THE ECONOMIC VALUE OF BUILT HERITAGE IN THE CITY OF ADELAIDE

FINAL REPORT
FEBRUARY 2018
Prepared for
The City of Adelaide
This report focusses on post 1836 built heritage.

In preparing this report, SGS Economics and Planning acknowledge the traditional country of the Kaurna people of the Adelaide Plains. We pay respect to Elders past and present, recognise and respect their cultural heritage, beliefs and relationship with the land, and acknowledge that they are of continuing importance to the Kaurna people living today.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXECUTIVE SUMMARY</td>
<td>III</td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. LITERATURE REVIEW</td>
<td>2</td>
</tr>
<tr>
<td>2.1 Context</td>
<td>2</td>
</tr>
<tr>
<td>2.2 Built Heritage Protection and Funding</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Cultural value and significance of Built Heritage</td>
<td>6</td>
</tr>
<tr>
<td>2.4 Economic value of heritage</td>
<td>7</td>
</tr>
<tr>
<td>2.5 Implications</td>
<td>10</td>
</tr>
<tr>
<td>3. THE VALUE OF BUILT HERITAGE IN ADELAIDE</td>
<td>11</td>
</tr>
<tr>
<td>3.1 Property value method</td>
<td>11</td>
</tr>
<tr>
<td>3.2 Travel cost method</td>
<td>11</td>
</tr>
<tr>
<td>3.3 Choice modelling</td>
<td>12</td>
</tr>
<tr>
<td>3.4 Direct visitor expenditure</td>
<td>13</td>
</tr>
<tr>
<td>3.5 Implications</td>
<td>14</td>
</tr>
<tr>
<td>4. COST BENEFIT ANALYSIS</td>
<td>15</td>
</tr>
<tr>
<td>4.1 CBA Approach</td>
<td>15</td>
</tr>
<tr>
<td>4.2 Incremental Costs and Benefits of Heritage Incentives Scheme</td>
<td>16</td>
</tr>
<tr>
<td>4.3 Monetised Costs</td>
<td>18</td>
</tr>
<tr>
<td>4.4 Monetised Benefits</td>
<td>18</td>
</tr>
<tr>
<td>4.5 Cost Benefit Analysis Results</td>
<td>19</td>
</tr>
<tr>
<td>5. MEASURING THE ECONOMIC IMPACT OF HERITAGE</td>
<td>20</td>
</tr>
<tr>
<td>5.1 Overview</td>
<td>20</td>
</tr>
<tr>
<td>5.2 Economic impacts of heritage tourism</td>
<td>20</td>
</tr>
<tr>
<td>5.3 Diverted savings impact</td>
<td>25</td>
</tr>
<tr>
<td>6. CONCLUDING REMARKS</td>
<td>27</td>
</tr>
<tr>
<td>APPENDIX 1</td>
<td>28</td>
</tr>
</tbody>
</table>
EXECUTIVE SUMMARY

Purpose
The City of Adelaide’s rich legacy of heritage buildings is clearly a distinguishing feature of the City and, indeed, the State. The community and business value of this legacy has been recognised in policy for many decades, with the City of Adelaide being recognised as a national leader in policy formation and implementation in heritage conservation.

Council’s efforts in this area include the Heritage Incentives Scheme (HIS) which has part funded conservation works on numerous listed properties in the City since its inception in 1988.

This report estimates the economic value of built heritage in the City of Adelaide. Specifically, we address three questions:

1. What value does Adelaide community and beyond place on the ‘heritage services’ delivered by classified buildings in the City of Adelaide?
2. Has the HIS delivered good value for the investment of ratepayer funds?
3. What impact has the HIS had on jobs and economic activity in South Australia?

Value of heritage services generated by buildings in the City of Adelaide
If Australian consumer research data (acquired through choice modelling – see Section 3.3) is applied to measure willingness to pay for heritage services, the capitalised (total) value of Adelaide’s heritage building stock would be approximately $330 million in 2017.

If willingness to pay for the heritage services from the City’s classified stock of buildings is estimated through the travel time and costs incurred by South Australians participating in annual open house days at State and Local Heritage listed properties (as part of Open House Adelaide), the capitalised (total) value of these heritage assets would be approximately $11 million in 2017. This method excludes heritage assets which are not accessible to the public or are privately owned and accordingly, provides unreasonably low estimates of heritage value in the City of Adelaide.

These are likely to be extreme lower bound estimates, as both data sets are subject to significant limitations relating to scope and research methodology.

Previous work conducted by Council on the size of the heritage tourism sector implies that the value of the City’s heritage stock could be measured in several $billions. This is derived from the total tourism expenditure whose main motivation to visit the City of Adelaide is visiting heritage sites.

Cost benefit analysis of the Heritage Incentives Scheme
This report shows that the HIS has delivered a sound return for the investment of ratepayer funds.

The scheme has a benefit cost ratio of 1.68:1 and has created a net improvement in welfare for South Australians of the order of $15 million between 2006 and 2017.

The principal benefits of the Scheme include:
- Improved heritage character and amenity
- Application of better conservation practices to ensure long term durability of heritage assets
• Creation of valuable heritage conservation skills in South Australia, and
• Reduced leakage of household expenditure on interstate and international imports through the increased application of domestic savings on heritage construction projects which use local materials and labour.

Economic impact of the Heritage Incentives Scheme

Independent modelling conducted by SGS Economics and Planning shows that each year, the HIS indirectly boosts gross state product by $395 million and supports some 3,000 jobs. This estimate is premised on the HIS playing a vital role in retaining the asset base underpinning Adelaide’s significant exports in heritage/cultural tourism.

The HIS directly creates local value added and employment by diverting some household savings from imports to local construction projects. This impact is estimated to be approximately $8 million for the 2006-2017 period, equating to an average of $730,000 per annum.

Implications

The built heritage of the City of Adelaide is a vital economic asset for both the State of South Australia and Council. Based on the utility generated by these assets – that is, the flow of recreational, cultural and educational services provided by these buildings – their worth would be counted in the many hundreds of millions of dollars, if not billions.

These assets are also critical to Adelaide’s ‘brand’. The visitor economy built on heritage assets is worth some $400 million for the State and supports approximately 3,000 jobs annually.

The City of Adelaide has played an important role in making sure that this asset base is kept in best possible condition. This includes the application of appropriate heritage controls, as well as the provision of financial assistance to facilitate conservation of heritage stock.

This review demonstrates that the Heritage Incentives Schemes (HIS) has proven its economic worth. It delivers a $1.68 return for every dollar invested by Council and other parties to the Scheme, including owners investing in the retention of heritage values in their buildings. After 30 years of operation the HIS is of significant value.

The HIS should be retained as an economically justified policy tool in promoting both the liveability and the economic vitality of Adelaide.
1. INTRODUCTION

This chapter describes the project objectives and the structure of the report.

The City of Adelaide’s rich legacy of heritage buildings is clearly a distinguishing feature of the City and, indeed, the State. The community and business value of this legacy has been recognised in planning policy for many decades, with the City of Adelaide nationally leading policy formation and implementation in this space.

The Council’s Heritage Incentives Scheme (HIS) has part funded heritage conservation works on numerous listed properties in the City on an ongoing basis since 1988.

The longevity of the program bespeaks its inherent logic and policy merit. Nevertheless, prudent financial management and good local governance demand that the economic warrant for the Scheme and related initiatives is renewed from time to time.

To this end, Council has engaged SGS to measure the economic contribution of conservation work undertaken on the City’s valuable built heritage including the broader HIS contribution to social, cultural and environmental (sustainability) values.

Against this background, SGS has conducted analysis to address the following research questions.

1. What is the standing value of the heritage services delivered by classified heritage assets in the City of Adelaide?
   This is addressed in Chapter 2 and 3 with a review of current literature on the value of heritage, and a series of valuations of heritage buildings in Adelaide using different valuation techniques.

2. What difference has the HIS made to the quality/condition of the heritage assets in the City of Adelaide; that is, what are the outcomes observed today versus what might have been the case in the absence of the HIS?
   This is addressed in chapter 4 through a cost benefit analysis of the HIS.

3. Has the HIS delivered good value for the investment of ratepayer / taxpayer funds?
   This is also addressed in the cost benefit analysis of the HIS in chapter 4.

4. What has been the economic impact of the Heritage Incentives Scheme in terms of output, value added and employment in the City of Adelaide and in the State generally?
   Chapter 5 includes an assessment of the economic impact of the HIS using an input output model.
2. LITERATURE REVIEW

This chapter presents a concise review of current literature relating to the cultural and economic value of built heritage.

2.1 Context

In recent decades, the urban and socio-political fabric of our societies has been shaped by a range of inexorable global forces. Climate change, urbanisation and population growth, mass migration, the restructuring of the global economy and the advent of the smart city, all have significant repercussions for the way communities and governments approach the built environment.¹

Cities are increasingly viewed as living, dynamic and complex systems comprising rich layers of history and collective memory. As an intricate fabric, woven from threads of the past and present, embedded in cities are not only our histories, but our plans, projections and desires for the future.

