



**DRAFT REPORT**

# Royal Botanic Gardens and Domain Trust Regulation 2020

Regulatory Impact Statement



*Prepared for  
The Royal Botanic Gardens and Domain Trust  
June 2020*

---

The Centre for International Economics is a private economic research agency that provides professional, independent and timely analysis of international and domestic events and policies.

The CIE's professional staff arrange, undertake and publish commissioned economic research and analysis for industry, corporations, governments, international agencies and individuals.

© Centre for International Economics 2020

This work is copyright. Individuals, agencies and corporations wishing to reproduce this material should contact the Centre for International Economics at one of the following addresses.

**CANBERRA**

Centre for International Economics  
Ground Floor, 11 Lancaster Place  
Majura Park

Canberra ACT 2609  
GPO Box 2203  
Canberra ACT Australia 2601

Telephone +61 2 6245 7800  
Facsimile +61 2 6245 7888  
Email [cie@TheCIE.com.au](mailto:cie@TheCIE.com.au)  
Website [www.TheCIE.com.au](http://www.TheCIE.com.au)

**SYDNEY**

Centre for International Economics  
Suite 1, Level 16, 1 York Street  
Sydney NSW 2000

Telephone +61 2 9250 0800  
Email [ciesyd@TheCIE.com.au](mailto:ciesyd@TheCIE.com.au)  
Website [www.TheCIE.com.au](http://www.TheCIE.com.au)

**DISCLAIMER**

While the CIE endeavours to provide reliable analysis and believes the material it presents is accurate, it will not be liable for any party acting on such information.

## *Contents*

<b>Executive summary</b>	<b>1</b>
Background and introduction	1
The need for government action	1
Objectives and options	2
Impacts	3
<b>1 Background and introduction</b>	<b>5</b>
1.1 Management of Trust land	5
1.2 Automatic repeal arrangements	6
<b>2 The need for government action</b>	<b>8</b>
2.1 The benefits to the community from Trust land	8
2.2 The case for government action	15
<b>3 Objectives and options</b>	<b>19</b>
3.1 Objectives	19
3.2 Options	19
<b>4 Impacts</b>	<b>25</b>
4.1 Approach to assessing the impacts	25
4.2 The impact of the proposed regulations	25
<b>5 Cost-benefit analysis</b>	<b>32</b>
5.1 Approach to the CBA	32
5.2 Regulations to protect natural features and structures	32
5.3 Restrictions to improve the enjoyment and safety of visitors	34
5.4 Designating Trust land for events	36
<b>6 Conclusion</b>	<b>41</b>
6.1 Protection of natural features and structures on Trust land	41
6.2 Improving the enjoyment of users	42
6.3 Designating Trust land for events	42
<b>7 Consultation strategy</b>	<b>44</b>
<b>A Activities that are restricted on Trust lands</b>	<b>45</b>
<b>B Estimating the benefits of events on Trust land</b>	<b>50</b>
<b>C Estimating the cost of noise</b>	<b>58</b>
<b>D Assessment against the licensing framework</b>	<b>68</b>



**BOXES, CHARTS AND TABLES**

1	Summary of impacts	3
1.1	RIS requirements under the SLA	6
1.2	Better Regulation Principles	7
2.1	Visitors to Trust lands	8
2.2	The value of green space	9
2.3	The heritage value of the Royal Botanic Garden and the Domain	13
2.4	Penalty notices issues under current regulations	16
2.5	Annual maintenance costs	17
2.6	Reasons for visiting the Botanic Gardens	18
3.1	Summary of proposed regulations	21
3.2	Differences between restrictions in the Gardens and the Domain	22
4.1	Summary of impacts of proposed regulations	26
4.5	Noise reducing strategies	31
5.1	Indicative estimate of the administrative cost of permits	36
5.2	Trust land closed for events	39
A.1	Classification of restricted activities	45
B.1	Consumer surplus	51
B.2	Consumer surplus from events on Trust land	52
B.3	Consumer surplus — Carols in the Domain	55
B.4	Input assumptions	55
B.5	Estimated consumer surplus from major events held on Trust land	56
C.1	Noise complaints	59
C.2	Number of dwellings/residents in areas most affected by noise	60
C.3	ABS mesh blocks included in dwelling/resident estimates	60
C.4	Noise reduction strategies	61
C.5	Venue maximum noise limits	62
C.6	Noise level chart	63
C.7	Marginal impact of a 1 decibel increase in noise	65
C.8	Cumulative annual impact if increased dB(A) exposure	66
C.9	Upper bound estimated noise impact on neighbours	67
D.1	Is licensing appropriate?	69
D.2	Is licensing well designed?	71
D.3	Is licensing administered effectively/efficiently?	72
D.4	Is the licensing scheme the best response?	72



