Bass Coast Dinosaurs Trail: Cost Benefit Analysis

Bass Coast Shire Council

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SGS Economics & Planning

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OFFICES IN CANBERRA, HOBART, MELBOURNE, AND SYDNEY ON THE COUNTRY OF THE NGAMBRI/NGUNNAWAL/NGARIGO, MUWININA, WURUNDJERI, AND GADIGAL PEOPLES.

Contents

Executive summary

SGS Economics and Planning (SGS) was engaged by Bass Coast Shire to undertake cost-benefit analysis (CBA) of the *Bass Coast Dinosaurs Trail,* which consists of a digital field guide and six creative sites:

- San Remo – The Herd
- Wonthaggi – Gondwana Garden
- The Caves
- Kilcunda – Time Machine and Village Green
- Eagles Nest
- Inverloch – Dino Hunters Playground

The delivery of the largest site (Wonthaggi – Gondwana Garden) is staged for a later timeframe than the digital field guide and the other five sites. To inform investment decision making, SGS assessed the staging as distinct project options, as follows.

- **Project option 1:** Delivery of five creative sites (excluding the Gondwana Garden) and digital field guide
- **Project option 2:** Delivery of Gondwana Garden.

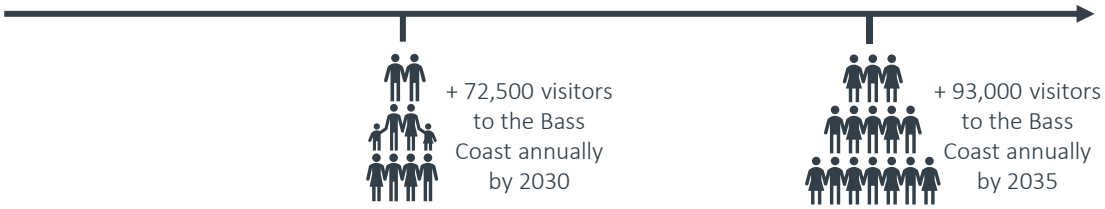
Within the CBA analysis, options are assessed under a counterfactual or 'base case' scenario, whereby it is assumed that no works are undertaken.

From a visitor perspective, the collective experience of the Dinosaurs Trail has the highest likelihood of driving interregional and interstate visitation. Using the Australian Dinosaurs Trail as a guide, it has been assumed that the major attraction (in this case the Wonthaggi Gondwana Garden) attracts around 50 per cent of visitors. Taking this into consideration, each of the project cases has been analysed with half the forecasted visitation levels and consequently half of the visitation expenditure.

Visitation projections and expenditure

For the assessment, SGS made a series of assumptions to estimate the increase in new visitors to the region that could be attributed to the Dinosaurs Trail if it were delivered in full (i.e. project case 1 and 2 combined). Visitation assumptions were based on benchmark analysis of similar cultural and tourism assets in Australia. The visitation projections that underpin the CBA are summarised in Figure 1.

FIGURE 1: VISITATION PROJECTIONS



Source: SGS Economics & Planning, 2023

Day and night visitor expenditure assumptions are in line with averages from the Regional Expenditure Model developed by Tourism Research Australia (TRA). It was assumed that 1 in 4 new visitors stay one

night in the Bass Coast due to the trail. Additionally, Bass Coast residents have been attributed a retained expenditure value, representing that residents will visit the Dinosaurs Trail instead of visiting cultural assets or participating in activities outside of the Bass Coast region.

Increased and retained visitation expenditure has been modelled to ramp up from around $4 million in 2026 to around $15 to $16 million per annum between 2030 to 2035.

Cost benefit analysis

Project costs include **capital works** and subsequent **maintenance costs**, and the benefits include:

- **User benefits** derived by visitors and Bass Coast residents
- **Education benefits** associated with excursions/visits to the site as opposed to in classroom classes
- **Producer surplus** and **labour surplus** benefits associated with increased regional spending

The present value of cost and benefit items modelled as part of the CBA are outlined in Figure 2, along with the key economic indicators.

The net present value (NPV) is the present value of benefits minus the present value of costs. It calculates the net economic benefit. As shown the NPV of project option 1 is large than the NPV of project option 2, however, the difference is marginal, and both produce net economic benefits in the order of $20 million.

The benefit cost ratio (BCR) is the present value of benefits divided by the present value of costs. It indicates the return of economic benefits relative to economic costs. The BCRs for both project options are greater than 1, indicating a positive return on investment. The BCR of 2.74 for project option 1 indicates that for each $1 invested in capital and maintenance works, the project generates $2.74 of economic benefits for the Bass Coast region.

FIGURE 2: PRESENT VALUE COSTS & BENEFITS + ECONOMIC INDICATORS

	Project costs	Project benefits	Economic indicators
Project option 1 (without Gondwana Garden)	Capital costs: $7.8m Maintenance costs: $4.1m	User benefits: $17.3m Education benefits: $6.3m Producer surplus: $7.4m Labour surplus: $1.7m	BCR: 2.74 NPV: $20.8m
Project option 2 (Gondwana Garden only)	Capital costs: $8.4m Maintenance costs: $4.4m	User benefits: $17.3m Education benefits: $6.3m Producer surplus: $7.5m Labour surplus: $1.7m	BCR: 2.57 NPV: $20.1m

Source: SGS Economics and Planning, 2023

1. Introduction

SGS Economics and Planning (SGS) was commissioned to undertake economic evaluation of the proposed Dinosaurs Trail on the Bass Coast Shire, Victoria. The vision for the project is to grow the Bass Coast visitor economy by capitalising on the fascinating and unique Dinosaurs Trail story.

This is the second of two reports and is a cost benefit analysis (CBA) that builds on previous economic impact assessment (EIA) work.

The report considers the current situation in the Bass Coast region and the opportunity presented by the development of the Dinosaurs Trail for the local community.

1.1 Project description

Bass Coast's *Natural Environment Strategy 2016 to 2026* presents an aspiration for the region to be recognised as:

> *"A celebration of natural assets, a window on the history of Victoria, a village in a technology world and a food bowl for Victoria".*

A reason for its popularity among domestic and international visitors is due to its natural environment's strategic advantage. Bass Coast offers diverse components, reaching a broad target market through sporting, leisure, environmental activities, attractions, hospitality, events and retail. The region's towns, including Wonthaggi, Cowes, Inverloch, and San Remo, are all popular destinations for a 'weekend getaway'.

