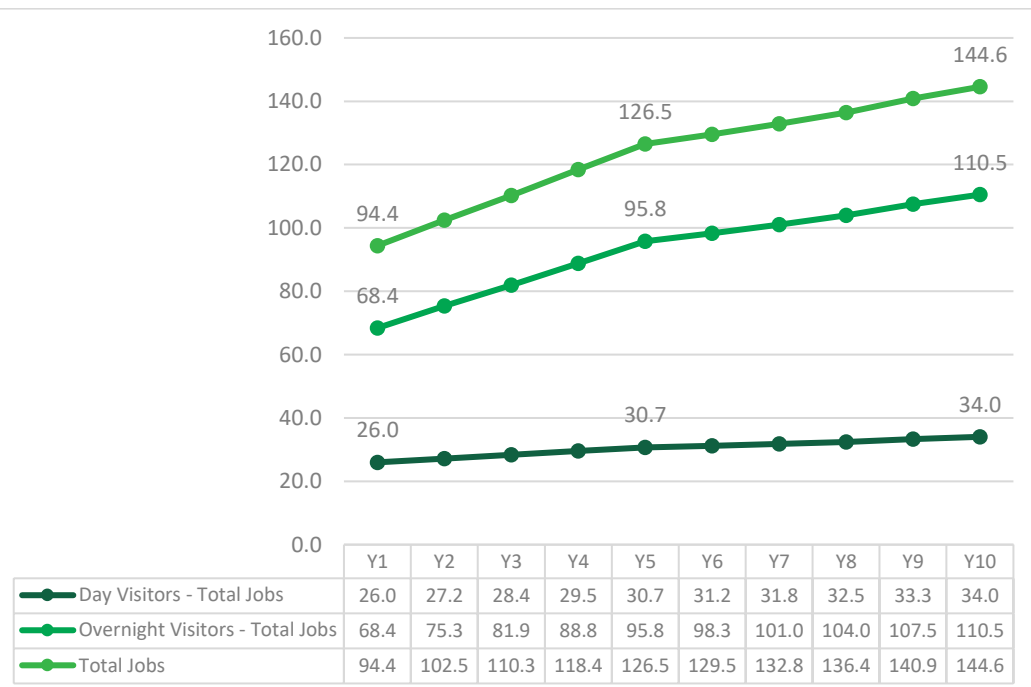
10.1 Employment Impacts – Jobs Generated

The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups.

- The operation of the trails would generate a total of 94.4 full-time equivalent jobs in year 1, increasing to 144.6 FTE jobs in year 10.
- Of the total jobs in year 10, day visitors would account for 34.0 FTE jobs, overnight visitors for 110.5 FTE jobs.
- An events program would create an equivalent of 13.8 FTE additional jobs in 2031 (see Appendix B).

¹⁸ The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to: the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the region (e.g., food ingredients, soft drinks, beer, consumer

Figure 22. Case 2 Reduced Trails Network Jobs Generated by Trail Operations (no events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

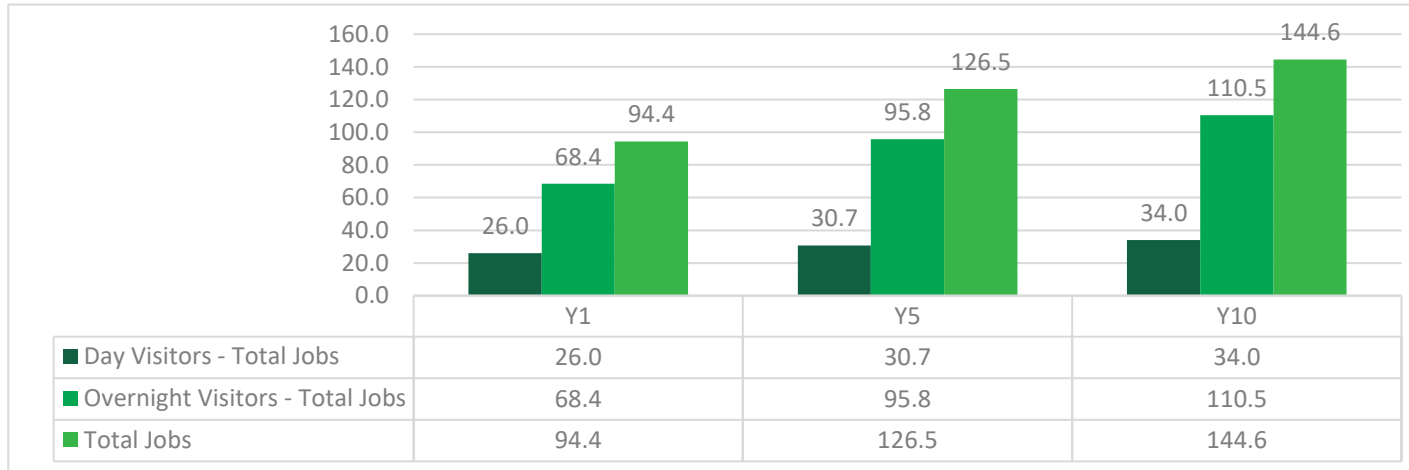
products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Table 32. Case 2 Reduced Trails Network Jobs Generated by Trail Operations (no events) (FTE no.)

Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	23.0	24.0	25.1	26.1	27.2	27.8	28.4	28.9	29.5	30.1
Indirect/Induced	3.0	3.2	3.3	3.4	3.6	3.5	3.4	3.5	3.8	3.9
Total Jobs - Day Visitors	26.0	27.2	28.4	29.5	30.7	31.2	31.8	32.5	33.3	34.0
Overnight Visitors – Trail Users										
Direct Jobs	61.5	67.8	74.0	80.3	86.6	89.3	92.0	94.7	97.4	100.1
Indirect/Induced	6.9	7.6	7.9	8.5	9.2	9.0	9.1	9.3	10.2	10.5
Total Jobs - Overnight Visitors	68.4	75.3	81.9	88.8	95.8	98.3	101.0	104.0	107.5	110.5
Total Visitors – Trail Users										
Direct Jobs	84.5	91.8	99.1	106.4	113.8	117.1	120.3	123.6	126.9	130.2
Indirect/Induced	9.9	10.7	11.2	11.9	12.7	12.5	12.5	12.8	14.0	14.4
Total All Jobs	94.4	102.5	110.3	118.4	126.5	129.5	132.8	136.4	140.9	144.6

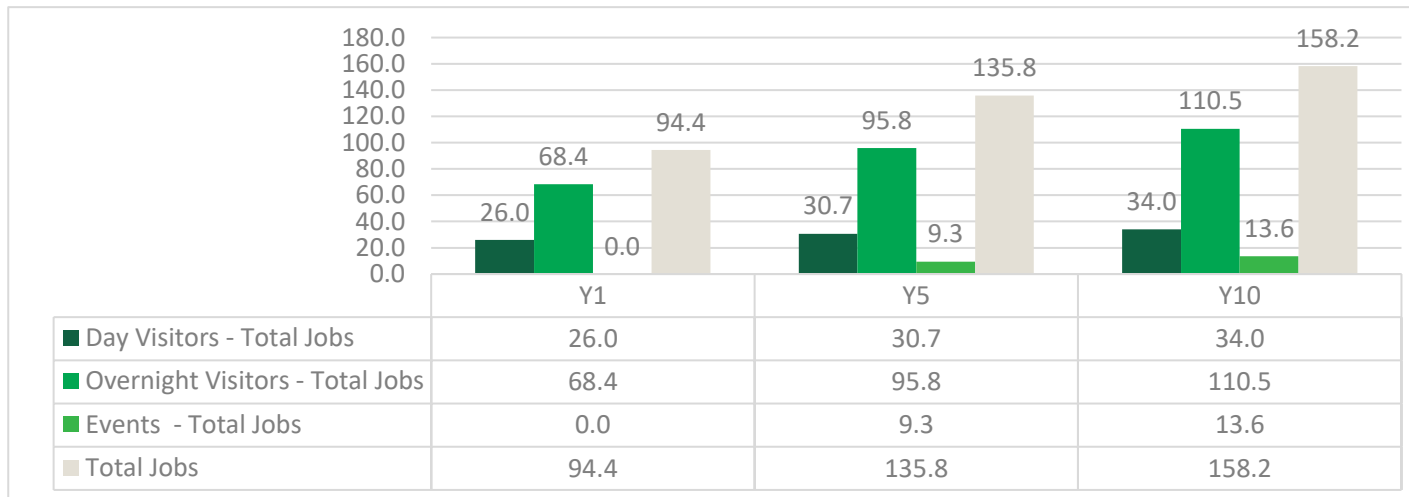
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 23. Case 2 Reduced Trails Network Total Jobs (no events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Figure 24. Case 2 Reduced Trails Network Total Jobs (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 33. Case 2 Reduced Trails Network Total Jobs Generated by Trails Operations (FTE no.)

Case 2 Operations: Jobs Generated by Trail Users/Visitors	Year 1	Year 5	Year 10
Day Users/Visitors			
Direct Jobs	23.0	27.2	30.1
Indirect/Induced Jobs	3.0	3.6	3.9
Total Jobs	26.0	30.7	34.0
Overnight User/Visitors			
Direct Jobs	61.5	86.6	100.1
Indirect/Induced Jobs	6.9	9.2	10.5
Total Jobs	68.4	95.8	110.5
Events			
Direct Jobs	0.0	7.4	11.1
Indirect/Induced Jobs	0.0	1.9	2.5
Total Jobs	0.0	9.3	13.6
Total All Users/Visitors (no events)			
Direct Jobs	84.5	113.8	130.2
Indirect/Induced Jobs	9.9	12.7	14.4
Total Jobs	94.4	126.5	144.6
Total All Users/Visitors (with events)			
Direct Jobs	84.5	121.1	141.3
Indirect/Induced Jobs	9.9	14.7	16.9
Total Jobs	94.4	135.8	158.2

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

10.2 Jobs by Industry

On a sector basis, the jobs (FTE - direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

The following table shows estimates for day visitors and overnight visitors.