## *Executive summary*

### ***Background and introduction***

The *Royal Botanic Gardens and Domain Trust Act 1980* establishes the Royal Botanic Gardens and Domain Trust (the Trust) and vests in it the following land (referred to as Trust land):

- the Royal Botanic Garden
- the Domain
- the Australian Botanic Gardens, Mount Annan, and
- the Blue Mountains Botanic Gardens, Mount Tomah.<sup>1</sup>

The *Royal Botanic Gardens and Domain Trust Regulation 2013* essentially gives the Trust various powers to support its management of Trust land. Under the automatic repeal arrangements set out in the *Subordinate Legislation Act 1989* (SLA), these regulations were due to be repealed on 1 September 2018. The repeal date was subsequently extended and the regulations are now due to be repealed on 1 September 2020.

Under NSW Government requirements (as set out in the SLA and the Guide to Better Regulation), the remake of these regulations triggers the requirement for a Regulatory Impact Statement (RIS).

### ***The need for government action***

Trust land delivers significant benefits to the community, particularly to visitors. Many visitors value the peace, tranquillity and beauty of botanic gardens. Others enjoy participating in recreational activities in the Domain.

- Based on previous studies, the benefits to NSW residents that use Trust land is estimated at more than \$100 million per year.<sup>2</sup>
- In addition, non-use benefits (including option, existence and bequest values) from Trust land could be significant. The Royal Botanic Garden and the Domain are heritage-listed sites. As there are no previous studies that have attempted to directly measure the non-use values from Trust land, these non-use values are highly

---

<sup>1</sup> Royal Botanic Gardens and Domain Trust, *Annual Report 2016-17: Delivering sustainable and world-leading botanic gardens*, p. 5.

<sup>2</sup> See: Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust* (unpublished), Prepared for the Royal Botanic Gardens and Domain Trust, May 2018, p. 21; and Mwebaze, P. and Bennett, J. 2012, Valuing Australian botanic collections: a combined travel-cost and contingent valuation study, *The Australian Journal of Agricultural and Resource Economics*, 56, p. 510.

uncertain. However, extrapolating from previous studies that are broadly relevant (albeit measuring different aspects of the non-use values) suggests these non-use values could be in a range between \$4.5 million and 85 million per year in addition to the user benefits estimated above.<sup>3</sup>

The actions of some visitors could potentially:

- damage natural features on Trust land, including rare plants
- damage structures on Trust land (including heritage buildings, the sea wall, statues and fountains) with significant heritage value, and
- impact on the safety and enjoyment of others.

The costs associated with these activities could include:

- additional maintenance costs incurred by the Trust (and indirectly the community)
- potentially irreparable damage to rare plants
- potentially irreparable damage to structures with significant heritage value, and
- reduced enjoyment of other users that value the peace, tranquillity and beauty of botanic gardens.

There is a case for government intervention to provide the Trust with powers to manage these potential impacts.

### *Objectives and options*

The overarching objectives are to manage Trust land in a way that maximises the net benefit to the community.

Two options were considered.

- 1 No regulations — this option involves allowing the existing regulations to expire without remaking them.
- 2 The proposed regulations — the proposed regulations are largely a remake of the existing regulations with some minor amendments to update and modernise them (this is effectively preserving the status quo). The proposed regulations:
  - provide the Trust with various discretionary powers to manage Trust lands, including powers to:
    - ... restrict public access to Trust lands (or parts thereof);
    - ... designate Trust land for various specific purposes;
    - ... set fees; and
    - ... provide permission to engage in activities not otherwise permitted (see below).
  - create offences for:

---

<sup>3</sup> See: Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust* (unpublished), Prepared for the Royal Botanic Gardens and Domain Trust, May 2018, p. 23; and The Allen Consulting Group, *Valuing the Priceless: The Value of Historic Heritage in Australia*, Prepared for the Heritage Chairs and Officials of Australia and New Zealand, November 2005, p. 36.