UNESCO views cities as the ‘most powerful engines of human development’ and highlights the hope placed in urban areas to determine mankind’s future.² In this context, culture is a ‘powerful strategic asset’ capable of creating cities and urban futures that are more ‘inclusive, creative and sustainable’.³

Culture, which encompasses cultural heritage, is increasingly viewed as integral to sustainable development and, as argued by Hawkes, is the ‘fourth pillar’ of sustainability.⁴

Building on past work, the City of Adelaide 2016-2020 Strategic Plan seeks the full economic, tourism, cultural, community and sustainability value of our built heritage to be realised.

An action in the Strategic Plan is to ‘promote and protect Adelaide’s built character and heritage through our operations, incentives, policies and direct investment, while working with and advocating to Federal and State governments for an increase in City buildings protected under State or Local Heritage regulations’.

The City of Adelaide Cultural Strategy 2017-2023 acknowledges Adelaide’s remarkable built heritage and seeks activity that creates a sense of connection or belonging to a shared past, present and future.

Both strategies seek to showcase and activate built heritage, and promote built heritage activities.

What is built heritage?

Heritage is all the things that make up Australia’s identity—our spirit and ingenuity, our historic buildings, and our unique, living landscapes. Our heritage is a legacy from our past, a living, integral part of life today, and the stories and places we pass on to future generations⁵.

³ Ibid (2015):5
⁵ Australian Government Department of the Environment. ‘Plan for a Cleaner environment’, (DoE, Canberra, 2016)
Definitions of heritage can be nuanced. However, heritage is generally understood to mean ‘what we inherit, and what society retains of this inheritance’. For UNESCO built heritage is treated as a ‘productive asset’ transmitting knowledge from one generation to the next.

A popular understanding of built heritage is as an endowment from one generation to the next. While this understanding has been critiqued by some academic authors as ‘patriarchal and socially constructed’, it is generally accepted.

For Harvey, society’s approach to heritage has been an evolutionary process, shaped by society’s experience of time and space and ‘societal changes associated with the colonial and post-colonial experience’.

Since the 1990s, the concept of built heritage has shifted towards a more holistic understanding of built heritage as part of a ‘cultural ecosystem’. The field of cultural economics has explored the concept of ‘cultural capital’, drawing parallels between cultural and natural capital. In this way, cultural economics has drawn on environmental and ecological discourses to consider new ways of measuring intrinsic value and factoring in intergenerational equity.

Aligning built heritage with sustainability discourse has resulted in a greater emphasis and awareness in recent years on sustainable urban development, corporate ethics and social responsibility. This is reflected in the ‘landscape based approach to architectural heritage management’ employed and promoted by the United Nations and European Union.

A key issue in defining heritage is defining what counts as heritage. Academics have tended to emphasise the negotiated nature of what counts as heritage, and are critical of how defining heritage assets is ‘bound up with elite power, specifically the power of experts’ referred to by Laura Jane Smith as the ‘authorised heritage discourse’ (2006).

**Historic preservation and sustainable development**

A new development in the valuation of heritage has been an increased awareness of the role of built heritage in sustainable development.

Armitage et al. argue that while Australia has a well-developed system of heritage management it has been ‘slow to adapt to its responsibilities under international treaties in the area of sustainable practices in the property field’.

Bandarin et al. probing the relevance of cultural heritage for contemporary society in a postmodern context suggests cultural heritage is intrinsically tied to visions for a sustainable future and adaptive reuse. Radoine support the emergence of a vision for sustainable development which ‘combines heritage, contemporary design and environmental..."
The Economic value of built heritage in the city of Adelaide

In this vein, the practice of urban conservation of built heritage in itself can offer the following benefits:

- New approaches and instruments to achieve urban and environmental sustainability,
- Unlock local knowledge, creativity and wellbeing (support the knowledge economy), and
- Bring together a range of public and private stakeholders.

The environmental benefits of adaptive reuse featured prominently across the most recent literature on cultural built heritage. A number of academics have made compelling arguments for the adaptive reuse of heritage from a sustainability viewpoint. The benefits of adaptive reuse are outlined below:

- Extending the lifecycle of buildings as opposed to demolition and new construction,
- Efficient use of resources (reduced carbon), and
- Reuse of a historic building is more sustainable than LEED certified new construction.

Armitage et al. argue that as yet, there is poor recognition of the measurement tools to measure the value of a heritage asset’s social and cultural contribution to sustainability.

Donovan Rypkema is a world leading expert on the economic benefits of heritage preservation. He has also described how historic preservation is fundamental to sustainable development. Some of the key reasons identified by Rypkema include:

- Repairing and rebuilding historic features in buildings such as windows means that money is spent locally rather than at an out of state or international manufacturing plant (environmental sustainability)
- Retention of the original built form fabric helps maintain the character of a historic neighbourhood (cultural sustainability)
- Due to their relative affordability, historic buildings are often used as incubators for small businesses and start ups, allowing these businesses to make a sizeable contribution to the local economy (economic sustainability)
- Using US examples, new construction generates fewer jobs than the same level of expenditure on rehabilitation of a historic buildings (economic benefit), and
- Properties located in local historic districts appreciate at a greater rate than properties in the same local market that are not in historic districts. Historic districts also tend to be less susceptible to changes in the real estate market (economic benefit).

### 2.2 Built Heritage Protection and Funding

**Federal Government Built Heritage Protection**

The Environment Protection and Biodiversity Conservation Act of 1999 (EPBC) provides for the listing of natural, historic or indigenous places that are of outstanding national heritage value to Australia. Built heritage that is of international significance is included in the world heritage list and are declared world heritage properties. The National Heritage List includes natural, historic and Indigenous places of outstanding heritage value. The City of Adelaide has three

---


21 LEED (Leadership in Energy and Environmental Design) is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts


23 Armitage et al., (2013): 255

24 Donovan Rypkema, ‘Sustainability, Smart Growth and Historic Preservation’, presentation given at the Historic Districts Council Annual Conference in New York City, on March 10, 2007
The Economic value of built heritage in the city of Adelaide

places on the National Heritage list: City Layout and Parklands, Old Parliament House and New Parliament House. The Commonwealth Heritage List comprises natural, Indigenous and historic heritage places on Commonwealth lands and waters or under Australian Government control. Once a heritage place is listed, a number of conditions are applied that ensure that the values of the place are protected and conserved for future generations.

The EPBC Act also provides for the preparation of management plans which establishes the significant heritage values of a place, and, how the values will be managed and conserved. The Australian Government provides funding for a range of activities to protect Australia’s heritage. This includes competitive funding programs such as the Community Heritage and Icons Grant and the Protection National Historic Sites Program as well as discretionary/ad hoc/non-competitive grants such as the Historic Shipwrecks Program and the National Trusts Partnership Program.

The Australian Government Jobs Fund Heritage Program

As part of the $650 million Jobs Fund that ran between 2008 and 2010, $60 million was allocated for the Jobs Fund Heritage Program (or the Program). To be considered for funding under this program, projects had to deliver positive heritage outcomes. The Program focused on strengthening the role of heritage in the community by protecting, conserving and promoting:

- National Heritage-listed places;
- National Trust properties;
- Community heritage places; and
- Natural heritage places.

As well as seeking to deliver positive heritage benefits, the Program aimed to provide employment and economic stimulus, particularly in areas of high unemployment. Program funding was also intended to improve heritage infrastructure and bring increased value and opportunities to heritage places. The Adelaide Mosque in Little Gilbert Street is one building to benefit from this Program for the stabilisation of its visually significant minarets.

The Australian Government also undertakes conservation works on buildings it owns.

South Australian Government Built Heritage Protection

The South Australian Government is an owner and custodian on behalf of South Australians of numerous government, civic, legal, and community buildings of heritage value, be it Parliament House, the Supreme Court or North Adelaide Primary School. The SA Government as land owner takes carriage of conserving these buildings.

Over the time of operation by Council of the HIS, the South Australian Government has offered a range of financial and professional support to private and community owners of heritage buildings of State heritage value.

Building Upgrade Finance (BUF)

In 2017, the State Government established the Building Upgrade Finance mechanism in South Australia to help unlock investment in retrofits of existing buildings – which includes designated heritage buildings - and realise the associated economic and environmental benefits.

BUF is a loan mechanism which helps building owners to access loans to improve the energy, water and environmental efficiency of existing commercial buildings.

BUF is an innovative way to finance a building upgrade. It allows building owners to access longer-term fixed-interest finance, as well as share the costs and benefits of the upgrade with their tenants.

In an Australian first, BUF in South Australia will also support building owners to undertake restoration and upgrades of heritage buildings, including modifications to meet building rules.
and disability code compliance, a measure to address particular barriers contributing to long term vacancy.

The BUF mechanism can help building owners to improve the environmental performance of their property assets without the risks and negative cash flow implications of traditional finance, as well as reduce operating costs, increase yields, help attract and retain tenants, and increase asset value.

Essentially, BUF is a tool for improving the performance of a property asset, and as a new tool, its opportunities are yet to be realised. It provides an opportunity for commercial building owners and tenants to work together to improve the performance of their buildings, realise financial savings, and achieve win-win outcomes.

