



# Adaptive Reuse of Industrial Heritage: Opportunities & Challenges

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This issues paper was developed alongside 12 case studies, which demonstrate the potential of adaptive reuse of industrial heritage.

A rigorous process was undertaken to select the case studies, which have been identified as exemplars of adaptive reuse of industrial buildings across a range of types, scales and uses.

The issues paper and case studies were prepared by Justine Clark.

The project was guided by a steering committee chaired by Helen Lardner, with members Larry Parsons, Geoffrey Sutherland and David Moloney.

Tanya Wolkenberg managed the project.

The project began with a workshop involving 20 participants looking at the issues relevant to the reuse of industrial heritage. This was key in formulating the directions to be pursued and we would like to thank all those involved. We also thank all those who assisted with the case studies by suggesting projects, providing input and information and allowing us to use images and drawings, the architects and heritage consultants who supplied information and material for the case studies, and the photographers who made their images available for us in this project.

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# 1. Introduction

Industrial heritage sites are an important part of our built environment and landscape. They provide tangible and intangible links to our past and have great potential to play significant roles in the futures of our cities, towns and rural environments.

The remains of industry include dramatic buildings, landscapes, sites and precincts as well as more everyday structures and spaces that work together to give our cities, towns and regions their character. All offer opportunity for reuse. Done well, such adaptive reuse can contribute to the building of social and cultural capital, environmental sustainability and urban regeneration.

The case studies that accompany this report highlight a range of successful Australian projects, across scales and building types. Many of these were difficult projects, dealing with complex issues such as contamination, but in all cases the results are outstanding. The hard work by all concerned has resulted in projects that benefit the broader community as well as the owners and occupants. These projects take advantage of industrial spaces and places to create new and exciting facilities for the present and the future.

The starting point was examining a range of Victorian examples. However, as we worked through these it became apparent that although Victoria has some excellent examples of adaptive reuse of industrial

sites, the state does not have recent large projects on the scale of those developed over the past decade in New South Wales and the Australian Capital Territory – for example, Carriageworks at the Eveleigh Carriage Workshops, the Canberra Glassworks at the Kingston Power House, and the remarkable series of projects undertaken by the Sydney Harbour Federation Trust.

The reasons for this are not immediately clear. As the centre of nineteenth-century manufacturing in Australia, Victoria has a good stock of industrial heritage, a vibrant architectural culture and excellent heritage expertise. The regulatory environment is no more difficult here than elsewhere. Perhaps the question becomes, where are the clients (both government and private sector) who will invest in projects of this scale? There is much opportunity as industrial practices and areas continue to change. A number of former and current industrial suburbs in Melbourne have been marked for regeneration over the coming years – for example, Fishermans Bend.

We hope that these case studies and the issues paper will demonstrate the opportunities and will inspire and encourage clients, architects, consultants and government to expand the considered reuse of Victoria's remarkable industrial heritage.

## 2. What is Industrial Heritage?

“Industrial heritage consists of the remains of industrial culture which are of historical, technological, social, architectural or scientific value. These remains consist of buildings and machinery, workshops, mills and factories, mines and sites for processing and refining, warehouses and stores, places where energy is generated, transmitted and used, transport and all its infrastructure, as well as places used for social activities related to industry such as housing, religious worship or education.”

The Nizhny Tagil Charter for the Industrial Heritage, The International Committee for the Conservation of the Industrial Heritage (TICCIH), 2003.

Industrial heritage places and spaces link the contemporary world to the work of the past. They can tell of economic, architectural and technical achievements, of infrastructure, of processes and procedures and the transformation of materials. They can also index the ambition, rise and decline of industries and places over time. These sites and spaces recall the social structures and the work of those who laboured in such places.

Australia has seen a very wide range of activities that have led to industrial heritage sites.

To the list in the TICCIH quote above we can add sites of Indigenous industrial activities, buildings and sites associated with farming, forestry and fisheries, construction, communication, scientific and technical endeavour, waterways and irrigation, and military and convict uses.

The remains of our industrial heritage are more than the buildings that housed industrial activity – they include landscapes and precincts, machinery and industrial archaeology, remnants and other traces of processes and production. Agriculture and mine workings have both had major impacts on our landscapes and topography – including the large-scale mounds of mine mullock and tailings.

Industrial heritage sites can be found across Australia in urban, suburban, regional, rural and remote locations. They can range from large mines and factories to agricultural enterprises and to smaller, ‘cottage’ based enterprises. An industrial heritage site can also extend over a large area, as is the case with

linear sites connected to transport or energy distribution.

Industrial heritage sites may have been abandoned long ago, they may have gone through many changes of use over the years, or they may have only recently ceased being used for their original purpose. Sites in continuous use for a particular industry also often undergo significant physical changes as the technologies change.

Industrial heritage sites may be loved by members of the community in which they are located, or dismissed as unsightly signs of dilapidation and decay.

The heritage significance of an industrial place can be historic, aesthetic, social and/or technical and both tangible and intangible. They may be listed on local, state or Commonwealth government heritage registers or be completely unprotected. The owner may see them as full of potential, or as a problem that would best be resolved through demolition.