The Dinosaurs Trail will be new infrastructure for the region, stretching from San Remo to Inverloch. The trail will consist of six creative sites and a digital field guide which will explore the prehistoric abundance of polar dinosaurs and unique prehistoric fauna in the area.

The six sites include:

- San Remo – The Herd: Life-sized, dinosaur plinths and bronzes are combined with augmented-reality versions of each animal allowing visitors to explore how they could have looked. In most cases palaeontologist don't know exactly what polar dinosaurs looked like, instead they use comparisons with modern animals to reconstruct dinosaurs and other extinct animals. Visitors will be invited to imagine for themselves what these animals may have looked like, adding their own creative flair along the way.
- Kilcunda – Time Machine and Village Green: An interactive sculpture of DNA which accurately depicts the double helix structure and genetic code. The sculptural tower allows visitors to climb the staircase and view the valley which separates Australia and Antarctica, where polar dinosaurs came from. It is located in The Village Green – a public gathering place with amenities connecting the Dinosaurs Trail with the Rail Trail. Infrastructure to be delivered includes a shelter, new seating, open recreational space, beach showers and barbecues. This space will cater for key community events including the Lobster Festival and community markets.

- Wonthaggi – Gondwana Garden: An immersive public space which takes visitors on a journey from beginning of Gondwanaland to its separation into continents and Islands. The garden will have seven sections, each section focusing on a component in the formation of life, stretching from the beginning of time (Primordial 'soup') into the flora and fauna that have made it their home today.
- Eagles Nest: An auditory adventure to enhance the existing coastal track where Australia's first dinosaur fossil was discovered. The auditory will engage visitors with the history and prehistory of the area through composition and poetry focused on the unique polar environment (Cretaceous period) when dinosaurs flourished.
- The Caves: An augmented reality artwork and information panels to enhance the stunning rocky beach scapes that was once the riverbed that separated Australia and Antarctica. This site has been the discovery place of hundreds of bones and impressions which have greatly expanded the knowledge of prehistoric Australia. The new information panels will give visitors an overview of the polar dinosaurs and provide context for the augmented reality artwork which reveals findings from palaeontologists and scientists who have studied the area.
- Inverloch – Dino Hunters Playground: A cross between an adventure playground, art installation, outdoor learning space and hands-on exhibition, the Dino Hunters Playground was designed with families and schools in mind. Enhanced with the digital field guide, the playground will provide a space for all ages to explore the science used by palaeontologists, to understand the regions polar dinosaurs.

The digital field guide will act as the digital spine across all sites, allowing visitors to plan their visit and keep track of progress by showing completion of activities, discovery of collectibles, special offers and events. The map will also be used to trigger location specific content like augmented reality or audio experience. This system will allow for additional new content and improvement in capabilities over the years.

Project options

The delivery of the largest site (Wonthaggi – Gondwana Garden) is staged for a later timeframe than the digital field guide and the other five sites. To inform investment decision making, SGS assessed the staging as distinct project options, as follows.

- Project option 1: Delivery of five creative sites (excluding the Gondwana Garden) and digital field guide
- Project option 2: Delivery of Gondwana Garden.

1.2 Scope of work

SGS was engaged to strategically assess the social and economic benefits of the two project options. This included:

- Qualitatively describing the social and economic benefits enjoyed by community members, and
- Monetising social and economic benefits, and contrasting them against project delivery costs to ascertain if the project is worth doing from a local community perspective.

To deliver on this scope, SGS completed an EIA (separate report) and CBA (this report).

2. Project outcomes

2.1 Tourism region profile

Tourism is one of the region's main economic drivers. In Bass Coast, tourism supports an estimated 1,173 jobs, 8.8 per cent of total employment. This share is much higher than the wider Gippsland region and Victoria, where 4.6 per cent and 3.5 per cent of workers are employed in tourism, respectively. There are over 400 businesses that contribute to the sector. It's important to note that most of these businesses are small, typically 'family-owned' businesses, with approximately 75 per cent either non-employing or less than four employees. Only 5 per cent of these businesses have 20 or more employees. Major employees include large resorts and attractions, such as Phillip Island Nature Parks, RACV Inverloch Resort and Silverwater Resort.