City of Adelaide Built Heritage Protection

The City of Adelaide is committed to the protection, preservation and promotion of its heritage listed places. This occurs through a number of initiatives including, but not limited to, heritage plaques, sponsorship of the annual History Festival, nominating new places for heritage listing (including National, State and Local), the heritage advisory service, commissioning research like this paper and the heritage tourism study of 2015, maintaining historic information to enable a variety of activities to happen (e.g. architectural research) and the most substantial local government heritage grant scheme in Australia, the Heritage Incentives Scheme (HIS). It is also reflected in their strategic plan and cultural strategy.

The Heritage Incentives Scheme (HIS).

The HIS supports the conservation of heritage listed places by reimbursing private property owners with a proportion of the costs involved with professional documentation and conservation works that retain, reinforce or reinstate the heritage significance of these places in accordance with specific criteria and the Burra Charter25. The HIS ensures conservation projects encompass the required works for that particular heritage place and are undertaken by skilled tradespeople using correct materials and techniques. The HIS first commenced in 1988 and has been operational every year since.26

2.3 Cultural value and significance of Built Heritage

History and heritage are essential elements of all cultures, as reflected in the ideas, materials and habits passed through time. In this way, cultural values are ‘a part of the very notion of heritage’ and pertain to the shared meanings associated with built heritage.27

The value of a heritage place, site, landscape or object is commonly referred to as its cultural significance.28 Cultural value/significance is a broad term which encompasses the aesthetic, historic, scientific, symbolic and social or spiritual value of cultural heritage for past, present and future generations.29

The socio-cultural values embodied by the term ‘cultural significance’ have a number of associated benefits that are often intangible and not necessarily quantifiable. There have been a number of approaches taken to categorising sociocultural values over time. Current trends observed in the literature tend to agree on the typology of socioeconomic values outlined in Table 1.30

25 Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter. ICOMOS (2013). The Burra Charter is a set of principles that have been adopted to create a nationally accepted standard for heritage conservation practice in Australia. The Australia ICOMOS Charter for the Conservation of Places of Cultural Significance, known as the Burra Charter, was first adopted at Burra in 1979.
26 With the exception of the 2001/2002 financial year when a heritage rate rebate was implemented.
28 The Allen Consulting Group, (2005): p1
30 Ibid;
TABLE 1: SOCIOCULTURAL VALUES OF BUILT HERITAGE

<table>
<thead>
<tr>
<th>VALUE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historic</td>
<td>The building or site provides a connectedness with the past and reveals the origins of the present</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>The building or site possess and displays beauty. This may include the relationship of the site to the landscape in which it is situated and environmental qualities relevant to the site and surrounds.</td>
</tr>
<tr>
<td>Scientific</td>
<td>The building or area is important as a source or object for scholarly study</td>
</tr>
<tr>
<td>Spiritual</td>
<td>The building or site contributes to the sense of identity, awe, delight, wonderment, religious recognition or connection with the infinite</td>
</tr>
<tr>
<td>Symbolic</td>
<td>The building or site conveys meaning and information that helps the community to assert its cultural individuality</td>
</tr>
<tr>
<td>Social</td>
<td>The building or site contributes to social sustainability and cohesion in the community, helping to identify the group values that make the community a desirable place in which to live and work.</td>
</tr>
</tbody>
</table>


2.4 Economic value of heritage

Mason observes that ‘economic valuing is one of the most powerful ways through which society identifies, assesses and decides on the relative value of things’.31 There are a number of well-established economic values with regards to historic heritage which are described in Table 2.

It is suggested that each of the use and non-use benefits identified are capable of ‘increasing welfare’ and ought to be considered in any analysis.32 In addition, there may be examples of evaluations in which the ‘benefits conflict’ and trade-offs are required between the degree of place conservation and the intensity of use.33

Serageldin34 argues that there is a spectrum of decreasing tangibility of value to individuals, with direct use having the highest tangibility and bequest value having the lowest tangibility.

TABLE 2: ECONOMIC VALUES OF BUILT HERITAGE

<table>
<thead>
<tr>
<th>VALUE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>USE</td>
<td>Direct</td>
</tr>
<tr>
<td></td>
<td>Indirect</td>
</tr>
<tr>
<td>NON-USE</td>
<td>Existence</td>
</tr>
<tr>
<td></td>
<td>Option</td>
</tr>
<tr>
<td></td>
<td>Bequest</td>
</tr>
</tbody>
</table>

Source: Eduardo Rojas “Governance in Historic City Core Regeneration Projects” Urban Development Series. The World Bank (2012).

33 Ibid: 5
The following section defines and discusses use and non-use economic values in greater detail.

**Use Value**

**Direct use value**

Direct use values are also defined as market values, and can typically be assigned a price. For heritage assets, the use values ‘refer to the goods and services that flow from it that are tradable and priceable in existing markets’.\(^{35}\)

Built heritage has direct use value as a physical asset capable of accommodating and earning revenue from a range of residential, commercial and other uses.

The heritage element of physical assets often adds value to the primary use value as people may ‘derive additional value from viewing, visiting and/or living and working in a heritage place.’\(^{36}\)

The direct use value of heritage assets has a number of quantifiable direct benefits including the stimulation of economic activity and increased labour force productivity, increased tourism, and opportunities for recreation, leisure and entertainment.\(^{37}\)

The argument that heritage assets can extract premium rents for residential and commercial uses should be tempered with an understanding of the capital expenditure and ongoing operational costs associated with maintaining the asset. Whether a heritage listing elevates property values or ‘creates a negative impact’ by restricting property rights is contested across the literature.\(^{38}\)

In some development contexts, heritage is viewed as a liability by public and private property owners.\(^{39}\) In recent years, UNESCO has endeavoured to promote urban heritage’s contribution to sustainable development and shift perceptions to a view of built heritage as a development asset for the city.\(^{40}\)

However, as suggested by the Allen Consulting Group, there are sometimes trade-offs to be made between the degree of place conservation and the intensity of use proposed for an asset.

**Indirect use value**

The indirect use value of built heritage is best defined as external or ‘passive use’ or the value accruing to others.\(^{41}\) A non-use value can occur ‘without any direct consumption’ whereby ‘individuals can derive benefit from a heritage place despite never physically entering or viewing the place but merely from reflection or association’.\(^{42}\)

Indirect value relates to the more subtle and less quantifiable values that are relevant to the users who do not specifically live or work in the heritage structure but for whom the property forms a familiar and defining element of the community and is associated with regular community life. The property may define the community image that is projected to visitors and, in turn, may increase the overall appeal of the community. The presence of an appealing heritage building can increase the visual amenity of a street or the wider neighbourhood. Indirect benefits of a heritage site can include the social benefits derived from having a

---

\(^{35}\) Mason, (2002)

\(^{36}\) Serageldin,(1999): 4

\(^{37}\) The Allen Consulting Group (2005)

\(^{38}\) Armitage et al., (2013): 252

\(^{39}\) Eduardo Rojas “Governance in Historic City Core Regeneration Projects” Urban Development Series. The World Bank (2012): 199.

\(^{40}\) Ibid

\(^{41}\) Rojas, (2012):199

\(^{42}\) Armitage et al., (2013): 249
recognisable and iconic local building that can act as a landmark and meeting place that encourages social interaction.

Throsby\(^3\) suggests the most promising approaches to measuring cultural value is to break the category down into components ‘for which measurement scales might be devised’. These are:

- Aesthetic value
- Spiritual value
- Social value
- Historic value
- Symbolic value
- Authenticity value

More specific indirect benefits accruing from indirect user value may include:\(^4\)

- Community image
- Environmental quality
- Aesthetic quality
- Increase in the capital value of existing (non heritage) assets
- Social interaction
- Educational benefits
- Impact of heritage designation on property values
- Spill-over benefits from tourism\(^5\)

**Non-Use Value**

Non use values are also referred to as nonmarket values. As with indirect user value, they are not traded in markets and are not readily assigned a price. Many of the sociocultural values discussed above can be categorised as non-use values. These values can be expressed as economic values due to individual’s willingness to pay to acquire them and/or protect them.

**Option value**

The option value of heritage can be defined as ‘someone’s wish to preserve the possibility (the option) that he or she might consume the heritage services at some future time’.\(^6\)

**Bequest value**

The bequest value refers to the historic legacy of built heritage and is encapsulated by the resources communities are prepared to allocate to its ongoing preservation. It stems from the desire to bequeath a heritage asset to future generations. This cultural and historical legacy stems from the feeling of obligation and responsibility shared by individuals in communities that it is right to protect and pass down our historical places for those that have not had the chance to experience them.

**Existence/intrinsic value**

“Intrinsic value” is a much less tangible value of heritage. It typically involves the perceptions of individuals as to how a heritage property contributes to the basic and essential elements of a local community. The presence of these intrinsic values can help form the identity of an area and the identity of people who live within it.

Serageldin argues that the ‘estimation of existence values is not a senseless academic exercise’ and without due rigour, it can lead to the significant understating of the value of heritage.\(^7\)

\(^3\) Throsby, Urban Development Series (2012) 52-53
\(^4\) Serageldin, (1999): 48
\(^5\) Armitage et al., (2013)
\(^6\) Mason, (2002)
\(^7\) Serageldin (1999): 47
It is proposed that cultural built heritage requires a similar approach to that taken in environmental economics to estimate the existence value of biodiversity.48

2.5 Implications

Built heritage is commonly accepted as being of great value to cities and society. In recent times, it has been increasingly recognised for its contribution to sustainable development. This is evidenced through the range of protections afforded to built heritage at the local, state and federal government level. To understand the economic impact of protections, the value of built heritage is necessarily quantified.