The development of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 34.6 jobs (year 10)
- transport (including shuttles) 13.7 FTE jobs
- accommodation 39.7 jobs, and
- food and beverage 41.2 jobs.

Table 34. Case 2 Reduced Trails Network Total Jobs Generated by Industry (no events) (FTE no.)

Case 2 Reduced trail network- Jobs	Year 1	Year 5	Year 10
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	9.0	10.7	11.8
Other retail	2.7	3.2	3.5
Health	0.3	0.3	0.3
Transportation	3.1	3.7	4.1
Communication	0.1	0.1	0.1
Recreation Services/Other Services	10.3	12.2	13.5
Education	0.1	0.2	0.2
Miscellaneous	0.4	0.4	0.5
Total	26.0	30.7	34.0
Overnight Visitors			
Accommodation	24.4	34.4	39.7
Food & Beverage	18.2	25.5	29.4
Other retail	4.8	6.7	7.8
Health	0.6	0.7	0.9
Transportation	6.0	8.4	9.7
Communication	0.2	0.3	0.3
Recreation Services/Other Services	13.0	18.2	21.0
Education	0.3	0.4	0.5
Miscellaneous	0.8	1.1	1.2
Total	68.4	95.8	110.5
Total All Jobs			
Accommodation	24.4	34.4	39.7
Food & Beverage	27.2	36.2	41.2
Other Retail	7.6	9.9	11.3
Health	0.8	1.1	1.2
Transportation	9.1	12.1	13.7
Communication	0.3	0.4	0.4
Recreation Services/Other Services	23.3	30.4	34.6
Education	0.5	0.6	0.7
Miscellaneous	1.2	1.5	1.7
Total	94.4	126.5	144.6

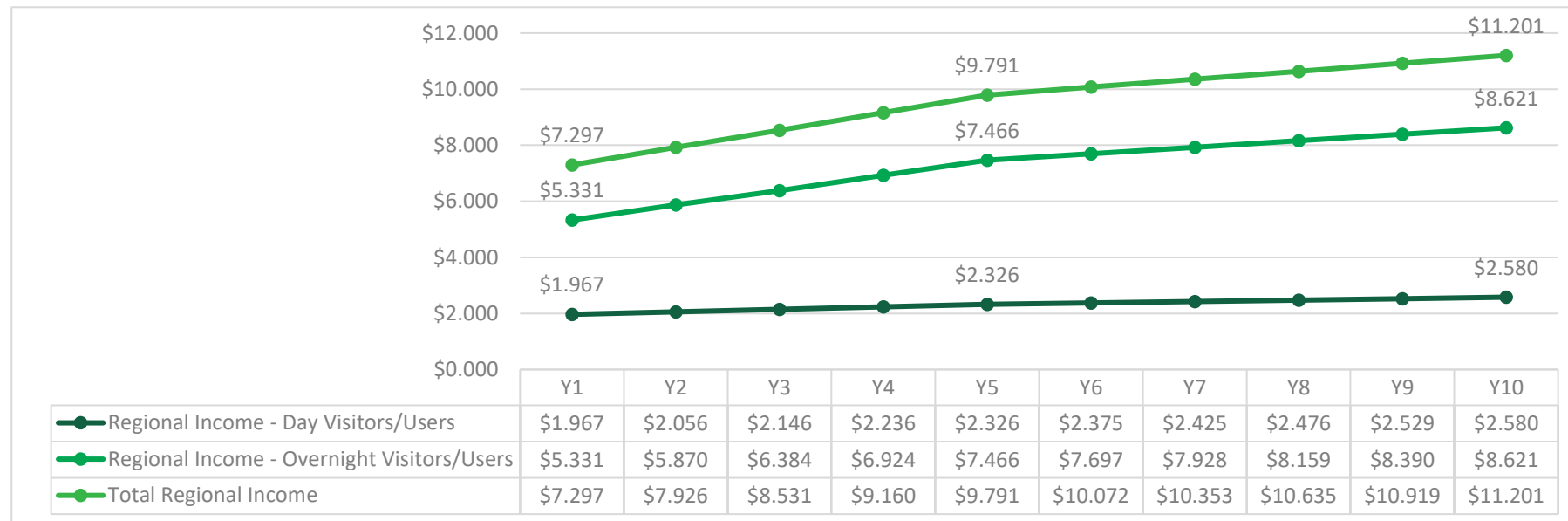
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

10.3 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals \$7.3 million in year 1, increasing to \$11.2 million in year 10.¹⁹

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is around \$2.0 million in year 1 and \$2.6 million in year 10. Overnight users/visitors boost total regional income by \$5.3 million in year 1 and \$8.6 million in year 10.

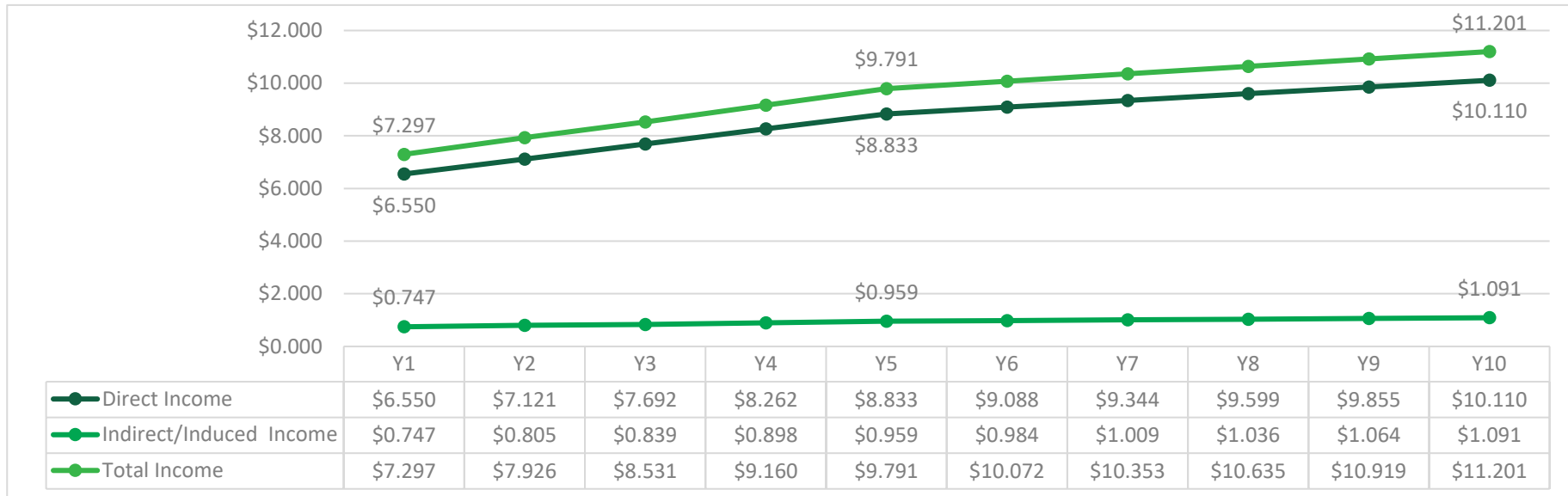
Figure 25. Case 2 Reduced Trails Network Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

¹⁹ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated income tax and GST on spending, are both treated as leakages from the region.

Figure 26. Case 2 Reduced Trails Network Regional Income Generated
(\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Table 35. Case 2 Reduced Trails Network Regional Income Generated
(\$million 2021 prices)

Case 2. Regional Income \$ million (2021 prices)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Day Visitors											
Direct Income	\$1.739	\$1.819	\$1.898	\$1.978	\$2.057	\$2.102	\$2.147	\$2.192	\$2.237	\$2.282	\$20.451
Indirect/Induced	\$0.227	\$0.238	\$0.248	\$0.258	\$0.269	\$0.273	\$0.278	\$0.284	\$0.292	\$0.298	\$2.666
Total Income	\$1.967	\$2.056	\$2.146	\$2.236	\$2.326	\$2.375	\$2.425	\$2.476	\$2.529	\$2.580	\$23.117
Overnight Visitors											
Direct Income	\$4.811	\$5.302	\$5.793	\$6.285	\$6.776	\$6.986	\$7.197	\$7.407	\$7.618	\$7.828	\$66.004
Indirect/Induced	\$0.520	\$0.568	\$0.591	\$0.639	\$0.690	\$0.710	\$0.731	\$0.752	\$0.772	\$0.793	\$6.766
Total Income	\$5.331	\$5.870	\$6.384	\$6.924	\$7.466	\$7.697	\$7.928	\$8.159	\$8.390	\$8.621	\$72.769
Total Visitors											
Direct Income	\$6.550	\$7.121	\$7.692	\$8.262	\$8.833	\$9.088	\$9.344	\$9.599	\$9.855	\$10.110	\$86.455
Indirect/Induced	\$0.747	\$0.805	\$0.839	\$0.898	\$0.959	\$0.984	\$1.009	\$1.036	\$1.064	\$1.091	\$9.431
Total Income	\$7.297	\$7.926	\$8.531	\$9.160	\$9.791	\$10.072	\$10.353	\$10.635	\$10.919	\$11.201	\$95.886

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Total regional income over 10 years for all visitors accounted for a total of \$95.9 million.

Table 36. Case 2 Reduced Trail Network Regional Income Generated 10 Years
(\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$20.451	\$66.004	\$86.455
Indirect/Induced Income	\$2.666	\$6.766	\$9.431
Total Income	\$23.117	\$72.769	\$95.886

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

10.4 Benefit Cost Analysis Case 2 Reduced Trail Network

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

10.4.1 Trail Costs 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million (see Appendix D).²⁰

10.4.2 Measuring Benefits – 10 Years

The measured benefits of the Warburton MTB Trails comprise the increase in regional income generated by trail users, the health benefits, and a notional consumer value to users of the trails.