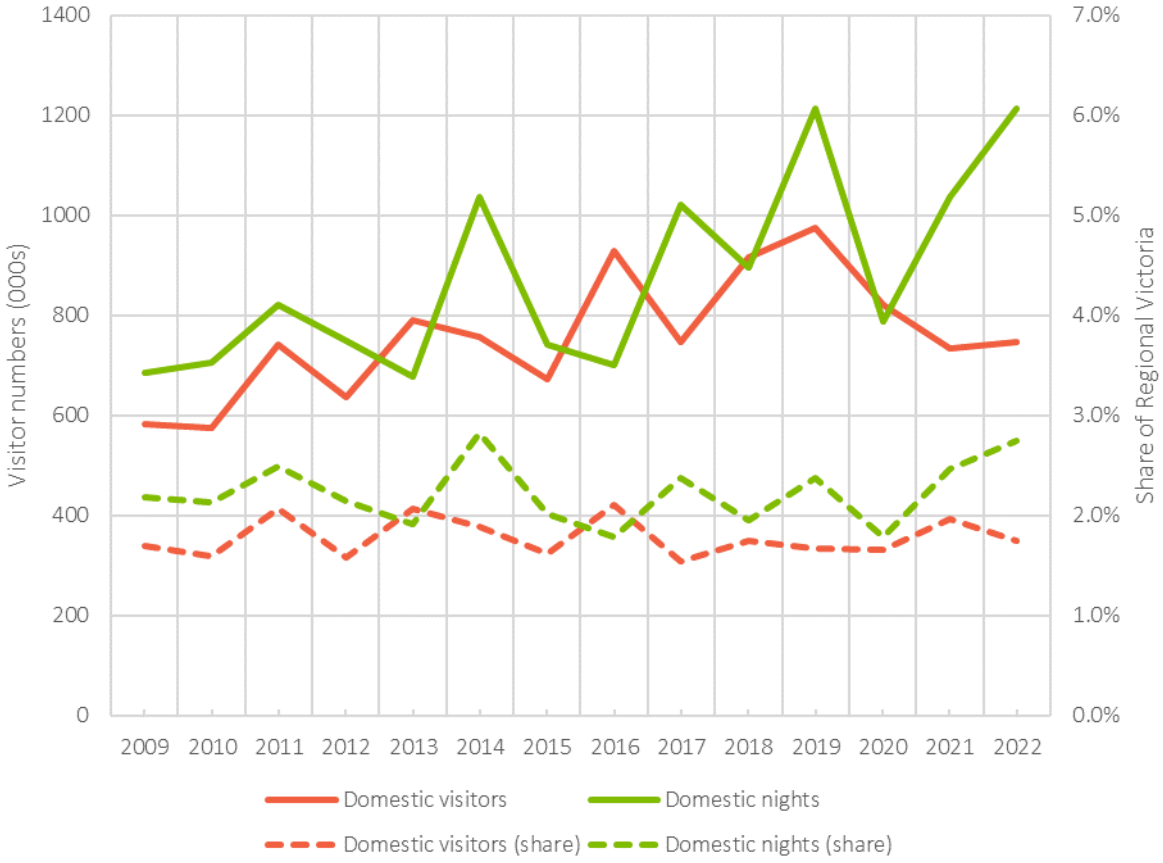
Before the pandemic, tourism was estimated to be worth $395 million to the region's economy[1] (in direct and indirect Gross Regional Product), representing 34.7 per cent of the region's economy. In 2020 visitor spending in the region from domestic tourism fell by 20 per cent, from $504 million to $400 million (Tourism Research Australia, 2021, National Visitor Survey, Regional Expenditure Model (REX)), while international expenditure came to a halt due to the closure of Australia's international borders. Since then, expenditure has rebounded strongly, with Tourism Research Australia expecting a full recovery in the Victorian tourism market in 2024.

Between 2012 and the end of 2022, Wonthaggi – Inverloch, experienced an average annual growth rate (AAGR) in domestic visitors of 1.6 per cent per annum and 4.9 per cent for domestic visitor nights (Tourism Research Australia, 2021).

In 2022, visitor nights in Wonthaggi – Inverloch stood at over 1.2 million, a similar amount to the year before covid-19 (2019), but much higher than ten years ago. Overall visitation, however, remains below pre-pandemic levels (Figure 3). Figure 3 also shows Wonthaggi – Inverloch's share of visitors who go to Regional Victoria. Wonthaggi – Inverloch has attracted around 1.8 to 2.8 per cent of Regional Victoria's visitor nights over the past decade (peaking at 2.8 per cent in 2014), and 1.6 to 2.1 per cent of Regional Victoria's domestic visitors (peaking at 2.1 per cent in 2016). These figures also point to the area doing a better job of converting visitors to visitor nights than Regional Victoria more generally (given the share of nights is higher than visitors).

[1] Measured for the ABS Tourism Region of Phillip Island which closely aligns with the Bass Coast LGA and includes Phillip Island, Wonthaggi and Inverloch.

FIGURE 3: ANNUAL VISITORS TO WONTHAGGI- INVERLOCH AND SHARE OF REGIONAL VICTORIAN MARKET

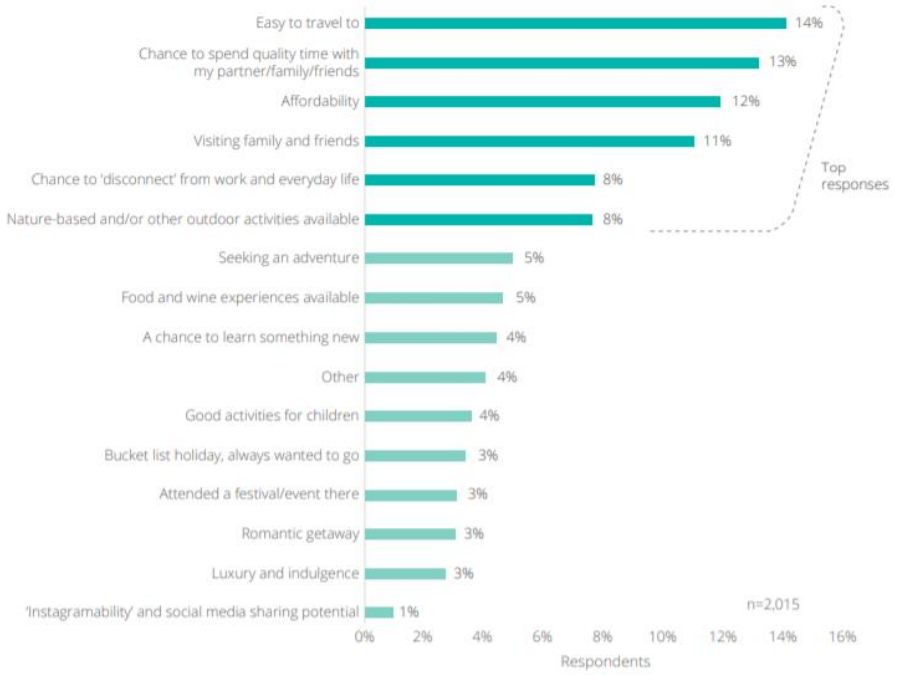


Source: SGS Economics and Planning using the National Visitor Survey, Tourism Research Australia (2021)

A recent survey indicated that nature-based or other outdoor activities and learning something new are some of the main reasons for visiting regional Australia (Figure 4 and Figure 5). The survey also revealed that it is important, especially for domestic visitors, for the destination to be easy to travel to. These preferences for easily accessible outdoor activities represent an opportunity for Bass Coast which has excellent natural resources and is located only 90 minutes from the Melbourne CBD.