The value of built heritage can be understood as a socio-cultural value, and as an economic value. Assessing the economic value allows the value of built heritage to be quantified. There are a number of methods for assessing the economic value of built heritage. These tools are applied to the built heritage of the City of Adelaide in the following chapter.

48 Ibid: 48
3. THE VALUE OF BUILT HERITAGE IN ADELAIDE

The City of Adelaide has 2,497 heritage listed buildings. This section of the report provides an estimate of the overall value of these assets using different methods.

3.1 Property value method

There is inconclusive evidence as to whether or not heritage listing affects the price of private property, and if it does, whether that impact is positive or negative. According to a survey of owners of heritage listed properties, 60% stated that the heritage listing did not influence the price they paid.49

A study by D’Arcy50 showed that the market price of properties in Victoria are not impacted by heritage listing. A study in NSW, conducted by Penfold51, showed similar results.

An SGS review of the values of heritage listed and non-heritage listed properties in Adelaide did not provide conclusive evidence of either positive or negative impacts in the City of Adelaide. The analysis of sale prices of heritage listed and non-heritage listed properties between 2000 and 2017 indicated that there was no clear correlation between sale price and heritage listing.

3.2 Travel cost method

Travel data can be used to produce a demand curve for a heritage asset based on willingness to pay for access to a site. This is better used to determine the value of a single site rather than a collection of sites.

Data for open house visitations in Adelaide can be used to estimate the willingness to pay for access to a site. This data was provided by History South Australia, and included the number of visits to State and Local Heritage Registered buildings during open house days (Open House Adelaide). Open house days are where buildings that are otherwise not accessible to the public are open for the public to enter and view.

Australian Transport Assessment and Planning Guidelines (ATAP) provides parameters for assessing and valuing travel time. They identify the value of leisure time at $14.99 per person per hour52.

Using this type of analysis, it is assumed that people spend a total of 3 hours visiting open houses per visit. This is based on the assumption that people would spend up to an hour travelling each way to and from the open house, and then spend an hour at the open house.

On this basis, the annual value of Greater Adelaide Region’s stock of heritage buildings is estimated at around $300,000 per year, as illustrated in Table 3. This amounts to $11 million if capitalized at 4 per cent (i.e. The capital (total) value of the Greater Adelaide Region’s stock of heritage buildings in 2017 prices).

49 The Allen Consulting Group (2005)
TABLE 3: HERITAGE VALUE BASED ON TRAVEL COST

<table>
<thead>
<tr>
<th>Year</th>
<th>No of Visits to open house properties</th>
<th>Value (No. of visits x average length of visit x value of leisure time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>6932</td>
<td>$311,732</td>
</tr>
<tr>
<td>2014</td>
<td>9738</td>
<td>$437,917</td>
</tr>
</tbody>
</table>

Source: History South Australia, 2017, SGS modelling

This method excludes heritage assets which are not accessible to the public or are privately owned. Accordingly, this approach provides unreasonably low estimates of heritage value in the Greater Adelaide Region. It only provides an estimate of buildings that are heritage listed, and, included in the Open House Adelaide program. For this reason, it does not provide insight into the value of all heritage buildings in the City of Adelaide.

### 3.3 Choice modelling

Choice modelling can be used to assess the value of an asset by gauging community members’ willingness to pay for the existence or maintenance of that asset. This generally involves a qualitative survey and a choice model to understand preferences and willingness to pay for particular attributes.

**CHOICE MODELLING – ALLEN CONSULTING GROUP 2005**

Choice modelling was undertaken in 2005 by the Allen Consulting Group with the assistance of ACNielsen to evaluate the importance of heritage to community. According to a literature review undertaken by the Heritage Council of Victoria, this is one of the few studies to date on Victoria’s community perceptions of heritage.

The following approach was taken:

- **Survey**: In simple attitudinal questions respondents were asked if they ‘Strongly agree and agree’, ‘Strongly disagree and Disagree’, or ‘Neither agree or disagree’ with statements representative of community views and perceptions of heritage related values.
- **Choice modelling**: was undertaken to further analyse general statements to see the degree to which the population is willing to financially support historic heritage conservation. Attributes were developed following focus group meetings, and related to Protection, Condition, Accessibility, Age Mix, Development Control, and Cost. The Choice modelling involved eliciting a respondent’s stated preference in a hypothetical setting; respondents are presented with several sets of options, and asked to indicate which option they prefer. The choice modelling allows implicit prices to be assigned to each of the changes associated with the attributes.

Armitage et al (2013), argue that since the Allen Consulting Group survey in 2005 there has been greater public awareness on sustainability and the need to ‘effectively use the planet’s resources’.

Allen Consulting Group (2005) concluded that around Australia, willingness to pay for protection of additional heritage assets was $5.53 per person for 1,000 additional protected heritage places (This figure has not been adjusted to account for inflation so is therefore a conservative figure).

Using this willingness to pay figure, the total value of City of Adelaide’s heritage buildings would be $13.81 per person, which amounts to the following, depending on which population is used: This figure is based on the premise that there are 2,497 heritage buildings in the City of Adelaide, as identified in Council datasets.
The Economic value of built heritage in the city of Adelaide

TABLE 4: HERITAGE VALUE BASED ON CHOICE MODELLING

<table>
<thead>
<tr>
<th>Region</th>
<th>Population 2016*</th>
<th>Value (population x $10.67)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Adelaide (Local Government Area)</td>
<td>23,615</td>
<td>$326,123</td>
</tr>
<tr>
<td>Greater Adelaide Region</td>
<td>1,300,000</td>
<td>$17,953,000</td>
</tr>
<tr>
<td>South Australia</td>
<td>1,677,000</td>
<td>$23,159,370</td>
</tr>
<tr>
<td>Australia</td>
<td>23,780,000</td>
<td>$328,401,800</td>
</tr>
</tbody>
</table>

Source: Allen Consulting Group, SGS modelling, *ABS Community Profile Data 2016

Using this type of analysis, the City of Adelaide’s heritage building stock is valued at approximately $330 million by Australians.

In addition to the willingness to pay for additional heritage assets to be protected around Australia, Allen Consulting also noted a willingness to pay for:

- An increase in the number of places in good condition. This is valued at $1.35 per person for a 1% increase in the proportion of assets in good condition.
- An increase in the number of places that are accessible. This is valued at $3.60 per person for a 1% increase in the proportion of places that are accessible.

TABLE 5: VALUE OF 1% INCREASE IN PLACES IN GOOD CONDITION

<table>
<thead>
<tr>
<th>Region</th>
<th>Population 2016*</th>
<th>Value (population x $1.35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Adelaide (Local Government Area)</td>
<td>23,615</td>
<td>$31,880</td>
</tr>
<tr>
<td>Greater Adelaide Region</td>
<td>1,300,000</td>
<td>$1,755,000</td>
</tr>
<tr>
<td>South Australia</td>
<td>1,677,000</td>
<td>$2,263,950</td>
</tr>
<tr>
<td>Australia</td>
<td>23,780,000</td>
<td>$32,103,000</td>
</tr>
</tbody>
</table>

Source: Allen Consulting Group, SGS modelling, *ABS Community Profile Data 2016

TABLE 6: VALUE OF 1% INCREASE IN PLACES THAT ARE ACCESSIBLE

<table>
<thead>
<tr>
<th>Region</th>
<th>Population 2016*</th>
<th>Value (population x $3.60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Adelaide (Local Government Area)</td>
<td>23,615</td>
<td>$85,014</td>
</tr>
<tr>
<td>Greater Adelaide Region</td>
<td>1,300,000</td>
<td>$4,680,000</td>
</tr>
<tr>
<td>South Australia</td>
<td>1,677,000</td>
<td>$6,037,200</td>
</tr>
<tr>
<td>Australia</td>
<td>23,780,000</td>
<td>$85,608,000</td>
</tr>
</tbody>
</table>

Source: Allen Consulting Group, SGS modelling, *ABS Community Profile Data 2016

Is it also worth noting that respondents placed higher value on the total heritage stock if a mix of ages were to be protected, rather than only heritage items greater than 100 years old.

3.4 Direct visitor expenditure

The City of Adelaide (2015) reported the value of visitor expenditure in the City of Adelaide to be $1.394b, and the amount directly attributable to Adelaide’s heritage to be $375m. The latter capitalizes at $9.4 billion using a discount rate of 4 per cent53.

This same report noted that 12% of visitors surveyed indicated that cultural heritage was a main reason for visiting the area.

3.5 Implications

A number of different methods were applied to estimate the value of heritage buildings in the City of Adelaide. The travel cost method estimates the capitalized value (total stock value) at $200 million, however this method provides an unreasonably low estimate of heritage value as privately owned and not publicly accessible assets are excluded.