Increase in Regional income

The increase in regional income generated by trail users spending over a 10-year period totals \$89.5 million (in constant \$2021 prices).

Table 37. Case 2 Reduced Trails Network Regional Income Generated by Trail Users (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$20.451	\$66.004	\$86.455
Indirect/Induced Income	\$2.666	\$6.766	\$9.431
Total Regional Income	\$23.117	\$72.769	\$95.886

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

²⁰ Yarra Ranges Council September 2020

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).²¹

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices (and average of \$10 per hour) and 4 hours for advanced and experts. Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$31.5 million (in constant prices \$2021) over the 10-year period or an average of \$3.1 million per year.

10.4.3 Benefit Cost Analysis

All Benefits

The following table and chart show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

²¹ Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 38. Case 2 Reduced Trails Network Health Benefit Estimates (\$million 2021 prices)

Case 2 Health Benefits Valuation		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Ave hours	\$ million 2021 prices											
2.5	Beginner	\$0.603	\$0.648	\$0.692	\$0.737	\$0.781	\$0.804	\$0.826	\$0.848	\$0.870	\$0.892	\$7.701
2.5	Novice	\$0.764	\$0.814	\$0.865	\$0.916	\$0.966	\$0.993	\$1.019	\$1.046	\$1.072	\$1.099	\$9.554
4	Intermediate	\$1.364	\$1.431	\$1.499	\$1.567	\$1.635	\$1.667	\$1.699	\$1.731	\$1.763	\$1.795	\$16.150
4	Advance & Expert	\$0.479	\$0.501	\$0.522	\$0.544	\$0.566	\$0.577	\$0.587	\$0.598	\$0.609	\$0.620	\$5.603
	Total All	\$3.209	\$3.394	\$3.579	\$3.764	\$3.948	\$4.040	\$4.131	\$4.223	\$4.314	\$4.406	\$39.008
4	Interstate & Internationals	\$0.372	\$0.481	\$0.589	\$0.697	\$0.806	\$0.843	\$0.880	\$0.917	\$0.955	\$0.992	\$7.533
	Total less interstate & internationals	\$2.837	\$2.914	\$2.990	\$3.066	\$3.142	\$3.197	\$3.251	\$3.305	\$3.360	\$3.414	\$31.476

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

Consumer/User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$18.5 million (constant prices \$2021) over 10 years for all trail users or an average of \$1.8 million per year.

Table 39. Case 2 Reduced Trail Network Consumer Value Estimates (\$million 2021 prices)

Case 2: Reduced Trail Network Consumer Value \$ million 2021 prices	Year										
	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Beginner	\$0.362	\$0.389	\$0.415	\$0.442	\$0.469	\$0.482	\$0.495	\$0.509	\$0.522	\$0.535	\$4.621
Novice	\$0.458	\$0.489	\$0.519	\$0.549	\$0.580	\$0.596	\$0.612	\$0.628	\$0.643	\$0.659	\$5.732
Intermediate	\$0.511	\$0.537	\$0.562	\$0.588	\$0.613	\$0.625	\$0.637	\$0.649	\$0.661	\$0.673	\$6.056
Advance & Expert	\$0.180	\$0.188	\$0.196	\$0.204	\$0.212	\$0.216	\$0.220	\$0.224	\$0.228	\$0.232	\$2.101
Total All	\$1.511	\$1.602	\$1.692	\$1.783	\$1.874	\$1.919	\$1.964	\$2.010	\$2.055	\$2.100	\$18.511

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

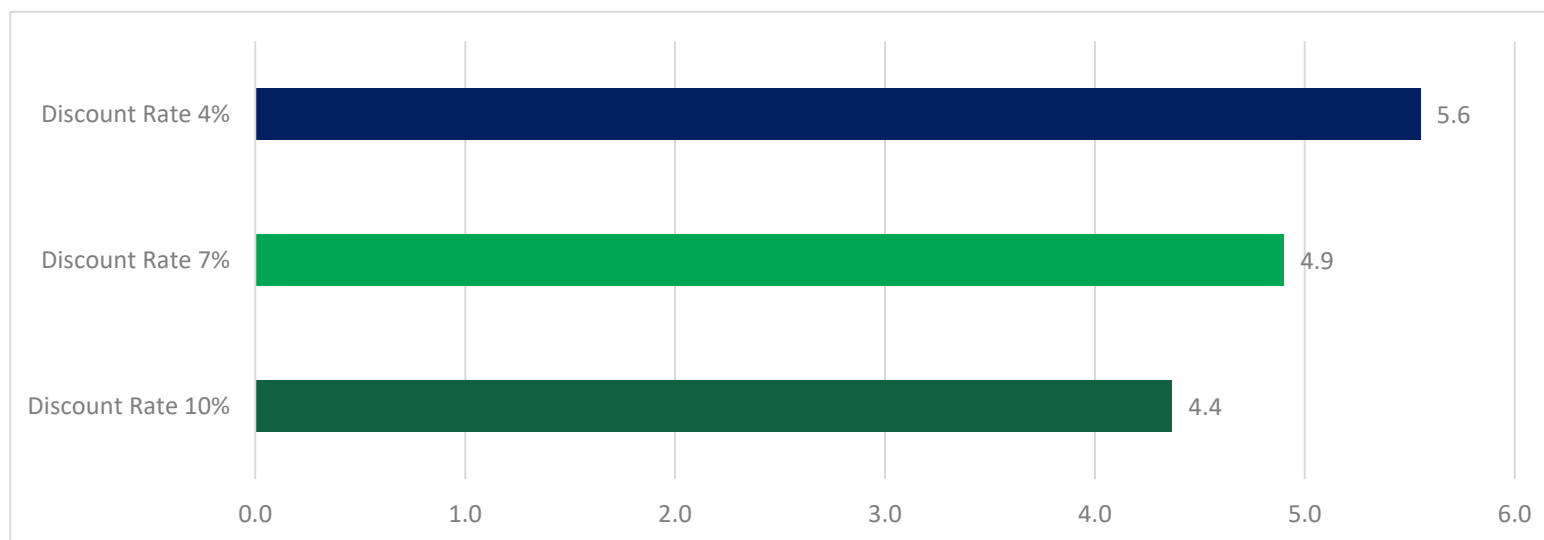
Table 40. Case 2 Reduced Trails Network Benefits and Cost Analysis 10 Years (Constant prices \$2021)

Case 2 Reduce Trail Network Total Project	Discount Rate	Discount Rate	Discount Rate
Regional Cost Benefit (\$2021 prices) Period : 10Years	4%	7%	10%
Trail Costs			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Benefits (users) (10 years)			
Regional Income Increase	\$95,886,257	\$95,886,257	\$95,886,257
Health Benefits (Vic Users)	\$31,475,768	\$31,475,768	\$31,475,768
User Value (shadow user price)	\$18,510,519	\$18,510,519	\$18,510,519
Total Benefits	\$145,872,544	\$145,872,544	\$145,872,544
Total Benefits (\$) Present Value	\$121,523,467	\$107,280,265	\$95,625,119
Net Present Value (\$) Total Benefits	\$99,635,967	\$85,392,765	\$73,737,619
Benefit Cost Ratio (BCR - All Benefits)	5.6	4.9	4.4
NPV/Cost	4.6	3.9	3.4
Regional Income Only (PV)	\$79,709,563	\$70,253,841	\$62,520,588
BCR (Regional Income only)	3.6	3.2	2.9

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates. For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 4.9. The present value of total benefits generated by the investment are 4.9 times the total costs of the project over a 10-year period. If only the direct regional benefit of increase in regional income is included in the benefits, the BCR is 3.2 (for a 7% discount rate).

Figure 27. Case 2 Reduced Trails Network Benefit Cost Ratio (BCR- All Benefits) Warburton Trail Development



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021

11 Case 3 No Drop A K Trail Operations Phase – Regional Economic Impacts

The operations phase regional economic impacts of the trails are driven by the expenditure of visitors/users in towns adjacent to the trail and in the broader region. This analysis is for the trail network with no Drop A K trail.

MCA’s regional economic model is used to estimate the employment and income impacts of the trail. The model allocates spending across relevant industry sectors and takes account of the significant shares of the gross spending by visitors/users, which leaks out of the region.²²

11.1 Employment Impacts

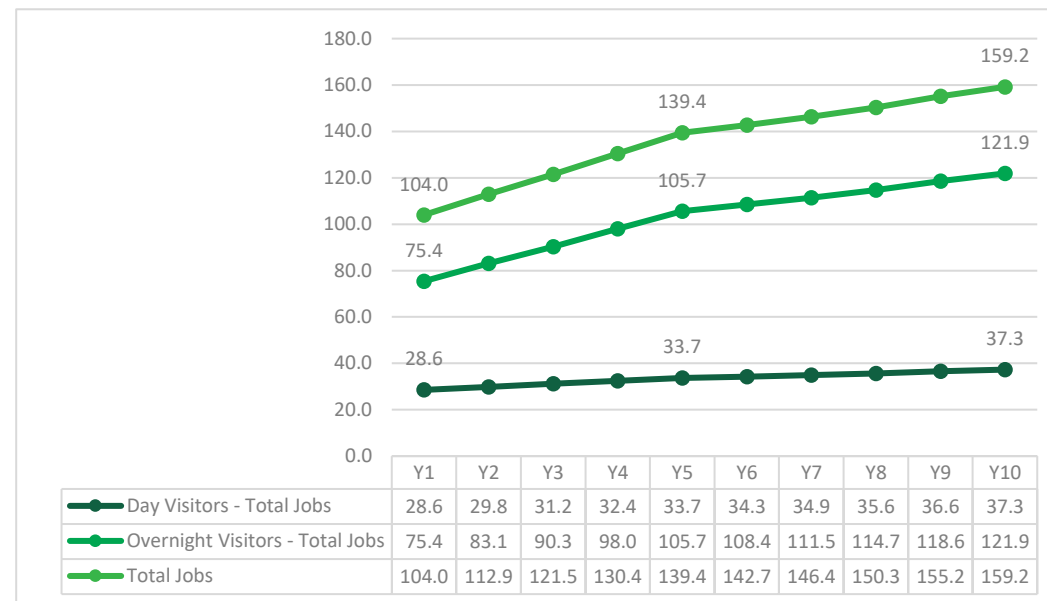
The charts and tables below show the increase in jobs in the region generated by each of the user/visitor groups.