- ... damaging natural features or engaging in activities that could potentially damage natural features without written consent;
- ... damaging structures or engaging in activities that could potentially damage structures without written consent; and
- ... engaging in activities that compromise the safety or enjoyment of other users of Trust land.
- prescribe penalties that apply for the various offences; and
- provide some powers to facilitate enforcement, including:
  - ... a requirement for people to obey directions of an authorised person and if not to leave the Trust lands; and
  - ... a requirement to state name and address.

Non-regulatory approaches were not considered as the problems the proposed regulations are designed to address are generally not amenable to non-regulatory approaches or market-based incentives.

## Impacts

The regulations can broadly be divided into 3 categories:

- regulations that assist the Trust to protect natural features and structures on Trust land,
- regulations that restrict activities that reduce the enjoyment of other users, and
- regulations that allow the Trust to designate areas of Trust land for special events.

The impacts of each category of regulations are summarised in table 1

### 1 Summary of impacts

Category	Potential benefits	Potential costs
Protection of natural features and structures on Trust land	<ul style="list-style-type: none"> <li>■ Reduced maintenance costs</li> <li>■ Potentially prevents irreparable damage to:               <ul style="list-style-type: none"> <li>– rare plants</li> <li>– structures with heritage value</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>■ Restricting activities on Trust land that some members of the community may enjoy.</li> </ul>
Restrictions on activities that impinge on the enjoyment of other users	<ul style="list-style-type: none"> <li>■ Greater enjoyment for a large number of visitors.</li> </ul>	<ul style="list-style-type: none"> <li>■ Restricting activities on Trust land that some members of the community may enjoy.</li> <li>■ Administrative costs of permits.</li> </ul>
Reservation of Trust land for special events	<ul style="list-style-type: none"> <li>■ Enjoyment of attendees at events.</li> <li>■ Revenue for the Trust to fund its activities that deliver benefits to the community.</li> </ul>	<ul style="list-style-type: none"> <li>■ Loss of amenity for users from some areas of Trust land being closed to the public.</li> <li>■ Noise costs on neighbouring properties.</li> </ul>

Source: CIE.

- **In summary:**
  - **Although the costs and benefits of the proposed regulations are difficult to estimate precisely, it is nevertheless likely that the benefits of the proposed regulations significantly outweigh the costs.**
  - **The proposed regulations are therefore the preferred option.**
- The proposed regulations assist the Trust to continue to: protect natural features on Trust land, including rare plant species that form part of the Trust's 'living collection'; and protect structures on Trust land, including preserving a number built in the 1800's with significant heritage value.
  - Although relatively few members of the public are likely to choose to, even a small number of people engaging in the activities covered by the regulations could impose significant costs in terms of additional maintenance costs and potentially loss of heritage value.
  - This implies that the benefits of giving the Trust the power to enforce restrictions on these activities are likely to outweigh the costs.
- The proposed regulations will also give the Trust the power to continue to restrict activities that may negatively impact on the peace, tranquillity and beauty of the botanic gardens, either through effectively prohibiting these activities or through a permit system.
  - As these are some of the key attributes that the community values in botanic gardens, there are likely to be significant benefits associated with the regulations.
  - On the other hand, the regulations permit a greater range of recreational activities in the Domain, which minimises the cost of the restrictions (since the Domain is adjacent to the Royal Botanic Garden).
- Finally, the proposed regulations will allow the Trust to continue to designate areas of Trust land for special events. The Trust tends to consent to a relatively small number of highly popular events held mostly in the Domain.
  - These events are estimated to generate significant community value, particularly for attendees. These events also generate additional revenue for the Trust, allowing it to continue to fund activities that benefit the community.
  - These benefits are likely to outweigh the costs, which include the following.
    - ... Amenity costs to users from closing areas of Trust land — the various events require a relatively small proportion of the land to be closed over the year (around 2 per cent of the total area of the Royal Botanic Garden and Domain combined). Even if the amenity cost was 4-fold higher than the proportion of land closed, these costs would still be lower than a lower bound estimate of the benefits.
    - ... Noise costs on neighbours — some events held on Trust land also impose noise costs on neighbouring properties. These costs are minimised through the Trust's Noise Management Plan, which restricts the frequency of events, the duration of events, starting and finishing times and imposes maximum sound restrictions. Given the relatively small number of events that generate significant noise, the noise costs on neighbours are estimated to be relatively modest.