The choice modelling method estimates the value to be $328 million, and a further willingness to pay for increasing the number of heritage places in good condition of $32 million. The direct visitor expenditure method estimates the highest value at $9.4 billion (once capitalized). Already widely applied in environmental economics, the use of choice modelling in the evaluation of cultural heritage assets is still relatively new.\(^{54}\) Choice modelling has been described as a ‘powerful and detailed capacity of evaluation’ for cultural heritage assets.\(^{55}\) The choice modelling valuation of heritage buildings has therefore been identified as the most suitable valuation method for assessing the value of built heritage for inclusion in the cost benefit analysis.

\(^{54}\) Choi et al., (2010): 215
\(^{55}\) Mourato et al., (2002): 64
This section includes a cost benefit analysis (CBA) which assesses if the social, economic and environmental benefits of the implementation of the Heritage Incentives Scheme outweigh the resources expended under the Scheme.

4.1 CBA Approach

CBA is the preferred economic evaluation tool of the South Australian Department of Treasury & Finance. Guidelines have been developed by DTF (August, 2013) to ensure a robust and consistent approach is applied across government investment proposals. In short, these guidelines dictate that a cost benefit analysis must address the full spectrum of economic, social and environmental impacts of a project. Positive and negative effects should be quantified and monetised (expressed in dollar terms) as far as possible and then compared to arrive at a conclusion as to whether the proposal is likely to make the community better off, or worse off, in net terms compared with persevering with business as usual conditions.

The approach adopted in this report follows these Guidelines and is summarised in the figure below:

**FIGURE 1: COST BENEFIT ANALYSIS METHODOLOGY**

Source: SGS Economics and Planning
The principal steps in the cost benefit analysis approach include:

- Differentiating between the outcomes under a ‘base case’ scenario and those arising from the project
- Identifying the incremental costs and benefits that arise in moving from the ‘base case’ to the ‘project’ scenario
- Quantifying and monetising these costs and benefits, where possible, over a suitable project evaluation period (in this case 30 years)
- Generating measures of net community impact using discounted cash flow techniques over the duration of the project; this requires expression of future costs and benefits in present value terms using a discount rate that is reflective of the opportunity costs of resources employed
- Testing the sensitivity of these measures to changes in the underlying assumptions utilised

### 4.2 Incremental Costs and Benefits of Heritage Incentives Scheme

The City of Adelaide’s Heritage Incentives Scheme (HIS) has been in place for 30 years. 10 years of highly detailed data is available in relation to the HIS reflecting the impact of the scheme within the City of Adelaide. The identified incremental costs and benefits that can be monetised and are associated with the HIS are described in Table 7 and Table 8.

The restoration of heritage buildings in the City of Adelaide is likely to have a minimal impact on development capacity. Acknowledging designated heritage buildings, the Spatial Vision for Adelaide considers the 30 year horizon for the future of Adelaide. This document recognises that there is more than 30 years supply of developable land in the City of Adelaide. For this reason the impact of the HIS on development capacity is considered negligible and is not monetised in the cost benefit analysis.

Table 7 and Table 8 outline the assumptions that are used to estimate the monetised costs and benefits described in the remainder of this section.

<table>
<thead>
<tr>
<th>Incremental Costs</th>
<th>Monetisation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIS implementation</td>
<td>Costs of HIS project officer and proportion of costs for heritage architects were provided by the City of Adelaide.</td>
</tr>
<tr>
<td>Costs of staffing and delivering the HIS</td>
<td></td>
</tr>
</tbody>
</table>
| Project works (private) | The total costs to the private sector (total project cost less HIS grant) for projects that only proceeded with the grant:  
- Projects under $20,000: 90% would proceed without HIS  
- Projects between $20,000 and $40,000: 60% would proceed without HIS  
- Projects between $40,000 and $100,000: 20% would proceed without HIS  
- Projects over $100,000: 5% would proceed without HIS $^7$ |
| The costs incurred by the private sector for project work that proceeded only due to the presence of the HIS. | |
| Costs of grants/funding | Data provided by the City of Adelaide on the annual program costs of the HIS have been applied. |
| the total value of grant funds distributed. | |

Source: City of Adelaide, 2017, SGS modelling

---

$^57$ The cost breakdown for Heritage Incentives Scheme projects is based on the expertise and experience of the City of Adelaide’s heritage staff and the detailed project records from 2006 to current. The breakdown of categories are relatively conservative assumptions.
TABLE 8: INCREMENTAL BENEFITS ASSOCIATED WITH HERITAGE INCENTIVES SCHEME

<table>
<thead>
<tr>
<th>Incremental Benefits</th>
<th>Monetisation Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improved Heritage Character and Amenity</strong></td>
<td>Allen Consulting report: willingness to pay provides guidance on the willingness to pay for heritage stock. This was used to estimate the willingness to pay for the entire value of heritage stock in the City of Adelaide. An annual flow of value was then identified from this heritage stock.</td>
</tr>
<tr>
<td>The HIS has assisted with the retention, conservation and reinstatement of heritage fabric in the City of Adelaide. This has strengthened the City's distinctive heritage and historic character and led to improved public amenity, largely due to the growing number of heritage buildings conserved via the HIS. This is observed in the gradual improvement of streetscapes or groups of streets as well as conservation of individual heritage places. These factors contribute to a desirable sense of place, increased tourism in relation to heritage, and the branding of the City of Adelaide.</td>
<td></td>
</tr>
<tr>
<td><strong>Well Conserved Heritage Buildings</strong></td>
<td>Project value for all work that would not have proceeded without the HIS.</td>
</tr>
<tr>
<td>The HIS has provided financial support and expert advice to building owners to assist with early intervention into building conservation works and adaptive reuse projects to support their preservation and continual use for future generations. The HIS has reduced the number of heritage places at risk of eventual loss within the City of Adelaide. Without the HIS, some buildings may have deteriorated to such an extent that they were at risk. Risk for heritage buildings can come in many forms. If not conserved and maintained, buildings can be left vacant and become uninhabitable or an eyesore; be exposed to vandalism (graffiti), squatters, vermin and fire; and in extreme cases of neglect, they may become structurally unsound and may be considered for demolition.</td>
<td>For projects that would have proceeded anyway, assumption of 10 per cent premium in value of project work where HIS has been included.</td>
</tr>
<tr>
<td></td>
<td>• Projects under $20,000: 90% would proceed without HIS</td>
</tr>
<tr>
<td></td>
<td>• Projects between $20,000 and $40,000: 60% would proceed without HIS</td>
</tr>
<tr>
<td></td>
<td>• Projects between $40,000 and $100,000: 20% would proceed without HIS</td>
</tr>
<tr>
<td></td>
<td>• Projects over $100,000: 5% would proceed without HIS</td>
</tr>
<tr>
<td><strong>Less Vulnerability to Future Destruction</strong></td>
<td>Captured in the above monetisation technique.</td>
</tr>
<tr>
<td>The HIS has assisted buildings to be preserved for the long term. It has encouraged and provided owners with support to protect their properties and ensured they received expert advice on appropriate restoration techniques and adaptive reuse that meet the Burra Charter. Without the HIS, some repairs to buildings would have only protected the buildings for the short term, reducing their prospects for conservation in the long term. Without the HIS, unsympathetic works on buildings may have damaged their heritage value.</td>
<td></td>
</tr>
<tr>
<td><strong>New and Valuable Skills</strong></td>
<td>For projects that would not have gone ahead without the HIS, it is assumed that 50% of work involved learning and skill development.</td>
</tr>
<tr>
<td>The HIS has contributed to the retention and continued development of specialised trade skills within South Australia's heritage conservation and construction industry. The high proportion of heritage places within the City of Adelaide* (and South Australia generally), the support of the industry provided by the HIS and the specific skills and materials required for conservation works on heritage places in accordance to the Burra Charter supports training and job creation in this industry. *27 per cent of heritage listed places in South Australia are located within the City of Adelaide</td>
<td>Therefore, 50% of the total cost of these projects that only proceeded due to the HIS were converted to hours based on average restoration labour rates. The benefit was estimated by costing how much formal training would cost to provide the same number of hours.</td>
</tr>
<tr>
<td><strong>Retention of income in South Australia</strong></td>
<td>As Identified in economic impacts section: chapter 5</td>
</tr>
<tr>
<td>The HIS has led to a greater number of owners undertaking conservation works on their heritage places, thus supporting the retention of their dollar spend for labour and materials within South Australia. The HIS has encouraged people to spend an increased portion of their savings on heritage conservation than would have been the case without the HIS. Without the HIS, these savings would have been diverted to other products or services with a proportion of these filtered out of South Australia, for example, imported cars, overseas or interstate holidays.</td>
<td></td>
</tr>
<tr>
<td>Source: SGS modelling, City of Adelaide, 2017</td>
<td></td>
</tr>
</tbody>
</table>
4.3 Monetised Costs

Each of the identified costs identified in Table 7 have been monetised based on the assumptions outlined. These are as follows.

**HIS implementation**
Dedicated staff are required to work with owners to support the implementation of the HIS. The cost of HIS implementation between 2006 and 2017 was valued at $1,794,000 in total between 2006 and 2017. This figure is based on net present values for staffing.

**Project works (private)**
The costs to the private sector to carry out heritage restoration projects that would have only proceeded with the support of the HIS grant was valued at $8,194,600 in total between 2006 and 2017.