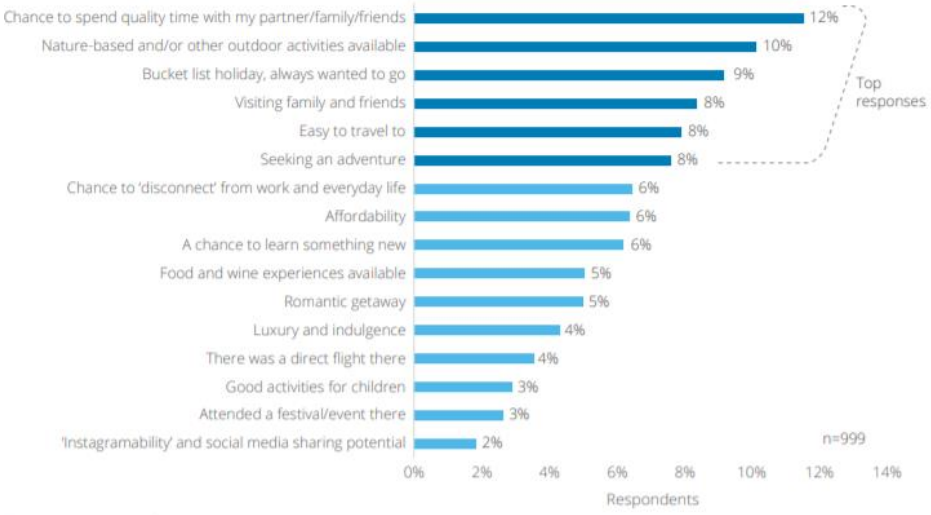
The development of the Dinosaurs Trail as a significant attraction and alternative reason to visit the Bass Coast may assist in reducing visitor congestion and support a more environmentally and socially sustainable visitor experience. The Dinosaurs Trail will protect natural and cultural values, improve access and enhance recreational and educational opportunities, and offer the prospect of providing economic stimulus support for the region. New tourism activity would assist the region in achieving stable and continued economic growth. It also offers the chance for Bass Coast to continue capitalising on the long-term trajectory of tourism, capture an equal share of tourism growth across Victoria, and aid recovery from recent tourism shocks.

FIGURE 4: DOMESTIC VISITORS' TOP REASON FOR VISITING REGIONAL AUSTRALIA



Source: Deloitte, 2019

FIGURE 5: INTERNATIONAL VISITORS' TOP REASON FOR VISITING REGIONAL AUSTRALIA



Source: Deloitte, 2019

2.2 Visitor impacts

Visitation projections

The proposed Dinosaurs Trail and related visitor infrastructure will provide Bass Coast with a new iconic landmark attraction drawing attention.

The Masterplan for the project outlines visitation projections for the Dinosaurs Trail. These projections underpin the benefits in the CBA.

The COVID recession during 2020/21 resulted in a significant decline in visitor arrivals and expenditure. The Masterplan estimated that the return to pre-COVID visitor expenditure and arrivals would occur in 2023/24. This assumption is supported by Tourism Research Australia, which report that the domestic visitor economy in Victoria is forecast to return to its pre-pandemic level by the end of 2023/24.

Once the Trail is complete:

- In the medium term (2025-2030), the Trail will grow annual visitation to the region by 10 to 20 per cent. This growth assumption is based on international visitation returning to Phillip Island at pre-COVID levels, completion of the Dinosaurs Trail major infrastructure and that the Trail is entrenched into education/school programs. Further, it assumes that the Dinosaurs Trail has attracted national and international media and digital coverage.
- In the longer term (2030 onwards), following the realisation of the package of public and private sector investment in infrastructure, an additional 10 per cent growth in visitation is expected. The long-term focus should shift from the goal of increased visitation to increased yield. It should be noted that there is a direct correlation between infrastructure, visitor experiences and yield, particularly in a region dominated by natural environments, managed as public land with free access.

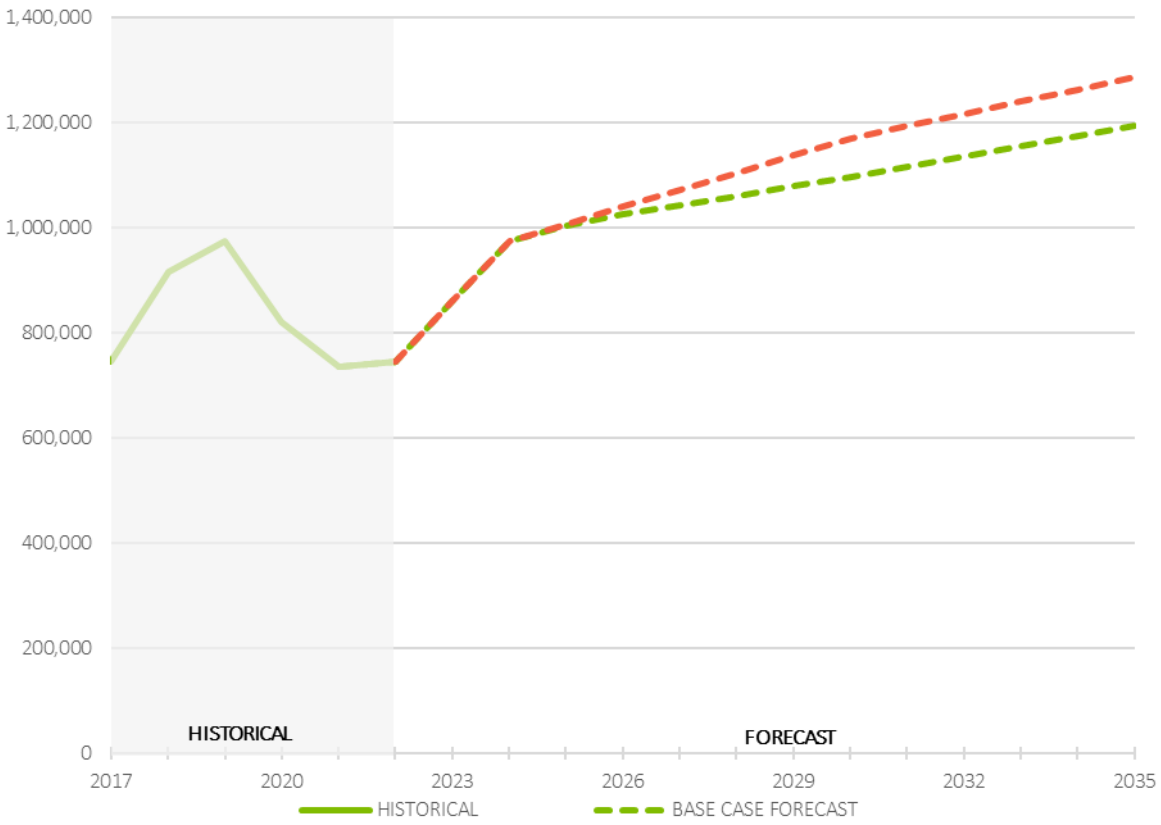
For the assessment, SGS made a series of assumptions to estimate the increase in new visitors to the region that could feasibly be attributed to the Dinosaurs Trail. Existing visitors and business-as-usual growth in the region without the Dinosaurs Trail are not considered, as these visitors would have spent money in the region regardless.