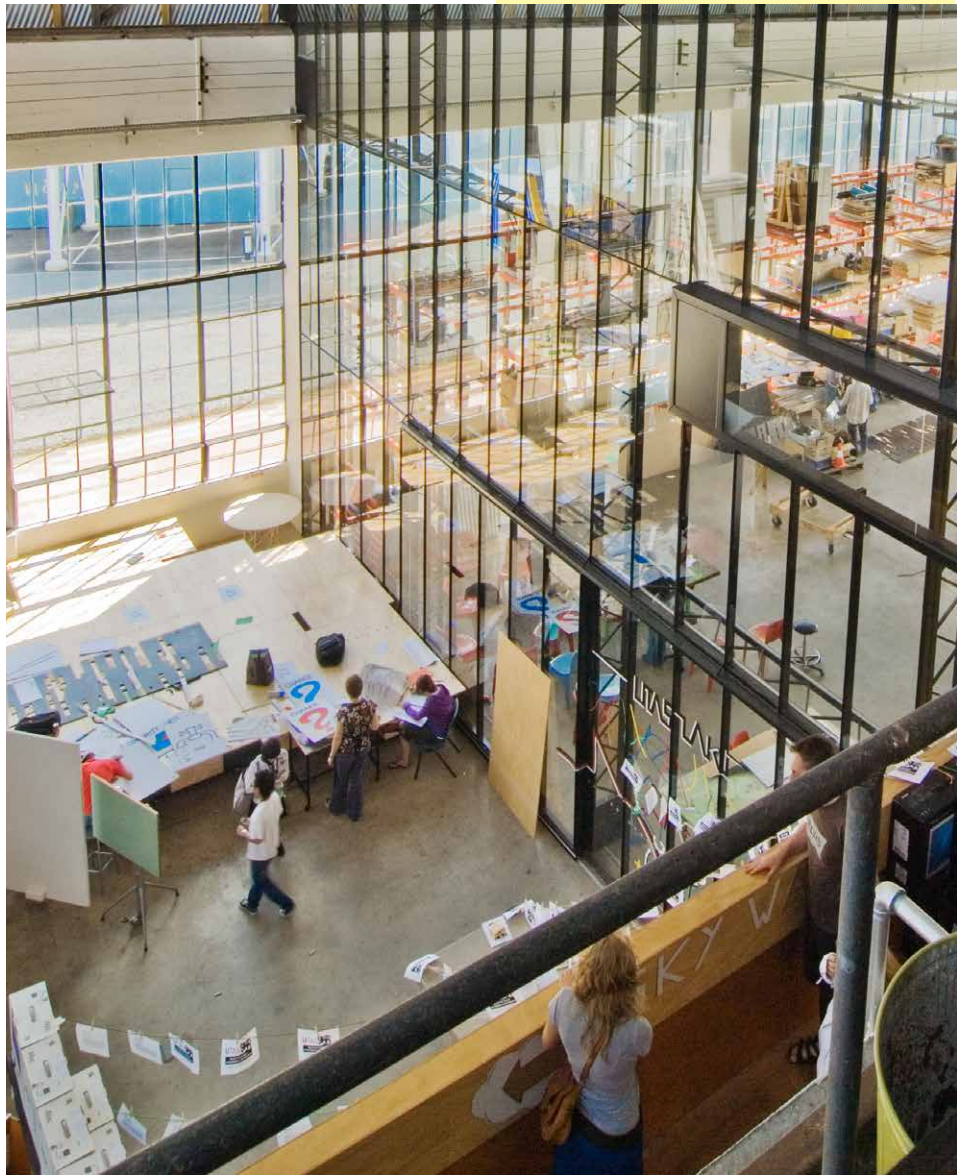
Industrial heritage sites are also often endangered. Research by English Heritage suggests that, in the UK, listed industrial buildings are more at risk than almost any other kind of heritage.<sup>1</sup> Industrial heritage is sometimes not as widely appreciated as other kinds of heritage structures. We don’t have comparable Australian data, but here too industrial sites are frequently left to deteriorate.

Industrial history is particularly important in Victoria. Commencing with mining and then agricultural machinery and railway infrastructure in the nineteenth century, and supported by the colonial

government's protection policy, Melbourne became Australia's dominant manufacturing centre. This is an important legacy for our state.

Industrial activities and processes undergo constant change and development, so the history of industrial sites is often one of continual change and adaptation. Changes in products and technology mean that, unlike offices or houses, it is not easy to keep using custom-built industrial places for their original purpose. This means that adaptive reuse is particularly important in the conservation of industrial sites. It is a way to give them ongoing life while retaining memories and knowledge for generations to come.

<sup>1</sup> English Heritage, Industrial Heritage at Risk. [www.english-heritage.org.uk/caring/heritage-at-risk/industrial-heritage-at-risk/](http://www.english-heritage.org.uk/caring/heritage-at-risk/industrial-heritage-at-risk/)



### 3. What is Adaptive Reuse?

“The best way to conserve a heritage building, structure or site is to use it ...

Adaptation links the past to the present and projects into the future.”

‘New Uses for Heritage Places.’

Adaptive reuse is the conversion of a building, site or precinct from one use to another. Where the site being reused has heritage value the new use should support the ongoing interpretation and understanding of that heritage while also accommodating new functions.

Adaptive reuse gives new life to a site, rather than seeking to freeze it at a particular moment in time. It explores the options that lie between the extremes of demolition or turning a site into a museum. Adding a new layer without erasing earlier layers, an adaptive reuse project becomes part of the long history of the site. It is another stage, not the final outcome.

Although different to preservation and interpretation works aimed at making a museum of the site, adaptive reuse includes both within its scope. It provides an opportunity to maintain heritage fabric, spaces and sites that might otherwise be lost and to make them available to new generations. Designing the reuse brings the potential to ‘amplify’ some elements and aspects while downplaying others. Heritage best practice is for new work to be able to be removed at a later date, so that adaptive reuse does not preclude future conservation.

Adaptive reuse also has the potential to add value in other ways. It can, for example, be part of an effective heritage-led regeneration strategy for a wider area. It is important to remember that adaptive reuse is not restricted to individual buildings or small precincts. Large urban areas can also be the subject adaptive reuse. In Australia,

Urban Regeneration Brisbane has played a significant role in reinvigorating large areas of former industrial land and converting them to new urban uses over a 20 year period. (See Case Study 7). The Ruhr in Germany is a widely recognised international example.

Temporary uses can be a good way to prevent deterioration until a long-term use is found.