- The operation of the trails would generate a total of 104.0 full-time equivalent jobs in year 1, increasing to 159.2 FTE jobs in year 10.
- Of the total jobs in year 10, day visitors would account for 37.3 FTE jobs, overnight visitors for 121.9 jobs.

An events program would create an equivalent of 13.5 FTE additional jobs in year 10 (see Appendix B).

²² The spending by trail users is not the economic impact and does not represent the increase in regional income. There is a major leakage of this spending out of the region due to: the GST (10%); and a significant component of the value of services and products purchased by visitors comes from outside the region (e.g., food ingredients, soft drinks, beer, consumer

Figure 28.Case 3 No Drop A K Total Jobs Generated by Trail Operations (no events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE SOME DIFFERENCES DUE TO ROUNDING.

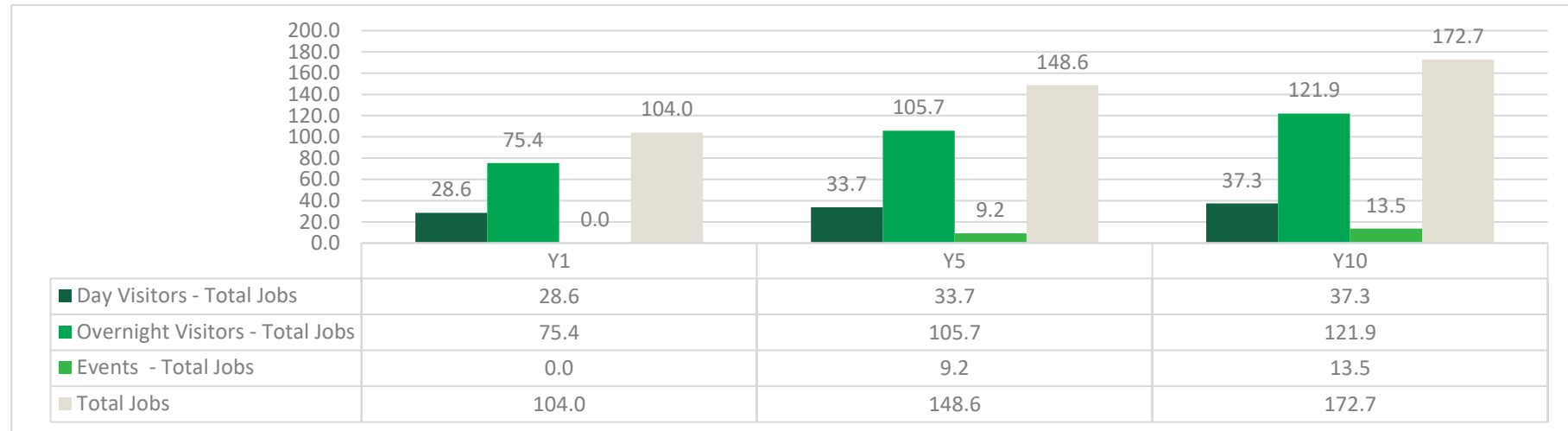
products bought etc.). The model takes account of these leakages and estimates employment impacts and the increase in regional income.

Table 41. Case 3 No Drop A K Trail Jobs Generated by Trail Operations (no events) (FTE no.)

Jobs Generated (FTE)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Day Visitors – Trail Users										
Direct Jobs	25.3	26.4	27.5	28.7	29.8	30.5	31.1	31.7	32.4	33.0
Indirect/Induced	3.3	3.4	3.6	3.8	3.9	3.8	3.8	3.9	4.2	4.3
Total Jobs - Day Visitors	28.6	29.8	31.2	32.4	33.7	34.3	34.9	35.6	36.6	37.3
Overnight Visitors – Trail Users										
Direct Jobs	67.8	74.7	81.7	88.6	95.5	98.5	101.5	104.4	107.4	110.4
Indirect/Induced	7.6	8.3	8.7	9.4	10.1	9.9	10.0	10.3	11.2	11.5
Total Jobs - Overnight Visitors	75.4	83.1	90.3	98.0	105.7	108.4	111.5	114.7	118.6	121.9
Total Visitors – Trail Users										
Direct Jobs	93.0	101.1	109.2	117.3	125.3	129.0	132.6	136.2	139.8	143.4
Indirect/Induced	10.9	11.8	12.3	13.1	14.1	13.8	13.8	14.1	15.4	15.8
Total All Jobs	104.0	112.9	121.5	130.4	139.4	142.7	146.4	150.3	155.2	159.2

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Figure 29. Case 3 No Drop A K Trail Total Job (with events) (FTE no.)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 42. Case 3 No Drop A K Total Jobs Generated by Trail Operations (FTE no.)

Case 3: No Drop A K Trail	Year 1	Year 5	Year 10
Day Users/Visitors			
Direct Jobs	25.3	29.8	33.0
Indirect/Induced Jobs	3.3	3.9	4.3
Total Jobs	28.6	33.7	37.3
Overnight User/Visitors			
Direct Jobs	67.8	95.5	110.4
Indirect/Induced Jobs	7.6	10.1	11.5
Total Jobs	75.4	105.7	121.9
Events			
Direct Jobs	0	7.4	11.1
Indirect/Induced Jobs	0	1.9	2.5
Total Jobs	0	9.3	13.5
Total All Users/Visitors (no events)			
Direct Jobs	93.0	125.3	143.4
Indirect/Induced Jobs	10.9	14.1	15.8
Total Jobs	104.0	139.4	159.2
Total All Users/Visitors (with events)			
Direct Jobs	93.0	132.7	154.5
Indirect/Induced Jobs	10.9	15.9	18.2
Total Jobs	104.0	148.6	172.7

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

11.2 Jobs by Industry

On a sector basis, the jobs (FTE- direct and indirect) generated by trail users are mainly concentrated in:

- accommodation
- food and beverage
- recreational services and other visitor services
- transport (including shuttles)
- other retail.

The following table shows estimates for day visitors and overnight visitors.

The development of the trails will see the development of local MTB service industry. The industry analysis highlights that total full time equivalent (FTE) jobs generated by trail users in year 10 would be in:

- recreation services/other services (MTB hire, guides, equipment etc.) 38.0 jobs
- transport (including shuttles) 15.1 FTE jobs
- accommodation 43.8 jobs,
- food and beverage 45.4 jobs.

Table 43. No Drop A K Trail Total Jobs Generated by Industry (no events) (FTE no.)

Case 3 No National Park Trails	Year 1	Year 5	Year 10
All Jobs			
Day Visitors			
Accommodation	0.0	0.0	0.0
Food & Beverage	9.9	11.7	12.9
Other retail	3.0	3.5	3.9
Health	0.3	0.3	0.4
Transportation	3.4	4.0	4.4
Communication	0.1	0.1	0.1
Recreation Services/Other Services	11.4	13.4	14.8
Education	0.2	0.2	0.2
Miscellaneous	0.4	0.5	0.5
Total	28.6	33.7	37.3
Overnight Visitors			
Accommodation	26.9	37.9	43.8
Food & Beverage	20.1	28.1	32.5
Other retail	5.3	7.4	8.6
Health	0.6	0.8	0.9
Transportation	6.7	9.3	10.7
Communication	0.2	0.3	0.3
Recreation Services/Other Services	14.4	20.1	23.2
Education	0.4	0.5	0.5
Miscellaneous	0.9	1.2	1.3
Total	75.4	105.7	121.9
Total All Jobs			
Accommodation	26.9	37.9	43.8
Food & Beverage	30.0	39.8	45.4
Other Retail	8.3	11.0	12.4
Health	0.9	1.2	1.3
Transportation	10.1	13.3	15.1
Communication	0.3	0.4	0.5
Recreation Services/Other Services	25.7	33.5	38.0
Education	0.5	0.7	0.7
Miscellaneous	1.3	1.6	1.8
Total	104.0	139.4	159.2