**Costs of grants/funding**
The costs to the City of Adelaide to deliver the HIS scheme between 2006 and 2017 was valued at $8,643,800. This figure only includes the value of funds distributed to land owners to undertake restoration works during this period.

4.4 Monetised Benefits

Each of the identified benefits identified in Table 8 have been monetised based on the assumptions outlined. These are as follows.

**Improved Heritage Character and Amenity**
The restoration of heritage buildings funded by the HIS improved the heritage character in the City of Adelaide. This was valued at $7,195,500 in total between 2006 and 2017.

**Well Conserved Heritage Buildings**
The HIS led to greater conservation value in building restoration works. This was valued at $11,174,400 in total between 2006 and 2017.

**Less Vulnerability to Future Destruction**
The HIS protected buildings from future destruction. This value is captured in the above metric.

**New and Valuable Skills**
The HIS developed new and valuable restoration skills in South Australia. This was valued at $7,456,700.

**Retention of income in South Australia**
The HIS increased the number of restoration projects occurring in the City of Adelaide. This led to less diverted savings outside of the state. The retention of income in South Australia was valued at $7,879,400.
4.5 Cost Benefit Analysis Results

The results of the discounted cash-flow, using a real discount rate of 4% percent, are highlighted below. It shows that there is a significant Benefit Cost Ratio of 1.68, indicating that the HIS has generated significant benefit to the South Australian community.

<table>
<thead>
<tr>
<th>TABLE 9: COST BENEFIT ANALYSIS RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discount Rate</strong></td>
</tr>
<tr>
<td>4%</td>
</tr>
<tr>
<td><strong>Total costs – Present Value</strong></td>
</tr>
<tr>
<td>$18,632,400</td>
</tr>
<tr>
<td><strong>Total Benefits – Present Value</strong></td>
</tr>
<tr>
<td>$33,706,000</td>
</tr>
<tr>
<td><strong>Benefit Cost Ratio</strong></td>
</tr>
<tr>
<td>1.68</td>
</tr>
<tr>
<td><strong>Net Present Value</strong></td>
</tr>
<tr>
<td>$15,073,600</td>
</tr>
</tbody>
</table>

Source: SGS Economics and Planning
5. MEASURING THE ECONOMIC IMPACT OF HERITAGE

Economic impact refers to the stimulatory effect which a heritage investment or regulatory initiative might have on the local or State economy through, for example, attraction of additional tourist visitation and spending. This section analyses the potential economic impact of the HIS.

5.1 Overview

An economic impact assessment (EIA) traces how the direct economic stimuli introduced into a local economy by a particular project flows through to indirect and subsequently total economic activity levels, as measured in terms of regional income, value added and employment.

The purpose of conducting an EIA for the HIS is to estimate the multiplier effects of this scheme on employment and Gross State Product. The economic impact of the HIS can be measured through the impact of tourists who are motivated to visit Adelaide by the quality of its heritage stock. It can also be measured through the diverted savings impact, which quantifies the amount of household savings retained in the local economy as a result of the HIS.

SGS has estimated these impacts using a customised input output (IO) model, that provides reliable broad-brush estimates of economic impacts, as outlined in the following section.

5.2 Economic impacts of heritage tourism

To estimate the economic impacts of tourism motivated by heritage conservation resulting from the implementation of the HIS in the City of Adelaide, SGS has undertaken the following tasks:

- Reviewed Council background material for all of the HIS projects over the last 10 years.
- Identified how the HIS stimulated the regional economy through tourism impacts on an annual basis.
- Identified the regional industries that are likely to be directly stimulated.
- Assessed how these impacts are likely to lead to indirect impacts in the regional economy, drawing from our internal input-output modelling capabilities.
- Summarised the results in terms of the scale of direct, indirect and total output, value added and employment that was likely to have been generated by the HIS in the region.

Heritage tourism in Adelaide

Greater Adelaide received 2.66 million overnight visitors in 2014-15, and has consistently received between 2.5 and 2.7 million overnight visitors per year since 2006. Total tourism expenditure in 2014-15 was estimated at $3.01 billion, equivalent to $1,132 tourism spending per capita (Figure 2). Over 85 per cent of overnight visitors were from interstate, with the remaining being overseas visitors. On average visitors stayed 6 days in Greater Adelaide, which varied depending on the type of visitor. Domestic visitors had an average length of stay of 3.4 days whilst for international visitors it was 23 days. Average expenditure per international visitor was also higher, at $2,450 per capita.
Domestic and International Tourist Profiles prepared by the South Australian Tourism Commission indicate that tourists to Greater Adelaide are motivated by several factors, including visiting friends and relatives, general sightseeing, shopping, visiting museums, outdoor activities and visiting heritage sites. The main motivation of tourists to the city varies depending on the visitor type, such as business or leisure visitors, and domestic or international visitors. In estimating the economic impact of tourism resulting from the preservation of heritage stock in the City of Adelaide, only the proportion of tourists motivated by heritage should be considered.

A 2015 report prepared by Tourism Research Services (TRS) looked at the economic value of heritage tourism in Adelaide (TRS 2015) by conducting a survey of visitors in the City of Adelaide to determine the motivation, importance and main activities of their visit. The report found that 12 per cent of all visitors to the City of Adelaide are primarily motivated by the city’s cultural heritage. Additionally, it found that 28 per cent of survey respondents rated cultural heritage as important or very important to their visit, and 41 per cent of survey respondents undertook activities in cultural heritage places (TRS 2015).

The Tourism & Transport Forum (TTF) has published a report examining Built Heritage and the Visitor Economy and presented the case for adaptive re-use of heritage assets (TTF 2017). The report suggests that heritage tourists usually spend more money and stay longer than average visitors. It found that across Australia in 2015 there were over 2 million international heritage visitors (33 per cent of total visitors) and 4.9 million domestic overnight heritage visitors (5.6 per cent of total domestic overnight trips). Heritage visitors are categorised as those who visited an historic/heritage building, site or monument.

The report also presents case studies highlighting the various ways heritage tourism can impact the visitor economy. These include:

- Driving visitation – for example Salamanca Place and Port Arthur in Tasmania
- Increasing visitor yield – for example the Marble Bar at the Hilton Hotel Sydney, NSW
- Improving the visitor experience – for example the Darwin Visitor Information Centre, located at the revitalised former Reserve Bank Building, Northern Territory

Heritage tourism is a popular and important segment of the tourism market, particularly for the City of Adelaide where cultural heritage is a key attraction for tourists. Attracting and
The economic value of built heritage in the city of Adelaide

Retaining heritage tourists with quality heritage buildings is likely to have significant economic impacts on the local South Australian economy. These impacts are quantified in the following section.

Heritage tourism visitation scenarios

Three scenarios have been developed regarding the level of tourist visitation that would be attributable to heritage conservation in the City of Adelaide. Based on the survey conducted by TRS we have assumed that under a high case scenario, 12 per cent of all overnight visitors to Adelaide would be motivated by cultural heritage. Under a medium scenario we have assumed 10 per cent of overnight visitors are motivated by cultural heritage, while under a low scenario only 6 per cent of overnight visitors are motivated by heritage. A worst-case scenario would be if the HIS was not implemented and Adelaide did not receive the 12 per cent of cultural visitors.

Table 10 presents the share and estimated number of heritage visitors for each of the three scenarios. Under the high scenario there were an estimated 319,000 heritage visitors to Adelaide in 2015. Under the medium and low scenarios, the number of heritage visitors was estimated to range between 266,000 and 160,000 visitors in 2015.

If the HIS was not in place and there had been no preservation of heritage buildings in Adelaide, it can be argued that a proportion of heritage tourists would not have visited the city, as there would be no main attraction for heritage tourists. Therefore, total overnight visitation would be lower. The impact to visitation can be measured using these three scenarios, assuming varying levels of heritage visitors that would not have visited if the heritage buildings had not been conserved. This is estimated to be between 160,000 to 319,000 visitors. The impact to total overnight visitor numbers is shown in Figure 3 for each scenario from 2006-07 to 2014-15.

**TABLE 10: HERITAGE TOURISM VISITATION SCENARIOS**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Total Overnight Visitors (Actual number during 2014/2015 financial year)</th>
<th>Projected Total Overnight Visitors if no heritage protection had occurred</th>
<th>Share of Visitors lost if no heritage protection had occurred</th>
<th>Heritage Visitors Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>2,660,000</td>
<td>2,341,000</td>
<td>12%</td>
<td>319,000</td>
</tr>
<tr>
<td>Medium</td>
<td>2,660,000</td>
<td>2,394,000</td>
<td>10%</td>
<td>266,000</td>
</tr>
<tr>
<td>Low</td>
<td>2,660,000</td>
<td>2,500,000</td>
<td>6%</td>
<td>160,000</td>
</tr>
</tbody>
</table>

Source: South Australia Tourism Statistics and SGS Economics & Planning
Economic impact estimation

SGS has performed a headline economic impact assessment for the HIS, which traces how the direct economic stimulus of increased tourism activity resulting from heritage visitors flows through to indirect and total economic activity levels, as measured by regional income, value added and employment.