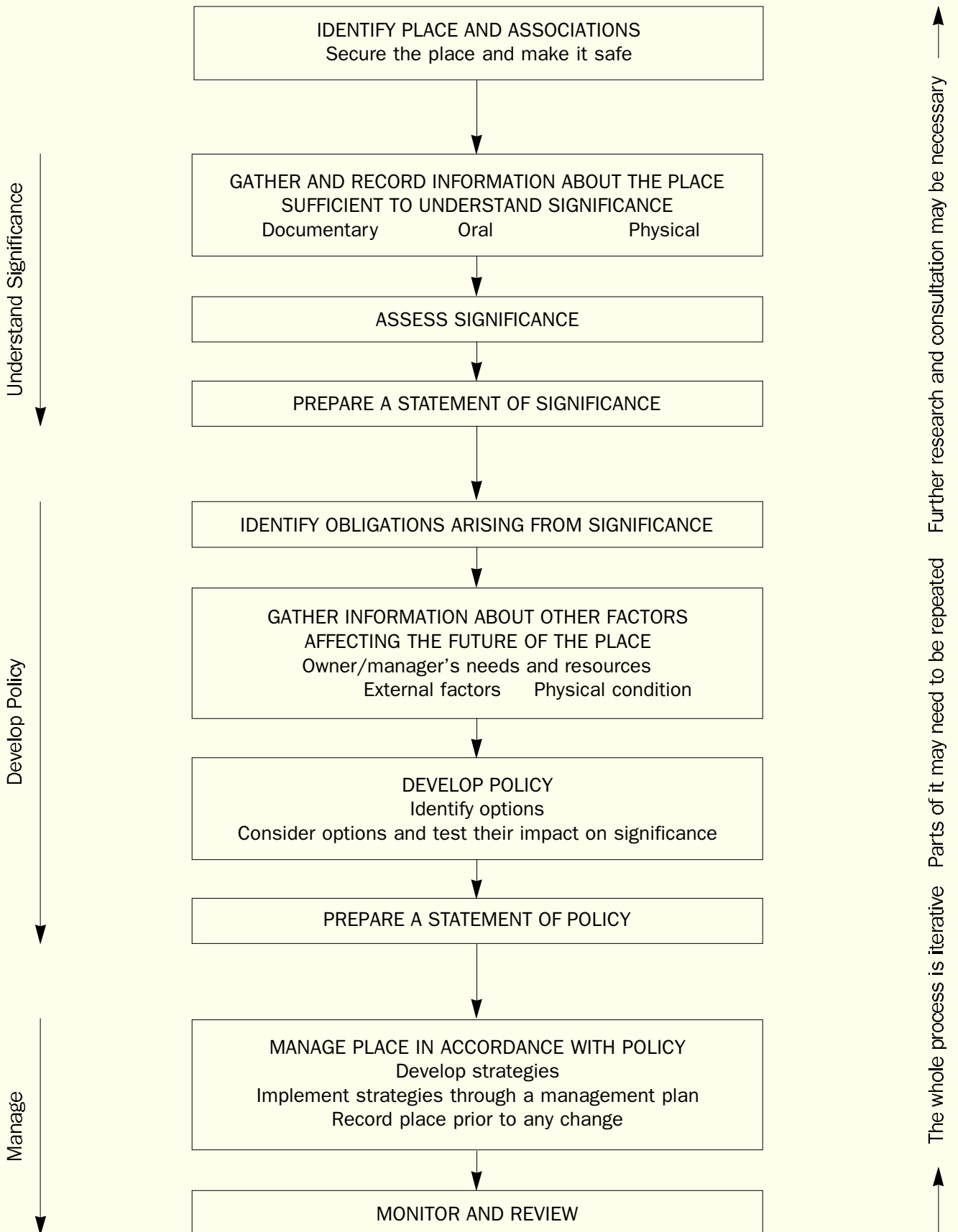
Adaptive reuse is not simply a matter of retaining the fabric or envelope of buildings. The heritage building, site or precinct needs to be understood in complex ways. Other aspects to be considered include the spatial structures and configurations, the relationship between the site and its context, significant views to, from and within the site, and traces of activities and processes. When reusing industrial heritage the new project should also aim to retain evidence of technologies, the flows of materials and people, and work processes.

The foundation document and essential reference for work on heritage sites, structures and spaces within Australia is the Burra Charter. This advocates a cautious approach “Do as much as necessary to care for the place and to make it useable, but otherwise change it as little as possible so that its cultural significance is retained.”

Article 6 concerns the Burra Charter process, which is outlined in Fig. 1. The Illustrated Burra Charter includes additional commentary, which is very helpful when working through the particulars of a heritage site.

# The Burra Charter Process

Sequence of investigations, decisions and actions



# 4. Opportunities & Challenges

“Adapting an existing building to new use requires ... a level of design flexibility and adaptability that is not required when working on a completely new building.”

Allen Jack+Cottier

The adaptive reuse of industrial heritage sites presents a wide range of opportunities and challenges. Some of these are similar to those faced in the adaptive reuse of other heritage buildings and places; others are more specific to the industrial context. This section outlines a range of factors that may affect the adaptive reuse of industrial heritage.

When beginning an adaptive reuse project it is important to start with a clear frame of reference and a coherent strategy for determining the heritage value of the building or site and ways to work with it. A Conservation Management Plan, including a Statement of Significance, developed in accordance with the Burra Charter process, will enable considered and meaningful decisions for new uses and approaches, when assessing what to keep, and what to change, and for the long-term management of the site.

Responding to challenges in creative ways can result in opportunities that might not otherwise be identified or realised.

Working collaboratively with excellent consultants is a significant factor in effectively realising the opportunities presented by industrial heritage sites. Heritage consultants, architects, landscape architects, engineers, contamination specialists and others all have much to offer, especially when working together. Statutory authorities, such as Heritage Victoria and municipal heritage advisors, have extensive experience with these types of issues and can also provide excellent resources and expert advice.

## 4.1 Social Values and Community Expectations

Industrial heritage sites play important roles in the lives of communities. They provide tangible links to the past and may have provided the livelihood of a substantial section of the community.

Different communities and individuals value industrial heritage differently – for some industrial sites are a source of pride and bearers of important memories, for others they are an unsightly reminder of dilapidation and decline. The attitude taken depends on many things, including the structure itself, the social and political context, the recent history of the site and contemporary aesthetic mores.