In a business-as-usual scenario, it is assumed that visitation to the Shire will grow at 3 per cent in 2025, 2.1 per cent in 2026, and then 1.7 per cent from 2027 onwards, consistent with Tourism Research Australia forecasts for Victoria. Figure 6, developed by SGS, shows historical and forecast visitor numbers in Wonthaggi-Inverloch sub-region of the base case compared to a project case.

The base case forecast (green line) assumes domestic visitation will return to pre-COVID levels by 2023/24[2] and then grow at the forecast growth rate for domestic holidays, as provided by Tourism Research Australia for Victoria[3].

[2] 975,000 for Wonthaggi- Inverloch subregion
[3] This is a conservate assumption – there is every chance that the Wonthaggi- market doesn't grow as fast as Victoria more broadly

FIGURE 6: HISTORICAL AND FORECAST VISITS TO WONTHAGGI- INVERLOCH SUBREGION



Source: SGS Economics and Planning, 2023

With the construction of the Dinosaurs Trail, the project case (red line) sees an additional 72,500 visitors to the Bass Coast due to the Dinosaurs Trail by 2030, then 93,000 additional visitors by 2035. Within these additional visitation levels, it is assumed that 10 per cent are attributable to educational visits (i.e., school groups and excursions). Note that this visitation increase assumes that project options 1 and 2 are delivered in full.

While the visitation uplift is appreciable, it is worth contextualising it against the Australian Dinosaurs Trail in Queensland, which attracts around 120,000 visitors per annum and is a much further distance from a major city. In saying that, actual use of the Dinosaurs Trail will be higher than the above mentioned forecast visitation, as it excludes those who would have visited the region anyway and local use.

Additional spending within the Bass Coast region

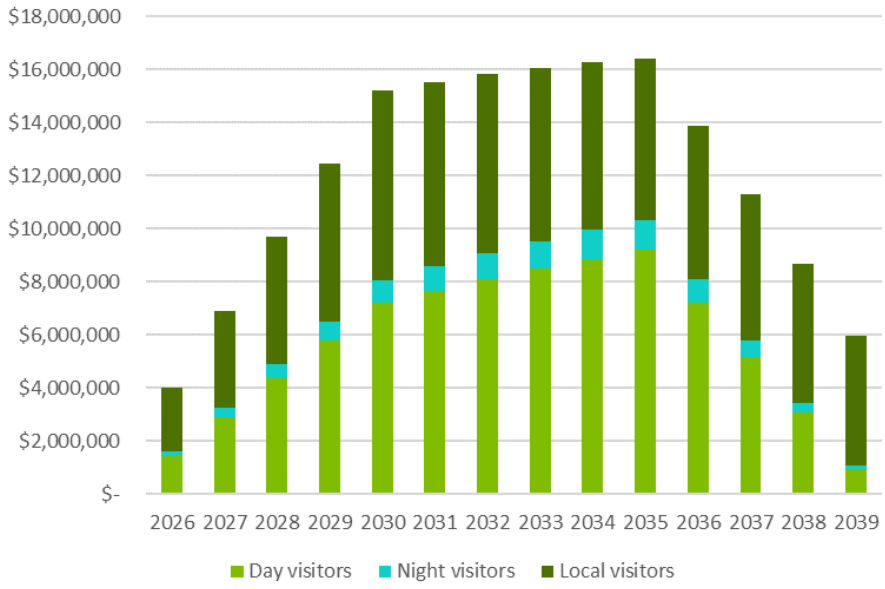
According to Tourism Research Australia's Regional Expenditure Model, a visitor to Wonthaggi – Inverloch in 2022 spent $110 per person.

In addition, the Dinosaurs Trail is expected to lead to an increase in visitor nights to Bass Coast as a share of the visitors will choose to stay in the region overnight, particularly given the road trip nature of the Dinosaurs Trail. The modelling assumes that 1 in 4 new visitors stay one night in the region due to the Dinosaurs Trail. These additional visitor nights generate an additional daily spend of $54 per visitor.

The Dinosaurs Trail will provide local residents with a new local option when alternatively residents may have left the Bass Coast Shire for cultural or tourism experiences. Within the analysis, this has been considered as retained local expenditure. It is estimated that retained local expenditure is equivalent to $90 per resident.

Based on these values and visitations levels, Figure 7 depicts forecasted increased expenditure within the Bass Coast region due to the Dinosaurs Trail. It is assumed construction will be completed at the end of 2025, with tourism expenditure related to the trail beginning in 2026. Expenditure is expected to decline after 2035, as visitations to the Bass Coast Shire is forecasted to lag behind other areas of Regional Victoria consistent with Tourism Research Australia forecasts for Victoria. The additional spending will have economic benefits for the Bass Cost in terms of the size of local economy, local business creation and strength, and local employment.

FIGURE 7: INCREASED VISITATION EXPENDITURE



Source: SGS Economics and Planning, 2023

3. Cost benefit analysis

3.1 Introduction

CBA assesses the merit of investing in a project. That is, it assesses if it is worth doing from a broad societal perspective. CBA contrasts the project's benefits with its costs, to establish if the benefits outweigh the costs.

In line with the EIA, the CBA was conducted on an incremental basis. That is, the project outcomes were tested in comparison to the outcomes that would be generated under a do-nothing scenario, or 'base case' scenario.