The direct economic stimulus in this case would be the spending of a segment of the overnight tourism market in Greater Adelaide who were primarily motivated by the well-preserved heritage stock. These tourists spend money at local businesses in Adelaide during their stay, stimulating the local economy. Businesses that enjoy higher income levels as a result of the economic stimulus must spend more on supplies and services, some of which are bought locally, and often need to employ more staff or extend the working hours of existing staff. As local suppliers, service providers and employees earn more, they too are likely to spend more in the regional economy, causing additional indirect (or flow on) impacts.

To calculate the direct, indirect and total economic impacts of heritage tourism resulting from the HIS, the following assumptions have been made:

- Average spending per capita (per trip) is $1,132, based on the regional average (data from Tourism Research Australia).
- The total number of overnight tourists to Greater Adelaide is 2,660,000, based on data from Tourism Research Australia.
- 12 per cent of all overnight visitors to Greater Adelaide are categorised as heritage visitors, which varies for each scenario as outlined above.
- Economic multipliers for the tourism industry in the City of Adelaide are based on ABS Input Output tables and SGS’s customised methodology, as detailed in the appendix.

To interpret these impacts the following definitions are provided:

- Regional output: Total sales made in Adelaide as a result of heritage tourism. Economic output is the value of all goods and services produced in an economy.
- Regional value added: Profits earned and wages paid by businesses in Adelaide, as they boost production to supply/ service additional sales levels. Value added is a measure of ‘net output’, i.e. the difference between the value of final goods produced minus the cost of buying in raw materials and intermediate goods from outside the economy.
The Economic value of built heritage in the city of Adelaide

- Regional employment: Full time jobs created/supported in Adelaide, as enterprises boost production to supply/service additional income levels.

Table 11 presents the estimated economic impacts under the three scenarios for the direct, indirect and total impacts to regional output, value added and employment. Under the high scenario assuming 12 per cent of overnight visitors to Greater Adelaide are heritage tourists, economic impacts total to:

- $880 million in regional output.
- $395 million in regional value added, equivalent to 0.5 per cent of Gross Domestic Product for Greater Adelaide, and
- 3,000 jobs.

Without the implementation of the HIS, it can be reasoned that a proportion of heritage tourists would not have visited Adelaide and therefore the economic impact to the region would be a loss of $395 million in regional value added. This is reflected in the high scenario. It is acknowledged that the high scenario is very unlikely. The economic impact varies under each scenario as all heritage tourists may not have been lost without the HIS. The impact to regional value added would be $198 million under the low scenario and $329 million under the medium scenario.

To provide some context to these impacts, the South Australian Regional Tourism Satellite Accounts 2013-14 estimate that the entire tourism industry in Greater Adelaide contributes $2.7 billion to total value added (4.1 per cent of GDP), and employs 5.4 per cent of the workforce (29,400 employees). As heritage tourists make up a small proportion of the total tourism industry, our estimates are within a reasonable range.

**TABLE 11: ECONOMIC IMPACTS OF HERITAGE TOURISM (PER YEAR)**

<table>
<thead>
<tr>
<th>TOURISM ASSUMPTIONS</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Total Overnight Tourists (2014/2015)</td>
<td>2,660,000</td>
<td>2,660,000</td>
<td>2,660,000</td>
</tr>
<tr>
<td>Share of Visitors lost if no heritage protection had occurred</td>
<td>12%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>No. of Heritage Visitors lost if no heritage protection had occurred</td>
<td>319,000</td>
<td>266,000</td>
<td>160,000</td>
</tr>
<tr>
<td>Tourism Expenditure per Capita</td>
<td>$1,132</td>
<td>$1,132</td>
<td>$1,132</td>
</tr>
</tbody>
</table>

**ECONOMIC IMPACTS**

**Direct Impacts**

<table>
<thead>
<tr>
<th></th>
<th>Regional Output</th>
<th>Regional Value Added</th>
<th>Regional Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Total</td>
<td>361,302,000</td>
<td>145,710,000</td>
<td>1,780</td>
</tr>
<tr>
<td>High</td>
<td>301,085,000</td>
<td>121,425,000</td>
<td>1,480</td>
</tr>
<tr>
<td>Medium</td>
<td>180,651,000</td>
<td>72,855,000</td>
<td>890</td>
</tr>
</tbody>
</table>

**Indirect Impacts**

<table>
<thead>
<tr>
<th></th>
<th>Regional Output</th>
<th>Regional Value Added</th>
<th>Regional Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Total</td>
<td>519,216,000</td>
<td>249,527,000</td>
<td>1,290</td>
</tr>
<tr>
<td>High</td>
<td>432,680,000</td>
<td>207,939,000</td>
<td>1,070</td>
</tr>
<tr>
<td>Medium</td>
<td>259,608,000</td>
<td>124,763,000</td>
<td>640</td>
</tr>
</tbody>
</table>

**Total Impacts**

<table>
<thead>
<tr>
<th></th>
<th>Regional Output</th>
<th>Regional Value Added</th>
<th>Regional Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Total</td>
<td>880,519,000</td>
<td>395,237,000</td>
<td>3,070</td>
</tr>
<tr>
<td>High</td>
<td>733,765,000</td>
<td>329,364,000</td>
<td>2,560</td>
</tr>
<tr>
<td>Medium</td>
<td>440,259,000</td>
<td>197,618,000</td>
<td>1,530</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Value Added Impact of Greater Adelaide Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Total</td>
<td>0.5%</td>
</tr>
<tr>
<td>High</td>
<td>0.4%</td>
</tr>
<tr>
<td>Medium</td>
<td>0.3%</td>
</tr>
</tbody>
</table>

Source: SGS Economics & Planning
5.3 Diverted savings impact

As discussed in Section 4, the HIS has led to a greater number of owners undertaking conservation works on their heritage buildings, thus supporting the retention of their dollar spend for labour and materials within the South Australian local economy. It is proposed that the HIS has encouraged people to spend an increased portion of their savings on heritage conservation than would have been the case without the HIS. Without the HIS, these savings would have been diverted to other products or services with a proportion of these sales leaking out of South Australia, for example, consumer durables, imported cars, overseas or interstate holidays.

This impact has been quantified by calculating the total cost for projects undertaken with the support of the HIS multiplied by an assumed proportion of savings that would leave the local economy. The following assumptions have been made regarding the impact of the HIS on whether projects would have proceeded regardless of the HIS.

- **Smaller projects**: 90 per cent of projects where the total project cost is less than $20,000 would have proceeded with or without HIS. As smaller projects would have proceeded without the HIS there would be minimal diverted savings impact as people would have spent most of this money on conservation works had they not received the HIS funding. The diverted savings value for these projects is estimated as 10 per cent of the total project cost for projects under $20,000.

- **Small to medium projects**: 60 per cent of projects where the total project cost is between $20,000 and $40,000 would have proceeded with or without HIS. This assumes that 40 per cent of projects only went ahead because they received HIS funding. Without the HIS, these building owners would have chosen to spend their money on other products and services instead of undertaking building conservation works. The diverted savings value for these projects is estimated as 40 per cent of the total project cost for projects between $20,000 and $40,000.

- **Medium to large projects**: 20 per cent of projects where the total project cost is between $40,000 and $100,000 would have proceeded with or without HIS. This assumes that 80 per cent of projects only went ahead because they received HIS funding. Without the HIS, these building owners would have chosen to spend their money on other products and services instead of undertaking building conservation works. The diverted savings value for these projects is estimated as 80 per cent of the total project cost for projects between $40,000 and $100,000.

- **High cost one off/unique projects**: 5 per cent of high cost/unique projects which received substantial HIS contributions would have proceeded without the HIS. This assumes that without the support of the HIS 95 per cent of these projects would not have gone ahead and owners would have spent their savings on other goods and services, some of which would be outside of the local economy. Therefore, the diverted savings value is estimated as the 95 per cent total project cost for high cost one off/unique projects.

Table 12 presents the estimated project cost for each of the four project types, along with the diverted savings value under a low and high scenario. The total project cost of all HIS projects over the last 10 years is estimated at $23.8 million, with over half of the projects being medium to large value projects over $20,000 and less than $1 million. The diverted savings value is estimated as the project cost minus the HIS allocation amount each project received, and is approximately $3.47 million. The actual impact to the South Australian economy would be a proportion of this total value as not all of the diverted savings would leave the local economy, as discussed below and shown in Table 13.
TABLE 12: DIVERTED SAVINGS VALUE

<table>
<thead>
<tr>
<th>Project Size</th>
<th>Project Cost</th>
<th>HIS Allocation Amount</th>
<th>Diverted Savings Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project cost less than $20,000</td>
<td>$5,452,297</td>
<td>$2,748,733</td>
<td>$270,356.46</td>
</tr>
<tr>
<td>Project cost between $20,000 and $40,000</td>
<td>$4,768,611</td>
<td>$2,215,990</td>
<td>$1,021,048.19</td>
</tr>
<tr>
<td>Project cost between $40,000 and 400,000</td>
<td>$4,249,397</td>
<td>$1,864,958</td>
<td>$1,907,551.37</td>
</tr>
<tr>
<td>Project cost over $1,000,000</td>
<td>$9,317,545</td>
<td>$3,832,065</td>
<td>$274,274.02</td>
</tr>
<tr>
<td>Total Projects</td>
<td>$23,787,850</td>
<td>$10,661,746</td>
<td>$3,473,230.04</td>
</tr>
</tbody>
</table>

Source: SGS Economics & Planning using data from City of Adelaide Heritage Incentives Scheme

It is assumed that the money required for undertaking conservation works by households is likely to come from household savings and not from everyday consumption expenditure. Household savings are usually spent on durable goods such as whitegoods or cars, most of which are imported into the South Australian economy. Household savings are also spent on interstate or overseas holidays and spending outside of the local economy. This would result in a leakage of savings that would vary depending on the type of goods and services purchased.