Heritage can make a strong contribution to social sustainability. Industrial heritage can also be important in creating new stories and identities as communities change and newcomers are integrated into an existing area. Communities are not static. It is important to consider how to build contingency into a project so that it can accommodate change of all kinds while still respecting the site's heritage.

Community support is important for the ongoing effective reuse of industrial heritage sites. Community expectations about the value of such sites are not uniform and can change. For example, at Paddington Reservoir the expectation from both the City Council and the community was that the site would be covered and a new park built on top. The architects saw the opportunity in the ruined reservoir. Through a careful process of consultation with stakeholders



and the community, which drew on memories of those visiting the reservoir before it was closed, they were able to bring the City Council and community on board to create much-loved new public spaces. See Case Study 9.

On other occasions motivated members of a community drive adaptive reuse.

A highly celebrated international example is the High Line in New York, the conversion of an old elevated freight rail line into a much-loved linear park. This project was begun by two residents who successfully lobbied to keep the structure and then worked with the City of New York to develop the park. Friends of the High Line continue to maintain and manage the park.

In Melbourne, the Substation Centre for Arts and Culture was initiated by community members who wanted to see the historic Newport substation retained and reused. The project took 15 years to be realised by a small and dedicated group of volunteers.

Communication and community consultation is an important aspect of large urban regeneration projects. The work undertaken by Urban Renewal Brisbane (URB) includes comprehensive consultation, which is outlined in the document Neighbourhood Planning in Urban Renewal Areas (2008). See Case Study 7.



## Lessons

- Industrial heritage is important in the life of communities, providing a link to the past and contributing to the development of new identities as communities change.
- Community consultation and engagement are important to the ongoing effective reuse of industrial heritage, particularly at an urban scale.
- Community expectations are not uniform and can change over time.
- Some former industrial areas are still home to those who worked in the area's industries. These fresh and tangible links could/should inform the way community is consulted and how the area is interpreted.

“Industrial heritage can have an important role in the economic regeneration of decayed or declining areas. The continuity that re-use implies may provide psychological stability for communities facing the sudden end of long-standing sources of employment.”

TICCIH.

#### **4.2 Placemaking & Heritage-led Regeneration.**

Industrial heritage sites can play important roles in urban regeneration, reinforcing urban character and identity, providing tourism drawcards, increasing amenity and acting as the focus of economic development.

Abandoned industrial sites can have a depressing effect on the surrounding area and, in the case of inaccessible large sites, can act as ruptures in the urban fabric, compromising urban connectivity. Reuse of such sites in a manner that is mindful of the urban context can also provide an opportunity to knit the urban environment together in new ways while making the heritage of the site legible.

The activity of certain industries is often concentrated in particular geographic locations. For example, the grouping of grain silos, mills, biscuit factories and woolsheds in West Melbourne gives the suburb a particular urban and heritage character. Such urban character should be considered as a whole as well as the heritage values of particular sites.

Questions to consider regarding adaptive reuse of industrial heritage in relation to the wider urban context include:

- How will the reuse contribute to the understanding of the broader urban context?
- How will the reuse complement and/or contribute to surrounding uses?
- If adjacent areas are still used for industrial purposes, will the proposed reuse compromise or support this?

Heritage-led regeneration includes the development of single sites which act as catalysts for broader change. Carriage Works is an example of this, and one of the NSW Government’s aims in developing the

site was to “provide a stimulating and experiential creative precinct for working, recreation, entertainment and living” (see Case Study 3). In Canberra, the old Kingston Power House is a cornerstone project in the cultural precinct of the new Kingston Foreshore Redevelopment (see Case Study 6). In Melbourne the private development at 1 Fennell Street in Fishermans Bend has seeded change in the area, anticipating some of the state government’s intentions for the broader development of the area over time (see Case Study 12). At a smaller scale, the careful site planning of The Boatbuilders Yard reuse of Cargo Shed 4 maintains access through the site as part of the South Wharf Promenade and also encourages informal engagement with the adjacent dry docks (see Case Study 2).

Broader strategies and approaches to reusing entire suburbs are also important for urban regeneration. This is adaptive reuse on a grand scale. Urban Renewal Brisbane is the result of a tri-government initiative to tackle urban degradation in former industrial suburbs. Now in its third decade, URB has had a substantial effect in changing the urban environment in a manner that retains a connection to its industrial past (see Case Study 7).

Internationally, one of the most significant examples is the Ruhr in Germany, now the site of the Industrial Heritage Trail. Here a large region is shifting from an economy based on steel and coal industries to a new economic system. Many former industrial sites have been effectively reused as cultural sites and are now connected by a 400-mile road circuit and a 700-mile bike path.

## Lessons

- Adaptive reuse of industrial sites can play a significant role in the renewal and regeneration of large urban areas, and can contribute to social sustainability.
- Reuse should be carefully considered in terms of the contribution it can make to the broader urban context.
- Sites can be small or large, but all can make a contribution to the retention of the identity of a place.



## **4.3 What is an Appropriate Reuse?**

Different kinds of reuse impact differently on industrial heritage sites. The new use, and the level of change required to accommodate that use, needs to be compatible with and appropriate to the heritage significance of the place and should be guided by the Statement of Significance. The Burra Charter describes a compatible use as one that retains the cultural significance of the place.

When exploring new uses it is important to investigate how they might be accommodated within the existing spaces. Questions to consider include:

- Will the original plan and spatial structure be able to be read within the adapted building? Or will it require substantial changes to significant spaces and/or subdivision of spaces?
- Will the reuse involve substantial changes to the building fabric? Can the patina of the fabric be maintained?
- Will the reuse respect the heritage associations and meanings of the place?

Location and land value also have a large effect on the viability of different kinds of reuse, as do the expectations of the new users in terms of 'finish' and amenity.

Some of the more common reuses for individual industrial heritage sites are outlined below. Other low-impact uses that may be appropriate for industrial heritage places include garden nurseries, markets and new business incubators.