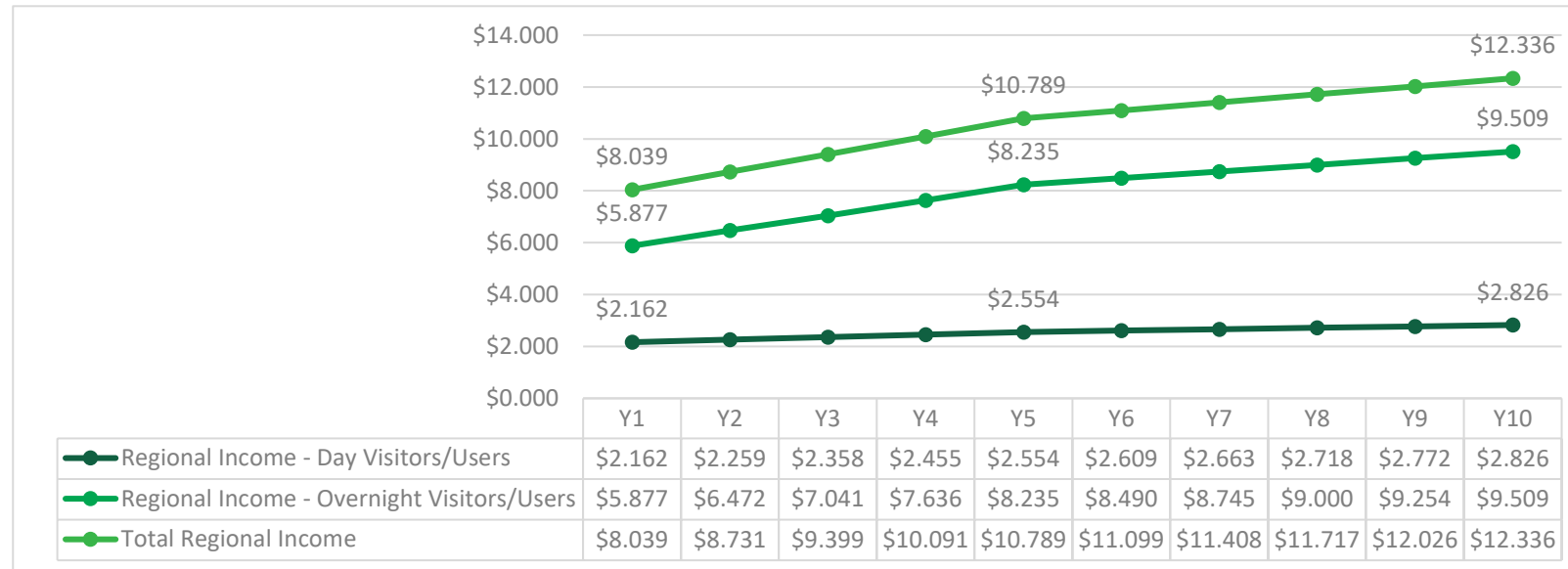
SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

11.3 Regional Income Impacts

The increase in regional income (in constant 2021 prices) generated annually by the operation of the trails and visitor/user spending totals \$8.0 million in year 1, increasing to \$12.3 million in year 10.²³

The increase in income (direct and indirect/induced) generated by day visitors/users (including locals and other users) is \$2.1 million in year 1 and \$2.8 million in year 10. Overnight users/visitors boost total regional income by \$5.9 million in year 1 and \$9.5 million in 2031.

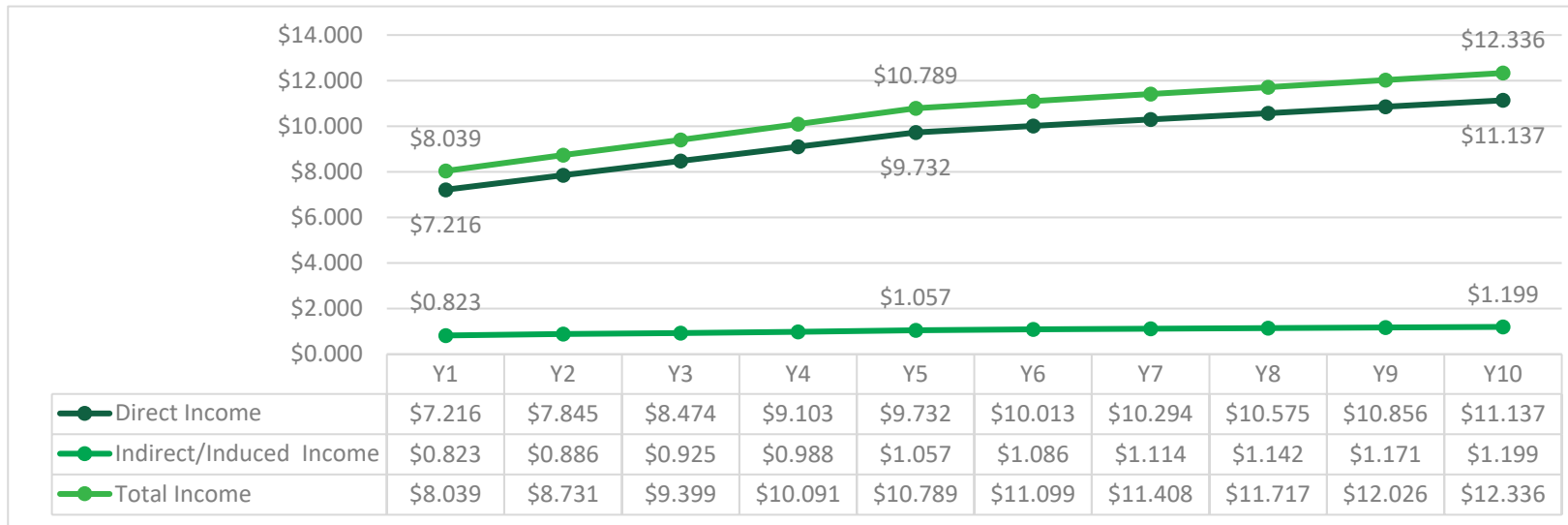
Figure 30. Case 3 No Drop A K Trail Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

²³ Regional income is the total net income generated from the activity and covers wages and salaries of employees and profits of businesses within the region. It includes income generated directly within the business and indirect income, which is generated in other regional businesses (wages and profits) from the multiplier impacts of employee spending on the region. In the modelling of income generated income tax and GST on spending, are both treated as leakages from the region.

Figure 31. Case 3 No Drop A K Trail – Regional Income Generated (\$million 2021 prices)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Table 44. Case 3 No Drop A K Regional Income Generated (\$million 2021 prices)

Case 3. Regional Income \$ million (2021 prices)	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Total 10 Years
Day Visitors											
Direct Income	\$1.912	\$1.999	\$2.085	\$2.171	\$2.258	\$2.307	\$2.355	\$2.404	\$2.453	\$2.502	\$22.446
Indirect/Induced	\$0.250	\$0.260	\$0.273	\$0.283	\$0.297	\$0.302	\$0.308	\$0.313	\$0.319	\$0.325	\$2.930
Total Income	\$2.162	\$2.259	\$2.358	\$2.455	\$2.554	\$2.609	\$2.663	\$2.718	\$2.772	\$2.826	\$25.375
Overnight Visitors											
Direct Income	\$5.304	\$5.846	\$6.389	\$6.932	\$7.474	\$7.706	\$7.939	\$8.171	\$8.403	\$8.635	\$72.798
Indirect/Induced	\$0.573	\$0.626	\$0.652	\$0.705	\$0.761	\$0.784	\$0.806	\$0.829	\$0.852	\$0.874	\$7.461
Total Income	\$5.877	\$6.472	\$7.041	\$7.636	\$8.235	\$8.490	\$8.745	\$9.000	\$9.254	\$9.509	\$80.259
Total Visitors											
Direct Income	\$7.216	\$7.845	\$8.474	\$9.103	\$9.732	\$10.013	\$10.294	\$10.575	\$10.856	\$11.137	\$95.244
Indirect/Induced	\$0.823	\$0.886	\$0.925	\$0.988	\$1.057	\$1.086	\$1.114	\$1.142	\$1.171	\$1.199	\$10.391
Total Income	\$8.039	\$8.731	\$9.399	\$10.091	\$10.789	\$11.099	\$11.408	\$11.717	\$12.026	\$12.336	\$105.634

SOURCE: MCA MODELLING & ESTIMATES,AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Over 10 years all trail users boosted regional income by \$105.6 million.

Table 45. Case 3 No Drop A K Trail Regional Income Generated 10 Years (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$22.446	\$72.798	\$95.244
Indirect/Induced Income	\$2.930	\$7.461	\$10.391
Total Income	\$25.375	\$80.259	\$105.634

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

11.4 Cost Benefit Analysis Case 3 No Drop A K Trail

The benefits and costs of the Warburton MTB Trails are analysed for a 10-year period.

11.4.1 Trail Costs 10 Years

The estimated construction cost of the trails is \$17.1 million (Stage 1 & 2), and 10-year maintenance costs are \$4.8 million for a total 10-year cost of \$21.9 million (see Appendix D).

Increase in Regional Income

The increase in regional income generated by trail users spending over a 10-year period totals \$105.634 million (in constant \$2021 prices).

Table 46. Case 3 No Drop A K Trail Regional Income Generated by Trail Users (\$million 2021 prices)

Case 2 Regional Income Total 10 Years	Day Visitors/Users \$m	Overnight Visitors/Users \$m	Total Visitors/Users \$m
Direct Income	\$22.446	\$72.798	\$95.244
Indirect/ Induced Income	\$2.930	\$7.461	\$10.391
Total Regional Income	\$25.375	\$80.259	\$105.634

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Health Benefits

A report by Marsden Jacobs Associates indicates that exercise of cycling/active walking in Victorian Parks has net healthcare benefits (in terms of avoided health costs) of \$15 per hour in terms of a reduction in lifetime health costs (adjusted for injury).²⁴

Healthcare benefits are measured as the net (adjusted for injury) avoided costs to the national healthcare system (private costs and government costs) attributable to nature-based outdoor activity.

- For the analysis of these trails, we have assumed an average cycle period of 2.5 hours for beginners & novices (and average of \$10 per hour) and 4 hours for advanced and experts. Health benefits are measured for Victorian users only (i.e., residents of Yarra Ranges LGA, Melbourne Metro area and regional Victoria).
- This indirect health benefit is estimated at \$35.0 million (in constant prices \$2021) over the 10-year period or an average of \$3.5 million per year.

²⁴ Victoria's Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016 P10 & 21.