In line with state and federal economic evaluation guidelines, real values were utilised in the CBA. This means that costs and benefits were not escalated for inflation during the analysis period. The analysis was conducted over a 15-year benefit evaluation period.

Finally, the benefit analysis was undertaken from a local community perspective, evaluating the benefits that accrue within the Wonthaggi to Inverloch region.

As discussed in section 1.1, the CBA considers two project options:

- Project option 1: Delivery of five creative sites (excluding the Gondwana Garden) and digital field guide
- Project option 2: Delivery of Gondwana Garden.

From a visitor perspective, the collective experience of the Dinosaurs Trail has the highest likelihood of driving interregional and interstate visitation. Visitation for each individual site is assumed to be lower than if the whole Dinosaurs Trail was developed.

Using the Australian Dinosaurs Trail as a guide, it was assumed that the major attraction (in this case the Wonthaggi Gondwana Garden) attracts around 50 per cent of visitors, then the other sites capture around 20 - 25 per cent of total visitation in their respective locations in the Bass Coast[4]. Taking this into consideration, the second project option was analysed with half the initial visitation levels and consequently lower visitation expenditure.

3.2 Incremental costs

To enable the project's outcomes to be realised, investment is required. The quantified incremental costs include capital expenditure and maintenance costs. Nominal figures of construction costs have been provided by council and are shown in Table 1.

[4] The total visitation of the sites separately is higher than the total amount for the Trail. That is due to an assumption that people will visit more than one site.

It is assumed that maintenance costs are equivalent to 5 per cent of the initial capital costs per annum[5].

TABLE 1: CAPITAL AND MAINTENANCE COSTS – PROJECT OPTION 1 (EXCLUDING GONDWANA GARDEN)

Site	Capital cost (total)	Maintenance cost (per annum)
The Herd	$ 1,822,00	$ 91,000
Time Machine and Village Green	$ 724,000	$ 36,000
Eagles Nest	$ 110,000	$ 5,000
The Caves	$ 460,000	$ 23,000
Digital Spine	$ 927,000	$ 46,000
Dinosaurs Hunters' Playground	$ 4,000,000	$ 200,000
Total	**$8,036,000**	**$402,000**

Source: Bass Coast Shire Council, 2023

TABLE 2: CAPITAL AND MAINTENANCE COSTS – PROJECT OPTION 2 (GONDWANA GARDEN)

Site	Capital cost (total)	Maintenance cost (per annum)
Gondwana Garden	**$8,610,000**	**$430,000**

Source: Bass Coast Shire Council, 2023

3.3 Incremental benefits

The project will generate incremental benefits for community members in terms of user experience benefits, education benefits, business profit benefits and labour gains benefits. These benefits are described below:

- **User experience benefits:** The Dinosaurs Trail will leverage existing natural and cultural assets to attract visitors seeking new, exciting, and educational experiences. It will provide visitors, both local and out-of-region, the chance to engage with natural landscapes and a unique immersive experience of the history of the area. With six components, the project will generate enthusiasm in different parts of the Bass Coast region. The value attached to the experience of the trail is measured as the opportunity cost of travel time involved in visiting the site.
- **Educational benefits:** The Bass Coast is a significant dinosaur resting place in Australia. The trail will shine light on this, exploring the most diverse range of polar dinosaurs and unique prehistoric fauna in the world. Within the design of the trail, extensive effort has gone into representing the history of this landscape with scientific and historical accuracy to ensure it is a space to enhance learning. The six components of the project will offer an opportunity for local and out-of-region schools to

[5] *Evaluation of Regional Development Victoria's Regional and Rural Trails Program and Development of an Investment Framework* (2015), Marsden Jacob Associates.

enhance curriculum learning in a new natural context as the trail will be open excursions and educational programs/visits. The educational benefits of the trail will be measured as the opportunity cost of the time spent by students in travelling to and engaging with different components of the Dinosaurs Trail.

- **Business profits:** Over one-third of employment in the Bass Coast Local Government Area (LGA) is supported (directly and indirectly) by the tourism industry, and there are currently over 400 businesses that operate in the tourism sector within the LGA. The Dinosaurs Trail will act as a visitation demand driver for the region leading to increased tourism spending and retained local resident spending. The additional expenditure translates to increased revenue and profits for local businesses.
- **Labour gains:** The increased tourism and construction activity generated by the project will lead to new employment opportunities for the existing workforce (including those underemployed), and for those who are unemployed within the region. Incremental increases to wages within the Bass Coast LGA because of the project have been modelled as a benefit.

The approach for monetising each benefit is expanded on below.

User experience benefits

The Dinosaurs Trail will be freely accessible. This means that non-market valuation methods must be used to determine the value of visitor experiences. For this project, the travel cost method was applied. The travel cost method considers the user benefit is at least equivalent to the opportunity cost of time involved in travelling to the site.

Two different travel times were modelled for different visitor types

- **Visitors from outside the Bass Coast LGA**. Out of region visitors were assumed to be coming from Melbourne or other regional areas proximate to the Dinosaurs Trail. An assumed two-way travel time of 3 hours was modelled for tourism visitors.
- **Bass Coast LGA visitors.** Local residents were expected to visit their closest trail site, with an average return trip time of 30 minutes.

Under the Australian Transport Assessment and Planning (ATAP) Guidelines, the value of leisure time is equivalent to $18.44 per hour. This parameter was applied to total number of visitors and their appropriate travel time to generate the monetary value of user experience benefits per annum.

Educational benefits

The educational benefits are quantified via a similar approach as the user experience benefits, with two key differences:

- **Value of time.** The opportunity cost of classroom education differs to the opportunity cost of leisure. The opportunity cost of classroom education accounts for the real (in-school) per student annual expenditure adjusted to an hourly figure. Assuming 184 school days per year, each of 6 hours, the cost of providing education per hour per student in Victoria is approximately $19.60.
- **Inclusion of time spent at the site.** For user benefits, only travel to and from the sites is included in the quantification of benefits, however, for education benefits, the time spent visiting sites is also

included. This follows the assumption that the alternative to visiting the trail for educational purposes would be to deliver a lesson within a classroom and, therefore, the opportunity costs relate to the equivalent cost of resources spent by teachers and students. For out-of-region educational visitations, a visit to the trail is assumed the length of a day trip (6 hours). For local educational visitations, where some surrounding schools can walk to parts of the trail, the length of visits is assumed to be half a day trip (3 hours).