### Arts and creative industries

Many industrial heritage sites are reused as facilities for the arts and creative industries. The aesthetic of industrial places is often readily compatible with arts uses and the building fabric can often

be retained with the patina built up over time. See Case Studies 3 Carriageworks, 4 Cockatoo Island, 5 Crago Flour Mill, 6 Canberra Glassworks and 10 River Studios.

### Tertiary education

Tertiary education facilities can provide a sympathetic new use for industrial buildings, as they can often find a use for and maintain large-scale spaces. See Case Study 11 University of Tasmania School of Architecture and Design. In Geelong, a series of wool stores have been reused as a campus for Deakin University, in a redevelopment project that extends over many years.

### Residential

Adapting industrial sites for multi-residential reuse can have much more significant impacts than other uses. For example, large spaces are carved up into smaller units and new services, such as plumbing, installed. Building Code of Australia regulations can present challenges in terms of regulatory requirements such as fire ratings. Heritage buildings are often adapted as high-end residential developments, which may result in building fabric being over-restored, over-cleaned or hidden behind new walls. However, changing expectations mean that many residents now appreciate the industrial aesthetic and patina of building fabric. Heritage qualities particular to a place are now often understood as a desirable attribute for a particular market. These attributes are increasingly used as part of the marketing of residential reuse projects. Although residential reuse can be more difficult, it can be done very successfully in response to particular site features.

For example, the former Olympic Tyre Factory in Footscray included distinctive and well-appointed offices, foyers and showrooms, which were effectively reused as shared spaces and apartments in the new use. See Case Study 8 Banbury Village.

Residential reuse can also generate significant financial returns. For example, the reuse of wool stores, warehouses and a sugar refinery for apartments in Teneriffe and New Farm has played a significant role in the regeneration of that area, and has resulted in dramatically increased property prices. See Case Study 7.

### Recreation

Recreation can provide opportunities for the reuse, preservation and interpretation of sites in ways that are accessible to large sections of the community.

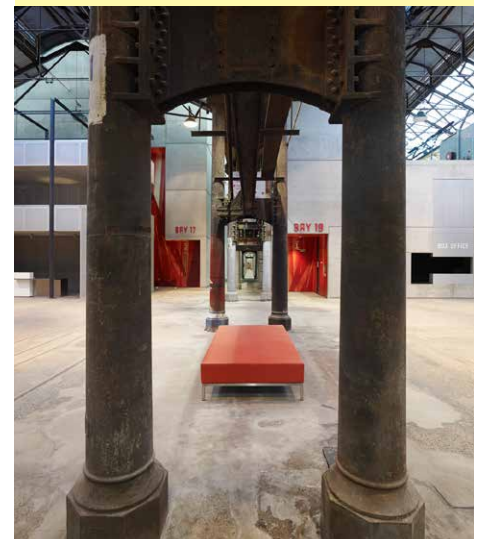
Recreational uses may also be effective for heritage sites that are difficult to reuse in other ways. For example, across Australia many of the long, linear sites left by decommissioned railways are being reused as rail trails for cycling, walking and other recreational activities.

Significant information and resources to help establish rail trails is available on the Rail Trails Australia website. For one example, see Case Study 1 Bass Coast Rail Trail.

Recreational reuses can also allow sites to be maintained as 'ruins' – that is, some recreational reuses do not require fully functioning buildings. See Case Study 4 Cockatoo Island and Case Study 9 Paddington Reservoir.

### Lessons

- Adaptation for a new use should respect the heritage significance of the existing site and its context.
- The level of change accepted for a place depends on the cultural significance of the place, and the type of significance. The Conservation Management Plan is very important in determining this.
- Different reuses have different impacts and are viable in different contexts.
- Think broadly about the possibilities when considering appropriate and viable reuses.



#### 4.4 Temporary and Interim Uses

It is not always possible to find a long-term reuse that is both financially viable and appropriate to the heritage context. In such cases phased development, interim uses or watertight mothballing may be appropriate until a suitable new use is found.

Temporary uses can be an important way to maintain sites in use, and to avoid demolition by neglect – abandoned buildings are vulnerable to decay and eventually to demolition. Temporary use is also often low-impact and can help protect the building until a new, longer-term use is found. English Heritage identified the following potential temporary uses in its publication *Vacant Historic Buildings: An owner's guide to temporary uses*, maintenance and mothballing, retail, including charity and 'pop-up' shops, community activities like exhibition spaces and information points, art and craft studios and workshops, exhibitions, performances, hospitality and events, storage and filming. Other possible low-impact temporary uses include markets and new business incubators.

Parameters for temporary use need to be clearly established at the outset and rights and responsibilities of all parties clearly understood by all. Renew Australia and Creative Spaces provide good precedents and models and both provide clear guidelines (see the references and links section of this paper). In Melbourne, Creative Spaces initiated the River Studios project, which provides affordable studio spaces for artists and craftspeople through a low-impact, fixed-term adaptation of an empty warehouse. See Case Study 10.

Use for temporary and/or ephemeral events can also be a way to ensure the long-term viability of an industrial heritage site. For example, Cockatoo Island now regularly accommodates a wide range of temporary and ephemeral activities and festivals, including the Biennale of Sydney and Urban Islands. These events allow the buildings and precincts to be reused in a manner that has a low impact on the island's fabric and spaces but which generates great interest in the island's history and heritage. See Case Study 4.

Reuses can also have a built-in 'sunset' clause, enabling the building to be returned to an earlier state or reconsidered at a later time. For example, Goods Shed North in Melbourne's Docklands is currently being reused as office premises. This involved dividing the very long shed in two, which was not ideal, but a sunset clause means that the wall may be removed when an appropriate use for the whole site is found.

#### Lessons

- Temporary reuse can be an effective means to avoid deterioration and demolition through neglect while a new long-term use is being established.
- A program of rolling temporary uses can be also a valid long-term strategy for the reuse of a place.
- Rights, responsibilities, time frames and risk need to be clearly understood by all parties at the outset.



#### 4.5 Environmental Sustainability

“Demolition and equivalent new construction, no matter how energy efficient, typically requires decades to equal the energy savings of rehabilitating an existing building.”