Table 47. Case 3 No Drop A K Health Benefit Estimates (\$million 2021 prices)

Case 3		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
Health Benefits Valuation												
Ave hours	\$ million 2020 prices											
2.5	Beginner	\$0.603	\$0.648	\$0.692	\$0.737	\$0.781	\$0.804	\$0.826	\$0.848	\$0.870	\$0.892	\$7.701
2.5	Novice	\$0.850	\$0.906	\$0.962	\$1.019	\$1.075	\$1.104	\$1.134	\$1.163	\$1.192	\$1.222	\$10.626
4	Intermediate	\$1.632	\$1.713	\$1.794	\$1.875	\$1.956	\$1.995	\$2.033	\$2.071	\$2.110	\$2.148	\$19.327
4	Advance & Expert	\$0.480	\$0.501	\$0.523	\$0.545	\$0.566	\$0.577	\$0.588	\$0.599	\$0.610	\$0.620	\$5.609
	Total All	\$3.564	\$3.768	\$3.972	\$4.175	\$4.379	\$4.480	\$4.580	\$4.681	\$4.782	\$4.882	\$43.263
4	Interstate & Internationals	\$0.406	\$0.525	\$0.644	\$0.762	\$0.881	\$0.922	\$0.962	\$1.003	\$1.044	\$1.085	\$8.234
	Total less interstate & internationals	\$3.158	\$3.243	\$3.328	\$3.413	\$3.498	\$3.558	\$3.618	\$3.678	\$3.738	\$3.798	\$35.029

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

Consumer/User Valuation

In the modelling we have assumed that there are no charges for the use of the trail. However, a valuation can be placed on the experience based on a shadow price or notional charge (what a person may be willing to pay). For the trail we have assumed it to be \$15 per trail ride. This benefit measure totals \$20.347 million (constant prices \$2021) over 10 years for all trail users or an average of \$2.2 million per year.

Table 48. Case 3 No Drop A K Trail Consumer Value Estimates (\$million 2021 prices)

Case 3. Consumer Value	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total 10 Years
\$ million 2020 prices											
Beginner	\$0.362	\$0.389	\$0.415	\$0.442	\$0.469	\$0.482	\$0.495	\$0.509	\$0.522	\$0.535	\$4.621
Novice	\$0.510	\$0.544	\$0.577	\$0.611	\$0.645	\$0.663	\$0.680	\$0.698	\$0.715	\$0.733	\$6.376
Intermediate	\$0.612	\$0.642	\$0.673	\$0.703	\$0.734	\$0.748	\$0.762	\$0.777	\$0.791	\$0.806	\$7.248
Advance & Expert	\$0.180	\$0.188	\$0.196	\$0.204	\$0.212	\$0.216	\$0.220	\$0.225	\$0.229	\$0.233	\$2.103
Total All	\$1.664	\$1.763	\$1.862	\$1.961	\$2.060	\$2.109	\$2.158	\$2.208	\$2.257	\$2.307	\$20.347

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

11.4.2 Cost Benefit Analysis

All Benefits

The following table and chart show the benefits and costs of the operations of the trails over a 10-year period. The benefits are measured by:

- the increase in regional income generated by trail users over a 10-year period
- the estimated health benefits
- the user value.

The costs include:

- design and planning
- construction costs
- asset maintenance costs.

For the comparison, the present value of the benefits is calculated using 3 discount rates (4%, 7% and 10%).

Table 49. Case 3 No Drop A K Trail Benefits and Cost Analysis 10 Years (Constant 202 prices)

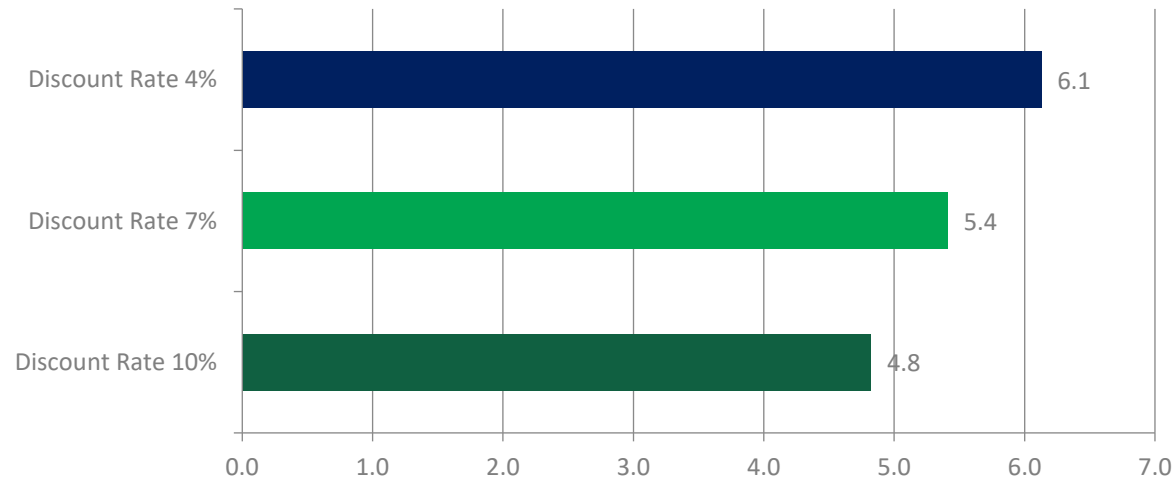
Case 3 No Drop A K Trail	Discount Rate	Discount Rate	Discount Rate
Total Project - Regional Cost Benefit (\$2021 prices)	4%	7%	10%
Period : 10Years			
Trail Costs			
Design, Development and Planning Costs	\$2,000,000	\$2,000,000	\$2,000,000
Capital Costs Trails & Infrastructure 2020 (\$)	\$17,090,000	\$17,090,000	\$17,090,000
Costs - Maintenance (10 years)	\$4,797,500	\$4,797,500	\$4,797,500
Total Costs	\$21,887,500	\$21,887,500	\$21,887,500
Benefits (users) (10 years)			
Regional Income Increase	\$105,634,261	\$105,634,261	\$105,634,261
Health Benefits (Vic Users)	\$35,028,607	\$35,028,607	\$35,028,607
User Value (shadow user price)	\$20,347,339	\$20,347,339	\$20,347,339
Total Benefits	\$161,010,206	\$161,010,206	\$161,010,206
Total Benefits (\$) Present Value	\$134,138,721	\$118,419,702	\$105,558,902
Net Present Value (\$) Total Benefits	\$112,251,221	\$96,532,202	\$83,671,402
Benefit Cost Ratio (BCR – All Benefits)	6.1	5.4	4.8
NPV/Cost	5.1	4.4	3.8
Regional Income Only			
Regional Income Only (PV)	\$87,813,593	\$77,396,807	\$68,879,686
BCR (Regional Income only)	4.0	3.5	3.1

SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021. NOTE: DIRECT BENEFITS ARE THE VALUE TO USERS OF A FACILITY; USUALLY THIS IS MEASURE BY USER PAYMENTS/FEES. IN THIS CASE THERE ARE NO USER CHARGES FOR THE TRAIL AND A SHADOW PRICE HAS BEEN APPLIED (\$15 PER RIDE) AS A MEASURE OF USER VALUE. THEREFORE, BENEFITS ARE THE INCREASE IN REGIONAL INCOME GENERATED BY VISITOR SPENDING, THE HEALTH BENEFITS OF EXERCISE ACTIVITY AND THE USER VALUE.

The chart below compares Benefit Cost Ratios (BCR) for the 3 discount rates (for all trail benefits). For a trail project a 7% discount rate is appropriate, and the project yields a positive BCR of 5.4. The present value of total benefits generated by the investment are 5.4 times the total costs of the project over a 10-year period.

If only the direct benefit of an increase in regional income is included, the BCR is 3.5 (for a 7% discount rate).


Figure 32. Case 3 No Drop A K Benefit Cost Analysis (BCR) (all benefits)



SOURCE: MCA MODELLING & ESTIMATES, AUGUST 2021

12 References

- AusPlay Survey Results January 2019 - December 2019. Released 30 April 2020 (and re-issued 24 June 2020)
<https://www.clearinghouseforsport.gov.au/research/smi/ausplay/results/sport>
- EES Chapter 3 – Project Description Warburton Mountain Bike Destination Project, Yarra Ranges Council
- Local Government Area Profiles, 2019 , Yarra Ranges (S) LGA, Tourism Research Australia
- Mountain Bikers, Derby Tasmania Survey Data, XYST May 2021
- Moving Forward The Role Of Domestic Travel In Australia’s Tourism Recovery August 2020, Tourism Research Australia
- Warburton Mountain Bike Destination, Final Report May 2019, Instinct and Reason
- Warburton MTB trail research -quantitative findings, instinct and reason, December 2020
- Warburton MTB trail additional research -quantitative findings, instinct and reason, May 2021
- Victoria in Future 2019 (VIF2019) projections by LGA, June 2019
- Victoria’s Nature-Based Outdoor Economy- Key Estimates and Recommendations, Marsden Jacobs Associates, January 2016

A photograph of a forest with tall, straight tree trunks and a pile of cut wood on the ground. The trees are mostly bare, suggesting a winter or late autumn setting. The ground is covered in dry leaves and twigs. A pile of cut wood is visible in the lower right foreground. The lighting is natural, with shadows cast across the forest floor.