The annual educational benefit was calculated as the total educational visitations multiplied by the educational parameter and length of visit which is inclusive of travel time.

Business profits

The project's incremental capital costs would generate business benefits (gains to profit) for local construction companies and local food and accommodation providers.

The additional revenue for local construction suppliers is represented as the annual capital costs spent on the project case. The additional revenue for food and accommodation providers is represented as the increased expenditure which arises from additional visitations to the region as well as retained local expenditure to the region.

Assumptions relating to increased tourism expenditure and local expenditure are consistent with the EIA. The following additional assumptions were applied to the incremental revenues experienced by both businesses, these assumptions are based on Victorian ABS Industry Census data.

- Construction business profit gain rate: 10.4%
- Food and accommodation business profit gain rate: 11.0%

Labour gains

The business benefits would also flow through to local residents in the form of gains to wages.

Input-Output modelling was undertaken as part of the EIA to calculate the number of jobs (direct and indirect) that would be created in the region because of the project.

The labour gains are calculated as a function of the average salary for respective industries, the reservation wage (opportunity costs of not working), unemployment rate and underemployment rate. The reservation was assumed as 50% of employed persons wages.

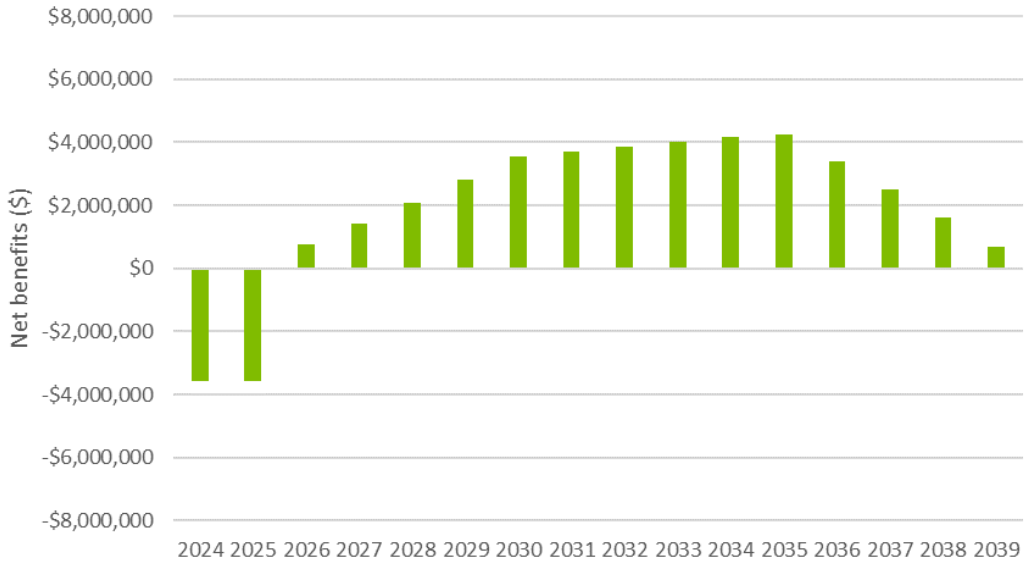
The data was obtained from ABS Census and the parameters used were:

- Average construction salary: $86,000
- Average accommodation and food service salary: $60,000
- Unemployment rate: 3.5%
- Underemployment rate: 6.3%

3.4 Annual flow of incremental costs and benefits

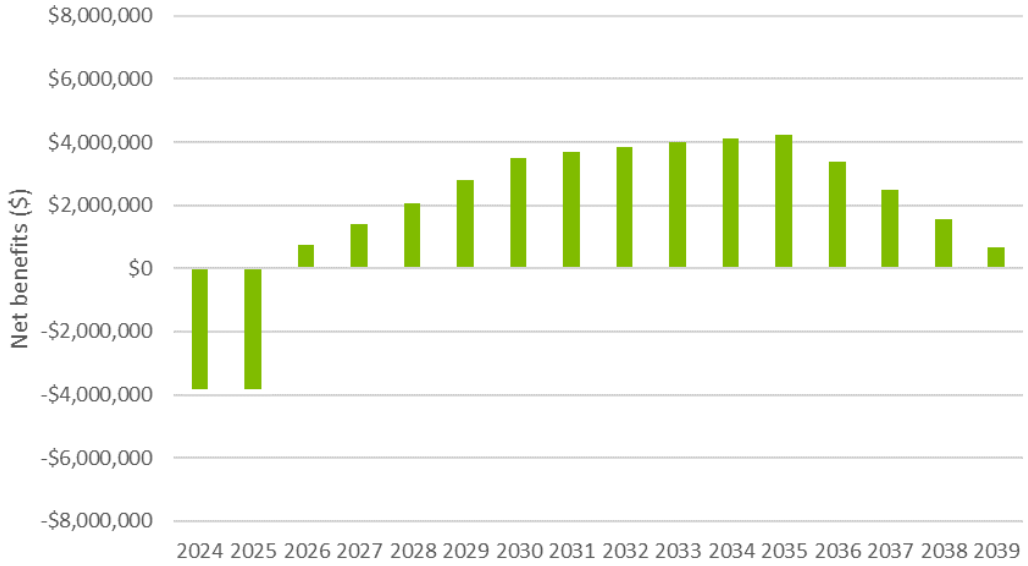
The figures below outline incremental costs and benefits are modelled to flow over the 15-year evaluation period.

FIGURE 8: ANNUAL FLOW OF NET BENEFITS – PROJECT OPTION 1 (EXCLUDING GONDWANA GARDEN)



Source: SGS Economics and Planning, 2023

FIGURE 9: ANNUAL FLOW OF NET BENEFITS – PROJECT OPTION 2 (GONDWANA GARDEN)



Source: SGS Economics and Planning, 2023

3.5 Project performance

The incremental costs and benefits linked with the project options were assessed over a 15-year period and discounted to present day values using a real discount rate of 4 per cent.