Tanner Kibble Denton.

The adaptive reuse of heritage buildings is increasingly valued for the contribution it can make to sustainability initiatives. This can be understood in terms of social sustainability – supporting and developing communities, retaining memory and other social advantages involved in recycling a heritage place – and environmental sustainability.

Retaining existing built fabric provides a number of environmental benefits. These include reduced demolition waste, reduced resource consumption compared to a demolish-and-rebuild scenario, and the retention of the original building’s embodied energy.

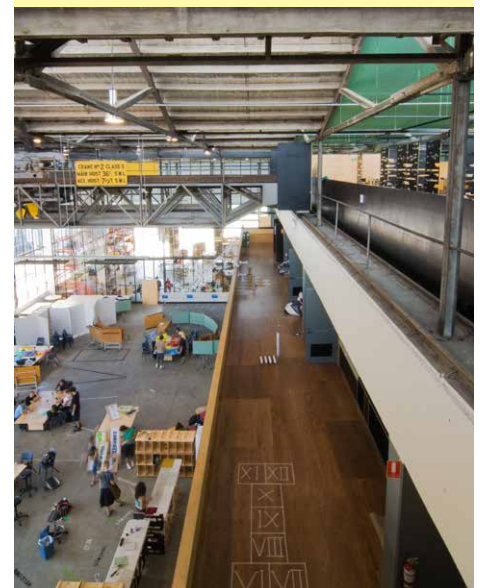
Embodied energy is the energy and materials already used in making a building. It is defined by the CSIRO as the “energy consumed by all the processes associated with the production of a building, from the acquisition of natural resources to product delivery, including mining, manufacturing of materials and

equipment, transport and administrative functions”. Reusing buildings retains their embodied energy, and the materials generally kept in a building adapted for reuse are also often the most energy-intensive materials. The Australian Greenhouse Office notes that “the reuse of building materials usually involves a saving of approximately 95 per cent of embodied energy that would otherwise be wasted”.

The adaptive reuse of industrial sites is also often compatible with the installation of new environmentally sustainable design initiatives – such as water tanks, solar power and insulation – all of these can add to the sustainable contribution of the project.

#### Lessons

- Adaptive reuse of heritage buildings has significant environmental benefits, in terms of reduced waste and the retention of embodied energy of the materials reused.
- New environmentally sustainable design interventions such as water tanks, solar power and insulation can often be successfully incorporated in industrial heritage sites and can bring significant additional benefits.



## 4.6 Economics

“Vacant, unused brownfield sites ... contribute to a loss in property value, loss of jobs, loss of tax revenue, a threat to public health and the environment, and potential liability for the contamination ...

The redevelopment of brownfield sites has positive impacts for both the surrounding society and the developer.”

“Perception of brownfield sites: Myth or reality?”  
Connie Susilawati and Kelsey Thomas, Queensland  
University of Technology

Adaptive reuse of industrial heritage has economic benefits and costs at a range of scales, which impact on both the owner and the community. Disused industrial sites can have a negative socioeconomic impact on surrounding areas. In contrast, as Urban Renewal Brisbane has shown, adaptive reuse of industrial areas can have a significant positive impact on the economic situation of the area. See Case Study 7.

The report “Making Heritage Happen: Incentives and Policy Tools for Conserving Our Historic Heritage” identifies a number of ways that heritage sites can contribute to sustainable economic development and prosperity. These include the following:

- providing landmarks that serve as economic development foci and community ‘touchstones’;
- creating proportionately more jobs than new construction and providing better local expenditure retention;
- providing important tourism drawcards in urban centres and regional areas;
- attracting people and investment by enhancing the amenity or ‘liveability’ of towns and cities.

Nonetheless adaptive reuse can be an expensive proposition, especially if sites are contaminated or structures are unsound. In these situations the economic viability of reuse is affected by the value of the property, by land value and other economic contexts. These economic considerations can have a major impact on the viability of one type of reuse over another. It is also important to factor in ongoing maintenance costs to budgets.

In some cases incentives such as heritage bonds, grants and loans, tax incentives or property incentives may help to make development more viable. *Making Heritage Happen* describes the purposes of such heritage incentives as follows:

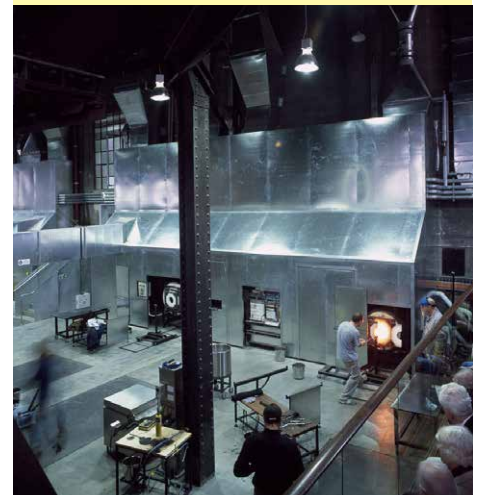
- ensure that owners are not unduly disadvantaged by the constraints or extra expense that the regulatory system may impose;
- leverage private capital investment in conservation;
- generate additional conservation activity than would otherwise occur;
- counteract land use policies or other government programs that threaten heritage places;
- ensure that as far as possible a ‘level playing field’ exists between restoration work and new construction.

Not all adaptive reuse is costly. Some highly effective, low-impact reuses can be achieved on extremely tight budgets. See Case Study 10 River Studios.

Economic constraints can also lead to creative reuse solutions that support the heritage aims of the project. For example, the budget for the conversion of the Kingston Power House into the Canberra Glassworks did not allow for the building fabric to be refurbished. It was left ‘as found’, complete with cracks, holes and mismatched glazing, generating contrast with the new use and retaining the patina of age. See Case Study 6.

## Lessons

- Authorities have an important role in establishing economic and planning settings that will encourage good conservation and adaptive reuse.
- Leaving industrial sites to decay can have a negative impact on the broader community.