Appendices

APPENDIX A – MODELLING ASSUMPTIONS

Table A.1 Trail Use Modelling Assumptions

Modelling	Description	Source
Population Data	Population projections by LGA 2021 to 2031. Note 2021 estimates are assumed to apply for year 1, when Stage 1 trail becomes operational.	Victoria in Future 2019 (VIF2019) projections by LGA, June 2019
Mountain Bike Participants	Estimate for LGAs based on 1.4% participation rate for year 2. (AusPlay Survey 2019) Assumed increase to 1.5% 2026; and 1.7% in year 10.	Participation rate: 1.4% AusPlay Survey Results January 2019 - December 2019. Released 30 April 2020 (and re-issued 24 June 2020) Assumed increases with MTB becoming more popular as a sport/recreation activity.
Participant Types	Categories <ul style="list-style-type: none"> • Beginner • Novice • Intermediate • Advance & Expert Shares applied to all regional groupings to provide estimates of number of riders by type. (See Table A.2)	Based on I & R survey data Report Page 16
Catchment Areas for Trails	Based on clustering of LGAs into regions	Clusters based on LGA locations
Interstate /internationals/other regional/intrastate	Numbers are assumed and increase over time	MCA assumptions
Likelihood of visiting the trails	% of MTB participants that would visit the Warburton Trails. (see Table A.3) <ul style="list-style-type: none"> • Differences in assumptions for regions are based on proximity. • Likelihood of visiting trails increases as trails network is extended. 	MCA assumptions
Number of uses of trails per year (Ave rides per year)	Assumptions based on proximity to trails. Adjacent areas and eastern metropolitan areas would have more average rides. Average annual rides are assumed for each local government area/cluster.	MCA assumptions
Interstate /internationals/other regionals. Intrastate (Ave rides per visit = 2)	Assumes they are mainly overnight visitors (80%) and use trails over 2 days = average 2 rides during stay.	MCA assumptions
International visitors	Covid-19 limitations on international visitors in 2022. Assumes zero in year 1; increasing to 6000 in 2026; and 8000 in year 10.	MCA assumptions
Spending in Region	Base on average spending rates (see Table A.4)	

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021

The assumptions users in modelling Case 2: Reduced Trails Network are in Table A.5.

Table A.2 Trail User Categories

Experience Level	Total (n=702) 100%	Melbourne (n=302) 43%	Rest of Vic (n=100) 14%	Sydney (n=200) 28%	New Zealand (n=100) 14%
Beginner	23%	22%	23%	23%	25%
Novice	30%	33%	33%	30%	27%
Intermediate	36%	36%	34%	35%	39%
Advanced & Expert	11%	10%	10%	13%	9%
Total	100%	100%	100%	100%	100%

SOURCE: WARBURTON MTB TRAIL ADDITIONAL RESEARCH -QUANTITATIVE FINDINGS, INSTINCT AND REASON, MAY 2021

Table A.3 Trail Use Assumptions Base Case – Likely to Visit and Type of Visit

Regions	Visit Trails			Type of Visit	
	Likely Visit	Likely Visit	Likely Visit	Overnight visit	Day Visit
	Year 1	Year 5	Year 10		
Local -Yarra Ranges					
Beginner	75%	80%	90%	0%	100%
Novice	75%	80%	90%	0%	100%
Intermediate	75%	80%	90%	0%	100%
Advance & Expert	75%	80%	90%	0%	100%
Adjacent Regional					
Beginner	60%	60 %	60 %	20%	80%
Novice	60%	60 %	60 %	20%	80%
Intermediate	60%	60 %	60 %	20%	80%
Advance & Expert	60%	60 %	60 %	20%	80%
Adjacent Urban					
Beginner	50%	55 %	60 %	20%	80%
Novice	50%	55 %	60 %	20%	80%
Intermediate	50%	55 %	60 %	20%	80%
Advance & Expert	50%	55 %	60 %	20%	80%
Eastern Suburbs					
Beginner	50%	.55 %	55 %	30%	70%
Novice	50%	.55 %	55 %	30%	70%
Intermediate	50%	.55 %	55 %	30%	70%
Advance & Expert	50%	.55 %	55 %	30%	70%
Northern Suburbs					
Beginner	40%	45 %	45 %	30%	70%
Novice	40%	45 %	45 %	30%	70%
Intermediate	40%	45 %	45 %	30%	70%
Advance & Expert	40%	45 %	45 %	30%	70%

Regions	Visit Trails			Type of Visit	
	Likely Visit	Likely Visit	Likely Visit	Overnight visit	Day Visit
	Year 1	Year 5	Year 10		
Other - West	20%	25%	25 %	40%	60%
Beginner	20%	25%	25 %	40%	60%
Novice	20%	25%	25 %	40%	60%
Intermediate	20%	25%	25 %	40%	60%
Advance & Expert	20%	25%	25 %	40%	60%
South East					
Beginner	30%	30%	40%	30%	70%
Novice	30%	30%	40%	30%	70%
Intermediate	30%	30%	40%	30%	70%
Advance & Expert	30%	30%	40%	30%	70%
Other Regional/Intrastate					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%
Interstate					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%
Internationals					
Beginner	100%	100%	100%	80%	20%
Novice	100%	100%	100%	80%	20%
Intermediate	100%	100%	100%	80%	20%
Advance & Expert	100%	100%	100%	80%	20%

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021

12.1 Spending Assumptions

Average spending assumptions have been derived from a survey of users of MTB trails in Derby Tasmania and a review of TRA average spending (2019) for Yarra Ranges LGA. ²⁵ The spend numbers are weighted average totals for each rider category based on the spend pattern of each rider type. In particular, the percentage of riders that rent bikes and/or use shuttles. For example, Beginners and Novices are more likely to rent bikes compared with Intermediates and Advance & Experts. A very high percentage of interstate and internationals in all categories would rent bikes. Most locals are likely to have their own bike. Spending mix includes accommodation (overnights); bike hire; shuttle and meal – food & drinks.

Table A.4 Spending Assumptions

Modelling Assumptions	All Cases		Case 1 : Base Case	Case 2: Reduce Trails Network	Case 3 : No Drop A K Trail
	Day	Overnight	Duration Stay - Overnights	Duration Stay - Overnights	Duration Stay - Overnights
Spending	Ave Spend	Ave Spend	Ave Nights	Ave Nights	Ave Nights
Yarra Ranges (S)					
Beginner	\$66	\$230	na	na	na
Novice	\$66	\$230	na	na	na
Intermediate	\$66	\$204	na	na	na
Advance & Expert	\$66	\$204	na	na	na
Metropolitan Areas					
Beginner	\$93	\$230	2	1.5	1.5
Novice	\$93	\$230	2	1.5	1.5
Intermediate	\$73	\$204	3	2.5	2.5
Advance & Expert	\$73	\$204	3	2.5	2.5
Adjacent Regional					
Beginner	\$93	\$230	2	1.5	1.5
Novice	\$93	\$230	2	1.5	1.5
Intermediate	\$73	\$204	3	2.5	2.5
Advance & Expert	\$73	\$204	3	2.5	2.5

²⁵ ESTIMATES DERIVED FROM MOUNTAIN BIKERS, DERBY TASMANIA SURVEY DATA, XYST MAY 2021; AND LOCAL GOVERNMENT AREA PROFILES, 2019, YARRA RANGES (S) LGA, TOURISM RESEARCH AUSTRALIA

Modelling Assumptions	All Cases		Case 1 : Base Case	Case 2: Reduce Trails Network	Case 3 : No Drop A K Trail
	Day	Overnight	Duration Stay - Overnights	Duration Stay - Overnights	Duration Stay - Overnights
Spending	Ave Spend	Ave Spend	Ave Nights	Ave Nights	Ave Nights
Other Regional					
Beginner	\$93	\$230	2	1.5	1.5
Novice	\$93	\$230	2	1.5	1.5
Intermediate	\$73	\$204	3	2.5	2.5
Advance & Expert	\$73	\$204	3	2.5	2.5
Interstate					
Beginner	\$93	\$253	2	1.5	1.5
Novice	\$93	\$253	2	1.5	1.5
Intermediate	\$73	\$261	3	2.5	2.5
Advance & Expert	\$73	\$261	3	2.5	2.5
Internationals					
	\$93	\$256			
Beginner	\$93	\$256	2	1.5	1.5
Novice	\$73	\$278	2	1.5	1.5
Intermediate	\$73	\$278	3	2.5	2.5
Advance & Expert	\$93	\$256	3	2.5	2.5

SOURCE: MCA MODELLING ASSUMPTIONS, JULY 2021. BASED ON XYST SURVEY DATA (MAY 2021); AND TRA DATA (2019) FOR YARRA RANGES LGA.

Case 2 Reduced Trail Network – Modelling Assumptions

The reduced trails network (no national park trails and drop) would result in lower levels of trail use by visitors from outside the region (mainly by the more experienced riders).

For estimating the impacts of these changes in the trails network, the following changes were made for the Case 2 modelling. These were based on the findings of the instinct and reason surveys (December 2020 & May 2021) in relation to impacts of removing all National Park Trails.

These changes would lead to a reduction in visits for the experienced categories of riders, a slower growth in user numbers and reductions in length of overnight stays. The changes in the modelling assumptions used are outlined in the following table.

Table A.5 Case 2 Reduced Trail Network Assumptions

Case 2: Reduced Trails Network – No National Park Trails		
Changes to Modelling Assumptions	Adjustment	
MTB Participation rate	Held at 2019 population average of participation rate of 1.4% In base case the rate was increased to 2026 1.5%; and 2031 1.7% .	MCA assumption
Likely to visit Warburton Trails	Visit rate (%) held at year 1 level in year 5 and year 10 for Intermediate and Advance & Expert categories	MCA assumption
Yarra Ranges Locals	No change in users due to proximity to trails	
Reduction in Trail User Visits	Covers : metro , regional , intrastate and internationals (Reductions on Base Case)	
Beginner	Reduce trail user numbers by 8%	Composite: I and R survey findings May 2021 & I and R survey findings December 202026
Novice	Reduce trail user numbers by 21%	
Intermediate	Reduce trail user numbers by 33.5%	
Advance & Expert	Reduce trail user numbers by 21.5%	
Overnight Stays (Ave)	Reductions on Base Case	
Beginner	Reduce from 2 nights to 1.5 nights stay	MCA assumptions
Novice	Reduce from 2 nights to 1.5 nights stay	
Intermediate	Reduce from 3 nights to 2.5 nights stay	
Advance & Expert	Reduce from 3 nights to 2.5 nights stay	

SOURCE: MCA MODELLING, JULY 2021

²⁶ Warburton MTB trail research - quantitative findings, instinct and reason, December 2020 ; Warburton MTB trail additional research -quantitative findings, instinct and reason, May 2021

Case 3 No Drop A K Modelling Assumptions

The removal of the Drop A K Trail would result in lower levels of trail use by visitors from outside the region (with reductions in all user categories, particularly Novices and Intermediates). For estimating the impacts of these changes in the trails network, the following changes were made for the Case 3 modelling. These were based on the findings of the *instinct and reason* survey (May 2021) in relation to impacts of removing National Park Trails. Compared with the Base Case projections, these changes would lead to a reduction in visits in all rider categories, a slower growth in user numbers and likely reductions in average length of overnight stays in the region. The changes in the modelling assumptions used are outlined in the following table.