Not all the spending on durable goods would leave the local economy, as the retail margins on sales of these items are generated in the local economy. Most of the spending on holidays would be outside. However a small proportion would remain in South Australia in airport expenditure. Some households may also choose to retain their savings and would have no spending impacts.

As such, we have presented three different scenarios that vary the level of leakage of household savings outside of the South Australian economy, at 10, 20 and 80 per cent, for the low and high diverted savings value. If we assume 10 per cent of household savings are leakages to the local economy, the diverted savings impact ranges between $0.4 to $0.6 million (see Table 13). If 20 per cent of household savings are leakages the diverted savings impact ranges between $0.9 to $1.1 million. Assuming a very high proportion of household savings leave the local economy at 80 per cent, the diverted savings impact would be as high as $2.8 million.

TABLE 13: DIVERTED SAVINGS IMPACT TO THE SOUTH AUSTRALIAN ECONOMY ($GROSS VALUE ADDED)

<table>
<thead>
<tr>
<th>Leakage of Household Savings</th>
<th>Economic Impact</th>
<th>Share of South Australian GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>$347,323</td>
<td>0.0005%</td>
</tr>
<tr>
<td>20%</td>
<td>$694,646</td>
<td>0.0009%</td>
</tr>
<tr>
<td>80%</td>
<td>$2,778,584</td>
<td>0.004%</td>
</tr>
</tbody>
</table>

Source: SGS Economics & Planning using data from City of Adelaide Heritage Incentives Scheme
6. CONCLUDING REMARKS

This chapter reflects upon the implications of the value of Adelaide’s heritage, the cost benefit analysis of the Heritage Incentive Scheme and the analysis of the economic impacts of the scheme.

It is clear from the analysis in this report, that the built heritage of the City of Adelaide is a vital economic asset for both the State and the municipality. Based on the utility generated by these assets – that is, the flow of recreational, cultural and educational services provided by these buildings – their worth would be counted in the many hundreds of millions of dollars, if not billions.

These assets are also critical to Adelaide’s tourism ‘brand’. The annual visitor economy built on heritage assets is worth some $400 million for the State and supports approximately 3,000 jobs each year.

The City of Adelaide has played an important role in making sure that this asset base is kept in the best possible condition. This includes the application of appropriate heritage controls, as well as the provision of financial assistance to facilitate conservation of heritage stock.

Based on our review, the Heritage Incentives Schemes (HIS) has proven its economic worth. It delivers a $1.68 return for every dollar jointly provided by Council and other parties to the Scheme, including owners investing in the retention of the heritage values of their buildings.

The HIS should be retained as an economically justified policy tool in promoting both the livability and the economic vitality of Adelaide.

Looking ahead, the implementation of the HIS could be enhanced through the routine collection of performance data that would assist future rounds of evaluation and program development. This data would focus on more precise measurement of how the Scheme induces conservation that would not otherwise occur.
Appendix 1 – Input output approach & methodology

Approach

The Input Output (IO) approach to impact assessments uses a static IO table to produce economic multipliers which are then used to estimate the direct and indirect impacts to the local economy resulting from a specified stimulus (i.e. the direct impact).

IO tables are matrices which describe the flow of money within an economy. These tables are based on the principle that the value of the output of each industry can be expressed as the sum of the values of all the inputs to that industry. These inputs include the use of the outputs from other industries; any profits made from production; compensation of employees; and any taxes on production paid, less any subsidies received.

Using this structure of upstream and downstream linkages in the local economy an economic ‘multiplier’ can be estimated for a particular industry sector. This essentially means that if a stimulus (for example new tourism expenditure or a major construction project) is introduced into the local economy there will be a range of second round effects that will result in an indirect impact (i.e. uplift) to the local economy. These indirect impacts can be defined as:

- **Production induced** which represents the indirect impact resulting from expenditure from the project, company or industry sector (i.e. expenditure on suppliers).
- **Consumption induced** which represents the indirect impact resulting from consumption induced by the project, company or industry sector (i.e. expenditure from the wages and salaries of the new employees).

Figure 4 provides a summary of this approach.

**FIGURE 4: INPUT OUTPUT MODEL APPROACH**

![Diagram showing the formula: Total impact = Direct impact + Indirect impact (Production induced + Consumption induced)](source: SGS Economics & Planning)

The size of this indirect impact will be influenced by how inter-connected the sector is with the local economy. That is, if it relies heavily on local suppliers for input into the production process then there will be a larger indirect impact.

There are three distinct indicators produced by this type of modelling, which include:

- **Economic output** is akin to the turnover of a company. This impact represents the total economic activity produced as a result of the stimulus;
- **Value added** is a measure of ‘net output’ and is akin to the ‘profit and wages’ of a company. This is perhaps the most useful indicator. Value added is the net output (benefit or cost) that the stimulus has on the regional economy; and
- **Employment**: simply refers to the number of full time employment (FTE) jobs that the stimulus action creates.

It should be noted that these three indicators are capturing the same underlying effect and hence should not be added together.
Methodology
A base IO table for the Greater Adelaide economy has been estimated by scaling down the latest 2013-14 Australian IO table with 114 industries to the South Australian economy and then to the Greater Adelaide economy. Key data inputs that are used include:

- 2013-14 Australian National Input Output Tables – ABS Cat. No. 5209.0
- 2015-16 Australian National Accounts: State Accounts – ABS Cat. No. 5220.0
- 2011 Census: Place of Work Profile – ABS
- Labour Force Survey, Australia, Detailed, Quarterly – ABS Cat. No. 6291.0.55.003

Once the base IO table has been determined for the detailed industry breakdown, it is summarized into broad industry sectors as defined by the Australian and New Zealand Standard Industrial Classification (ANZSIC 2006). A tourism industry multiplier is determined using a share of several industry categories that have a tourism component (such as Accommodation & food services, Retail trade, Transport etc). This estimation method is based on information derived from the ABS Tourism Satellite Accounts (Cat. No. 52490.0).

Table 14 presents the tourism multipliers that have been used in the economic impact assessment to estimate output, value added and employment impacts.

**TABLE 14: TOURISM MULTIPLIERS USED IN ECONOMIC IMPACT ASSESSMENT**

<table>
<thead>
<tr>
<th>Tourism Multipliers</th>
<th>Direct Multiplier</th>
<th>Total Multiplier (Type 2A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>1.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Value Added</td>
<td>0.4</td>
<td>2.7</td>
</tr>
<tr>
<td>Employment</td>
<td>4.9</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Source: SGS Economics & Planning

Limitations
Whilst this method is useful in providing a high-level estimation of economic impacts using a simple model supported by all available data, there are several shortcomings of note. Primarily, as these types of models are based on a static (linear) economic structure, this means that the indirect impacts are usually overestimated/incorrect for a range of reasons outlined below:

- **Based on a static point in time.** The IO model is valid for the point in time of its release. Consequently, any analysis involving predicting future outcomes assumes relationships between industries are static over the forecast period. That is, productivity improvements are not factored in and historic relationships are assumed to hold indefinitely.

- **No constraints on supply.** The calculations generally assume that there are no supply-side constraints in the economy. Labour and capital are assumed to be available with perfect elasticity, i.e. there is no upper limit on the availability of these inputs. Consequently, the model assumes additional demand for locally produced commodities generated (directly and indirectly) by an initial stimulus can be accommodated by increased local output, without any crowding out of other elements of the economy, or taking resources away from elsewhere.

- **Fixed prices.** Because of the assumption of no supply side constraints, the model assumes prices are fixed, i.e. prices do not respond to market signals when demand for a particular factor of production increases.

- **Changes in productivity and returns to scale (efficiencies).** The model derives relationships between industries using total production estimates. Consequently, the relationships are ‘average’, and the model assumes that the coefficients of production are fixed, whereas the stimulus used as an input is in fact ‘marginal’. In other words, the model assumes as an industry expands the same amount of inputs/labour are required to produce the same
amount of outputs. Consequently, these models do not account for any ‘underutilised capacity’ at the industry level or additional economies of scale that might ensue, as production expands from its existing base.

Alternative approaches

Since the development of the conventional IO approach a range of alternative approaches have developed which provide more dynamic, complex and realistic simulations of the economy. The two main classes of these new models include:

- Input-output general equilibrium (IO GE) models which seek to apply a non-linear framework provided by econometric modelling to the sectoral structure of the conventional IO model.
- Computable general equilibrium (CGE) models are fully dynamic models based around a set of general specifications (equations) which model behaviour of consumers, producers, investors and apply economic-wide constraints.

While these models have increased realism they become more complex, expensive, harder to use, and typically less detailed regarding industry sector breakdowns. The IO model approach used in this study provides a good indication of the level of economic impact within a range, rather than a precise dollar value.