## 4.7 Process, Procurement and Management

It is very difficult to achieve good adaptive reuse without an engaged client and an effective process. Adaptive reuse needs to be supported by clear documents that guide the redevelopment and future use. The Burra Charter guides good practice in all work with heritage sites in Australia.

Heritage considerations should be part of the early stages of a project and developed in concert with other aspects. Projects also need design and heritage champions throughout the procurement process and project development.

The reuse of industrial sites with heritage values should be guided by a Conservation Management Plan including a Statement of Significance, which articulates what is most important about the place. A Conservation Management Plan is a critical document for guiding the adaptation of sites of heritage significance.

Other guiding documents should include feasibility studies to explore options for reuse and a robust masterplan. The Conservation Management Plan and masterplan are vital for informing ongoing work. These need to be budgeted for and invested in.

The masterplan needs to embed long-term strategies for the site, while also leaving space for flexibility and adaptation to respond to changes over time. This could include temporary uses or mothballing areas of the site that have high heritage values, but for which an immediate reuse cannot be found.

The development of large sites is usually a long-term process, and the masterplan should include opportunities to rethink options as development progresses and in

response to new findings, while still adhering to the site's Statement of Significance. The Conservation Management Plan for Cockatoo Island, a large island on Sydney Harbour, is a good example of a flexible document. It has the scope to respond to new findings and changing circumstances, while still providing a very clear framework for reuse of this valuable and complex site. See Case Study 4.

Even after a good adaptive reuse, heritage sites can suffer incremental loss and damage. Ad hoc changes made in response to changing circumstances can result in heritage significance being eroded over time. It is important that the Conservation Management Plan and masterplan are adhered to over time.

The interpretation approach and strategy should also be integrated into the design process early on. Clear and coherent interpretation builds understanding of the site among the users, managers and community. Such knowledge decreases the heritage site's vulnerability to future changes.

## Lessons

- Heritage needs to be considered in the initial stages of a project.
- Investing in well-developed Conservation Management Plans, feasibility studies and masterplans is vital to the success of an adaptive reuse project.
- Design and heritage champions are needed over the life of a project.
- Masterplans need to be flexible enough to respond to changes over time while also closely responding to the Statement of Significance.
- Large developments should identify a heritage bottom line, the object of which is to protect key heritage fabric during future redevelopment.





## 4.8 Regulations

The regulatory environment can both help and hinder the adaptive reuse of industrial heritage.

Planning policy is important in making adaptive reuse a viable option, and some city councils include an industrial heritage policy within the planning scheme (for example, Maribyrnong City Council).

Zoning can also have a significant impact on the viability of the adaptive reuse of industrial heritage sites. Changes in zoning can lead to changes in land values, which can have an impact on the kinds of uses that are possible. For example, changing the zoning of an area to include multi-residential uses can aid urban regeneration, but it can also mean that land values increase to such an extent that lower-impact reuses are no longer viable.

Fire safety, disability access, energy efficiency, security and occupational health and safety regulations can all require non-standard solutions in an industrial heritage context. In developing these it is important for the architectural and heritage team to work closely with consultants who understand both the heritage significance of the existing building or site and the design approach to the adaptive reuse. It is important to understand that there is always more than one way of achieving a desired outcome – consultants such as building surveyors, decontamination experts and engineers need to be creative too.

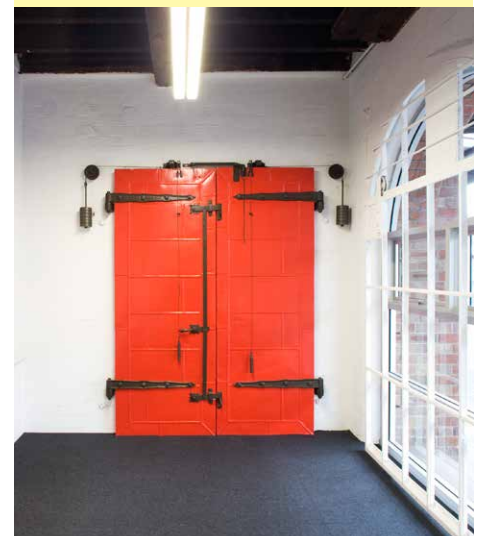
For example, in the design for the reuse of the Crago Flour Mill, the architects worked closely with the BCA consultant and fire engineer, and the consultants' innovative solutions for compliance issues allowed the design vision to be realised. See Case Study 5.

At Carriageworks a sprinkler system was developed to avoid the requirement to fire-rate the steel structure. See Case Study 3.

Occupational health and safety issues also need to be carefully managed and processes established to accommodate health and safety concerns without compromising the heritage values of the site. These may need to encompass ongoing, changing and temporary uses.

## Lessons

- Close collaborative working relationships between consultants, and with regulatory bodies, can lead to effective solutions to regulatory requirements, which also maintain the heritage qualities and significance.
- There is always more than one solution. Specialist consultants need to work creatively with the heritage and design teams to develop the best outcome.



## 4.9 Contamination

Contamination is a major issue for many former industrial sites and can present significant challenges to their adaptive reuse. Cleaning up can be very costly and some contamination experts are quick to recommend demolition. In the context of industrial heritage it is important to develop more sophisticated responses. In this regard, there is much to learn from international examples and precedents. It is important to research what has been done elsewhere and on other sites. Many of the issues are similar at multiple industrial sites, so there is much to be gained by researching solutions taken elsewhere.

It is important to have good consultants, who will take an inventive approach. Specialist site auditors need to work collaboratively with heritage architects and specialists to find ways to remediate sites that acknowledge and engage with the heritage significance of the site. A remediation plan will identify the primary issues and how to address them. This should be done early in the project planning phase.

The most cost-effective solution is often to leave it in the site. In many cases covering or containing contamination can avoid the loss of significant fabric while making the site safe for future occupation. As with much heritage work, the best strategy is to do as much as necessary but as little as possible.

## Lessons

- Develop creative approaches to remediating and containing contamination to ensure that sites are made safe for use without compromising heritage qualities and significance.
- Research approaches which have been successfully used on other sites with similar issues.