Table A.6 Case 3 No Drop A Trail Assumptions

Case 3 : No Drop A K Trail		
Changes to Modelling Assumptions	Adjustment	
MTB Participation rate	Held at 2019 population average of participation rate of 1.4% In base case the rate was increased to 2026 1.5%; and 2031 1.7% .	MCa assumption
Likely to visit Warburton Trails	Visit rate (%) held at year 1 level in year 5 and year 10 for Intermediate and Advance & Expert categories	MCa assumption
Yarra Ranges Locals	No change in users due to proximity to trails	
Reduction in Trail User Visits	Covers : metro , regional , intrastate and internationals (Reductions on Base Case)	
Beginner	Reduce trail user numbers by 8%	I and R survey findings May 2021 ²⁷
Novice	Reduce trail user numbers by 13%	
Intermediate	Reduce trail user numbers by 20%	
Advance & Expert	Reduce trail user numbers by 8%	
Overnight Stays	Reductions on Base Case	
Beginner	Reduce from 2 nights to 1.5 nights stay	MCa assumptions
Novice	Reduce from 2 nights to 1.5 nights stay	
Intermediate	Reduce from 3 nights to 2.5 nights stay	
Advance & Expert	Reduce from 3 nights to 2.5 nights stay	

SOURCE: MCA MODELLING, JULY 2021

²⁷ Warburton MTB trail additional research -quantitative findings, instinct and reason, May 2021

APPENDIX B – EVENT ANALYSIS

The follow shows the modelling of major events and associated spending in the region. It is assumed that events held are: 1 event is held in year 2; 2 in year 3; 4 in years 4-5; and 6 events in years 7-10. All are assumed to attract 300 participants and additional spectators/accompanying persons of 2 per participant. Total spending by participants and spectators/accompanying persons increases from \$777,600 in year 2 to \$2.333 million from year 7 onwards.²⁸

Table B.1 Assumptions Used in Modelling Events

Event Modelling	Assumptions
Events & Participants	All Events are 3 days
Number of Events (per year)	Year 1 = 0; Year 2=2; Years 4-5=4 ; Years 6-10 =6 All 3 -day events
Number of participants	Ave. 300 per event
Accompanying Persons/Spectators	Average 2 per participant
Visitor types	
Day Visitors	20%
Overnight visitors	80% Stay = 3 nights; assume twin share
Spending	
Day visitors (average per person)	\$120 per day (constant prices \$2020)
Overnight Visitors (average per person)	\$300 per day (constant prices \$2020)

SOURCE: MCA MODELLING & ESTIMATES, SEPT 2020

²⁸ Spending is in constant prices - 2020 dollars

Table B.2 Spending in Region from Trails Events Years 1 to 10 (estimates)

Events – 10 year analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
No. Events	0	2	4	4	4	6	6	6	6	6
Participants										
Participants per event		300	300	300	300	300	300	300	300	300
Total participants	0	600	1200	1200	1200	1800	1800	1800	1800	1800
Accompanying persons										
(Ave 2 per participant)	0	1200	2400	2400	2400	3600	3600	3600	3600	3600
Total Participants & Accompanying Persons	0	1800	3600	3600	3600	5400	5400	5400	5400	5400
Visitor Types										
Day visitors (20%)	0	360	720	720	720	1080	1080	1080	1080	1080
Overnight visitors (80%)	0	1440	2880	2880	2880	4320	4320	4320	4320	4320
Stay overnight (3 nights)	0	4320	8640	8640	8640	12960	12960	12960	12960	12960
Room nights (Assume Twin Share)	0	2160	4320	4320	4320	6480	6480	6480	6480	6480
Spending in Region (\$ 2021 prices)										
Day Visitors	\$0	\$129,600	\$259,200	\$259,200	\$259,200	\$388,800	\$388,800	\$388,800	\$388,800	\$388,800
Overnight visitors	\$0	\$648,000	\$1,296,000	\$1,296,000	\$1,296,000	\$1,944,000	\$1,944,000	\$1,944,000	\$1,944,000	\$1,944,000
Total Spending	\$0	\$777,600	\$1,555,200	\$1,555,200	\$1,555,200	\$2,332,800	\$2,332,800	\$2,332,800	\$2,332,800	\$2,332,800

SOURCE: MCA MODELLING & ESTIMATES, JULY 2021

The jobs generated increase from 5.9 FTE (2 events) to 13.6 FTE (6 events) as the number of events are increased. By their nature events are made of a larger number of short term and casual jobs which aggregate to the annual full time equivalent jobs. One of the advantages of events is that they put the trail network on the map for intermediate and advanced & expert users.

Table B.3 Total Jobs Generated by Events (FTE Number)

Jobs Generate by Events	Year 1	Year 2	Year 3-5	Year 6-10
Events	0	2	4	6
Accommodation	0.0	1.6	3.1	4.6
Food & Beverage	0.0	1.6	3.0	4.4
Other Retail	0.0	0.6	0.7	1.0
Health	0.0	0.2	0.2	0.2
Transportation	0.0	0.3	0.3	0.4
Communication	0.0	0	0.0	0.0
Recreation Services/Other Services	0.0	1.1	1.8	2.6
Education	0.0	0.1	0.1	0.1
Miscellaneous Services	0.0	0.2	0.2	0.3
Total	0.0	5.9	9.3	13.6

SOURCE: MCA MODELLING & ESTIMATES, SEPTEMBER 2020. MAY BE SOME DIFFERENCES DUE TO ROUNDING.

APPENDIX C – CATCHMENT AREA REGIONS

The following table shows the LGAs that are included in each of the catchment areas.

Region	LGAs
Local - Yarra Ranges	Yarra Ranges (S)
Adjacent Regional	Baw Baw (S) Mansfield (S) Murrindindi (S)
Adjacent Urban	Cardinia (S) Casey (C) Knox (C) Maroondah (C) Nillumbik (S)
Eastern Suburbs	Boroondara (C) Manningham (C) Monash (C) Stonnington (C) Whitehorse (C) Yarra (C)
Northern Suburbs	Banyule (C) Darebin (C) Whittlesea (C)
Other & West	Brimbank (C) Hobsons Bay (C) Hume (C) Maribyrnong (C) Melbourne (C) Melton (C) Moonee Valley (C) Wyndham (C)
South East	Bayside (C) Frankston (C) Glen Eira (C) Greater Dandenong (C) Kingston (C) (Vic.) Mornington Peninsula (S)

APPENDIX D – PROJECT CAPITAL COSTS

The following are the construction and maintenance costs for the trail network.

Table D.1 Total Costs Stage 1 and Stage 1 and 2 Warburton Trails Project – 10 Years (constant prices \$2021)

Summary - 10 Years	Trail Development <\$ 2020 Prices>
Design, Development and Planning Costs	\$2,000,000
Project Cost Stage 1	
Construction	
Trail Construction (105kms)	\$4,200,000
Other Infrastructure	\$7,100,000
Total Construction	\$11,300,000
Maintenance	
Trails	
Annual Maintenance Cost (\$2000 per km – 105 kms) ²⁹	\$210,000
Total (10 years)	\$2,100,000
Other Infrastructure	
Annual Maintenance Cost (1.5% of cost)	\$106,500
Total (10 years)	\$1,065,000
Total Maintenance Cost (10 Years)	\$3,165,000
Total Project Costs Stage 1 (10 Years)	
Total Construction & Maintenance (Stage 1)	\$14,465,000
Project Cost Stage 2	
Construction	
Trail Construction (76kms)	\$3,040,000
Other Infrastructure	\$750,000
Total Construction	\$3,790,000

²⁹ TRAIL MAINTENANCE COST \$2000 PER KM/YEAR . WARBURTON DRAFT MASTER PLAN REPORT, JANUARY 2020, YARRA RANGES COUNCIL

Summary - 10 Years	Trail Development <\$ 2020 Prices>
Maintenance	
Trails	
Annual Maintenance Cost (\$2000 per km – 76 kms) ³⁰	\$152,000
Total (10 years)	\$1,520,000
Other Infrastructure	
Annual Maintenance Cost (1.5% of cost)	\$11,250
Total (10 years)	\$112,500
Total Maintenance Cost (10 Years)	\$1,632,500
Total Project Costs Stage 2 (10 Years)	
Total Construction & Maintenance (Stage 2)	\$5,422,500
Project Cost Development & Stage 1 & 2	
Construction	
Design, Development and Planning Costs	\$2,000,000
Trail Construction Trails	\$7,240,000
Infrastructure Costs	\$7,850,000
Total Construction	\$17,090,000
Maintenance	
Trails	\$3,620,000
Other Infrastructure	\$1,177,500
Total Maintenance (10 Years)	\$4,797,500
Total Project Costs 10 Years	
Total Design, Construction & Maintenance	\$21,887,500

SOURCE: YARRA RANGES COUNCIL SEPTEMBER 2020

³⁰ TRAIL MAINTENANCE COST \$2000 PER KM/YEAR . WARBURTON DRAFT MASTER PLAN REPORT, JANUARY 2020, YARRA RANGES COUNCIL

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