The results for each project case are highlighted in the following tables, with two performance measures being generated:

- **Net Present Value (NPV) –** A number generated by deducting the present value of the stream of costs from the present value of the stream of benefits. Options with positive NPV are accepted and options with negative NPV are rejected. The greater the NPV the better.
- **Benefit Cost Ratio (BCR) –** A ratio of discounted present-day benefits over discounted-present day costs. Options with BCR > 1 are accepted and options with BCR < 1 are rejected. The greater the BCR the better.

The CBA found that project option 1 has a NPV of around $20.86 million and a BCR of 2.74. The BCR of 2.74 indicates that for each $1 invested in capital and maintenance works, the project generates $2.74 of economic benefits for the Bass Coast region. Project option 2 performs similarly, with an NPV of $20.08 million and a BCR of 2.57.

Overall, project option 1 and project option 2 are economically justified under the assumptions relating to construction and maintenance costs, visitation impacts, and benefit parameters.

TABLE 3: COST BENEFIT ANALYSIS RESULTS – PROJECT OPTION 1 (EXCLUDING GONDWANA GARDEN)

Costs	Undiscounted	Discounted
Capital expenditure	$8,036,000	$7,882,000
Maintenance costs	$5,625,000	$4,081,000
Benefits		
User benefits	$24,172,000	$17,327,000
Educational benefits	$8,730,000	$6,320,000
Business profits	$10,079,000	$7,440,000
Labour gain	$2,401,000	$1,740,000
Economic indicators		
NPV	**$32,720,000**	**$20,864,000**
BCR	**3.32**	**2.74**

Source: SGS Economics and Planning, 2023

TABLE 4: COST BENEFIT ANALYSIS RESULTS – PROJECT OPTION 2 (GONDWANA GARDEN)

Costs	Undiscounted	Discounted
Capital expenditure	$8,607,000	$8,441,000
Maintenance costs	$6,025,000	$4,371,000
Benefits		
User benefits	$24,172,000	$17,327,000
Educational benefits	$8,730,000	$6,320,000
Business profits	$10,139,000	$7,499,000
Labour gain	$2,407,000	$1,745,000
Economic indicators		
NPV	**$30,815,000**	**$20,078,000**
BCR	**3.11**	**2.57**

Source: SGS Economics and Planning, 2023

Sensitivity testing

The assessment depends on a range of assumptions, both in terms of financial parameters, such as discount rates, and cost and benefits assumptions, such as cost estimates and demand forecasts.

The following sensitivity analysis has been undertaken to test potential impacts on economic viability should certain assumptions not eventuate:

- Discounting at a 7 per cent discount rate (as opposed to 4 per cent in the core analysis)
- Costs +/- 25 per cent
- Benefits +/- 25 per cent, reflecting uncertainty in visitation forecasts and benefit parameters
- Exclusion of construction profits

For all scenarios tested, the BCR remains greater than one, meaning the project remains viable from a net community welfare perspective.

The sensitivity testing reveals the following:

- Discounting future costs and benefit flows by 7 per cent produces a BCR marginally lower but still well above one for each project. This suggests that in a higher interest rate environment, project viability should not be challenged.
- Increase in capital costs by around 25 per cent results in a BCR that is marginally lower than the base case. This suggests that fluctuations in capital expenditure during the construction phase will not drastically change the outcomes of the project.

- Decreasing benefits by around 25 per cent had the biggest impact on the BCR. This suggests that the key driver of outcomes is high visitations levels and that fluctuations in visitators will have the biggest impact on community wellbeing. Considering the BCR is still well above one, the reduction in benefits of 25 per cent may still be overstating the future benefits if visitations levels are not at the forecasted rate.
- Eliminating construction profits has no material effect on the BCR. This suggests that the construction process of the trail is not a key driver of benefits for the community.

The present value (discounted) results of the sensitivity testing are set out in the tables below.

TABLE 5: COST BENEFIT ANALYSIS SENSITIVITY RESULTS – CHANGING DISCOUNT RATE

Economic indicators	Project option 1 Ex Gondwana Garden	Project Option 2 Gondwana Garden
NPV (sensitivity, DR 7%)	$15,204,000	$14,481,000
BCR (sensitivity, DR 7%)	2.37	2.22
NPV (base case, DR 4%)	**$20,864,000**	**$20,078,000**
BCR (base case, DR 4%)	**2.57**	**2.74**

Source: SGS Economics and Planning, 2023

TABLE 6: COST BENEFIT ANALYSIS SENSITIVITY RESULTS – CHANGING COSTS

Economic indicators	Project option 1 Ex Gondwana Garden	Project Option 2 Gondwana Garden
NPV (sensitivity, cost +25%)	$17,874,000	$16,875,000
BCR (sensitivity, cost +25%)	2.20	2.05
NPV (sensitivity, cost -25%)	$23,855,000	$32,890,000
BCR (sensitivity, cost -25%)	3.66	3.42
NPV (base case)	**$20,864,000**	**$20,078,000**
BCR (base case)	**2.57**	**2.74**

Source: SGS Economics and Planning, 2023

TABLE 7: COST BENEFIT ANALYSIS SENSITIVITY RESULTS – CHANGING BENEFITS

Economic indicators	Project option 1 Ex Gondwana Garden	Project Option 2 Gondwana Garden
NPV (sensitivity, benefits +25%)	$29,071,000	$28,301,000
BCR (sensitivity, benefits +25%)	3.43	3.21
NPV (sensitivity, benefits -25%)	$12,658,000	$11,855,000
BCR (sensitivity, benefits -25%)	2.06	1.93
NPV (base case)	**$20,864,000**	**$20,078,000**
BCR (base case)	**2.57**	**2.74**

Source: SGS Economics and Planning, 2023

TABLE 8: COST BENEFIT ANALYSIS SENSITIVITY RESULTS – EXCLUDING CONSTRUCTION PROFITS

Economic indicators	Project option 1 Ex Gondwana Garden	Project Option 2 Gondwana Garden
NPV (sensitivity, construction profit 0%)	$20,045,000	$20,078,000
BCR (sensitivity, construction profit 0%)	2.68	2.57
NPV (base case, construction profit)	**$20,864,000**	**$20,078,000**
BCR (base case, construction profit)	**2.57**	**2.74**

Source: SGS Economics and Planning, 2023

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