# 5. Further resources

One of the most important things to do when considering an adaptive reuse project is to go and visit good examples. The 12 case studies accompanying this issues paper are all well worth visiting and addresses are provided for each project.

In addition to looking at completed projects, the following websites and publications may be helpful.

## Industrial Heritage

The International Committee for the Conservation of the Industrial Heritage (TICCIH).

TICCIH's aim is to study, protect, conserve and explain the remains of industrialisation. TICCIH is the special adviser to ICOMOS on industrial heritage. TICCIH has recently published the book *Industrial Heritage Retooled: The TICCIH Guide to Industrial Heritage Conservation*. [www.ticcih.org/](http://www.ticcih.org/)

### Looking After Our Industrial Heritage.

This section of the English Heritage website contains useful material and information for the public, building owners and professionals. This includes links to download *Conservation Bulletin 67* "Saving the Age of Industry", and the report *Encouraging Investment in Industrial Heritage at Risk* by Colliers International. [www.english-heritage.org.uk/content/imported-docs/a-e/encouraging-investment-industrial-heritage-at-risk-main-report.pdf](http://www.english-heritage.org.uk/content/imported-docs/a-e/encouraging-investment-industrial-heritage-at-risk-main-report.pdf). and [www.english-heritage.org.uk/caring/heritage-at-risk/industrial-heritage-at-risk/our-industrial-heritage/](http://www.english-heritage.org.uk/caring/heritage-at-risk/industrial-heritage-at-risk/our-industrial-heritage/)

### "Breathing Life into the Corpse: Upcycling through adaptive reuse"

Essay by Stephen Ward in *Designing for Zero Waste: consumption, technologies and the built environment*, edited by Steffen Lehmann and Robert Crocker. (Earthscan Series on Sustainable Design, 2012.) [www.ura.unisa.edu.au/R/?func=dbin-jump-full&object\\_id=61283](http://www.ura.unisa.edu.au/R/?func=dbin-jump-full&object_id=61283)

### "Perception of brownfield sites: Myth or reality?"

Essay by Connie Susilawati and Kelsey Thomas, *Remediation Australia* 11 (2012).

## Adaptive Reuse

### *New Uses for Heritage Places*

Publication by the Heritage Council of New South Wales and the Royal Australian Institute of Architects NSW Chapter, 2008. [www.architecture.com.au/i-cms?page=15043](http://www.architecture.com.au/i-cms?page=15043)

### *Adaptive Reuse: Preserving our past, building our future.*

Publication by the Australian Government Department of the Environment and Heritage, 2004. [www.environment.gov.au/heritage/publications/protecting/pubs/adaptive-reuse.pdf](http://www.environment.gov.au/heritage/publications/protecting/pubs/adaptive-reuse.pdf)

### *The Social Impacts of Heritage-led Regeneration.*

A 2008 report by Ela Palmer Heritage, commissioned by the Agencies Coordinating Group (ACG), an assemblage of historic environment organisations incorporating the Architectural Heritage Fund, the Civic Trust, the Institute of Historic Building Conservation, the Association of Preservation Trusts, and the Prince's Regeneration Trust.

## Temporary Use

### Creative Spaces

Creative Spaces is a program run by the City of Melbourne Arts and Culture Branch. It partners with government, philanthropic, private organisations, and educational institutions to provide a range of services around space for arts and cultural production. The website helps to link artists with available spaces, but also includes a range of information and resources, including the fact sheet *Use of Vacant or Underutilised Floor Space For Artist: Studios: Information for owners and property consultants*. [www.creativespaces.net.au/](http://www.creativespaces.net.au/)

### Renew Australia

Renew Australia is a social enterprise that works with communities and property owners to take otherwise empty shops, offices, commercial and public buildings and make them available to incubate short term use by artists, creative projects and community initiatives. Although not specifically concerned with heritage buildings, the website offers an excellent range of resources and guides to assist those investigating temporary uses. [www.renewaustralia.org/](http://www.renewaustralia.org/)

*Vacant Historic Buildings: An owner's guide to temporary uses, maintenance and mothballing.*

An English Heritage guide to help owners to reduce the risks facing empty buildings.  
[www.english-heritage.org.uk/publications/vacanthistoricbuildings/](http://www.english-heritage.org.uk/publications/vacanthistoricbuildings/)

## **Community Consultation**

*Neighbourhood Planning in Urban Renewal Areas: Community engagement framework, a consultation model for URB.*

Urban Renewal Brisbane, July 2008

## **Heritage**

*The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance and The Illustrated Burra Charter: Good practices for heritage places.*

The principal reference for all work on heritage sites in Australia.

[www.australia.icomos.org/publications/charters/](http://www.australia.icomos.org/publications/charters/) and <http://australia.icomos.org/publications/other-publications/>

*Making Heritage Happen: Incentives and Policy Tools for Conserving Our Historic Heritage.*

A report by the National Incentives Taskforce for the Environment Protection and Heritage Council, 2004.

[www.environment.gov.au/heritage/publications/strategy/pubs/heritage-policy-tools.pdf](http://www.environment.gov.au/heritage/publications/strategy/pubs/heritage-policy-tools.pdf)

Australian Heritage Strategy, Commissioned Essays.

A series of essays commissioned as part of the Australian Heritage Strategy to help identify key issues facing the heritage sector. Essays address the following questions: What is heritage?, Whose heritage is it?, Who are the players and what roles do they play?, What are community expectations for heritage protection? and What are the social and economic benefits of heritage?  
[www.environment.gov.au/heritage/strategy/documents.html](http://www.environment.gov.au/heritage/strategy/documents.html)

*Sustainability and Heritage Guidance Sheets.*

Guidelines from Heritage Council of Victoria, Heritage Victoria and the Building Commission, 2012.  
[www.dpcd.vic.gov.au/heritage/projects-and-programs/heritage-places-and-sustainability](http://www.dpcd.vic.gov.au/heritage/projects-and-programs/heritage-places-and-sustainability)