# 1 *Background and introduction*

## 1.1 *Management of Trust land*

The *Royal Botanic Gardens and Domain Trust Act 1980* establishes the Royal Botanic Gardens and Domain Trust (the Trust) and vests in it the following land (referred to as 'Trust land'):

- the Royal Botanic Garden — a 30 hectare site located adjacent to the Sydney central business district;
- the Domain — around 33 hectares of urban parkland that wraps around the Royal Botanic Garden;
- the Australian Botanic Gardens Mount Annan — a 416 hectare site located between Camden and Campbelltown in Sydney's south-west, and
- the Blue Mountains Botanic Garden Mount Tomah — located in the World Heritage listed Greater Blue Mountains, this site includes:
  - 28 hectares of manicured gardens
  - 10 hectares of pristine, warm temperature rainforest within a 33 hectare heritage property known as the jungle, and
  - a conservation area of 189 hectares of wet and dry sclerophyll forest, including heath, rainforest and some closed forest.<sup>4</sup>

The *Royal Botanic Gardens and Domain Trust Regulation 2013* essentially gives the Trust various powers to support its management of Trust land. In particular, the regulations:

- provide the Trust with various discretionary powers to manage Trust lands, including powers to:
  - restrict public access to Trust lands (or parts thereof), including by:
    - ... specifying opening times for the Gardens (but not the Domain)
    - ... closing parts of Trust land
    - ... reserving parts of Trust land for events
  - designate Trust land for various specific purposes
  - set fees, and
  - provide written consent to engage in activities not otherwise permitted (see below).
- create offences for:
  - damaging natural features or engaging in activities that could potentially damage natural features without written consent

---

<sup>4</sup> Royal Botanic Gardens and Domain Trust, *Annual Report 2016-17: Delivering sustainable and world-leading botanic gardens*, p. 5.

- damaging structures or engaging in activities that could potentially damage structures without written consent, and
- engaging in activities that compromise the safety or enjoyment of other users of Trust land.
- prescribe penalties that apply for the various offences, and
- provide some powers to facilitate enforcement, including:
  - a requirement for people to obey directions of an authorised person and if not to leave the Trust lands, and
  - a requirement to state name and address.

## ***1.2 Automatic repeal arrangements***

Under the *Subordinate Legislation Act 1989* (SLA), statutory rules are automatically repealed after five years (although the Governor may postpone this automatic repeal for one year, up to a maximum of five times). Under these arrangements, the *Royal Botanic Gardens and Domain Trust Regulation 2013* will be repealed on 1 September 2018.

These regulations therefore may need to be remade. Under the SLA, a regulatory impact statement (RIS) must be prepared before regulations are made. Hence remaking regulations triggers the requirement for a RIS. The matters that must currently be included in a RIS are outlined in box 1.1.

### **1.1 RIS requirements under the SLA**

A regulatory impact statement must include the following matters:

- A statement of the objectives sought to be achieved and the reasons for them.
- An identification of the alternative options by which those objectives can be achieved (whether wholly or substantially).
- An assessment of the costs and benefits of the proposed statutory rule (this includes economic and social benefits and costs). Wherever possible, costs and benefits should be quantified. If quantification is not possible, the anticipated impacts of the proposed action and of each alternative should be stated and presented in a way that permits a comparison of the costs and benefits.
- An assessment of the costs and benefits of each alternative option to the making of the statutory rule (including the option of not proceeding with any action), including the costs and benefits relating to resource allocation, administration and compliance.
- An assessment as to which of the alternative options involves the greatest net benefit or the least net cost to the community.
- A statement of the consultation program to be undertaken.

These arrangements are a mechanism to ensure that the regulations are reviewed regularly and remain consistent with best practice regulatory principles (see box 1.2) and

based on the best available evidence. This is designed to result in better policy outcomes for the community.

### 1.2 Better Regulation Principles<sup>5</sup>

**Principle 1:** The need for government action should be established. Government action should only occur where it is in the public interest, that is, where the benefits outweigh the costs.

**Principle 2:** The objective of government action should be clear.

**Principle 3:** The impact of government action should be properly understood by considering the costs and benefits (using all available data) of a range of options, including non-regulatory options.

**Principle 4:** Government action should be effective and proportional.

**Principle 5:** Consultation with business and the community should inform regulatory development.

**Principle 6:** The simplification, repeal, reform or consolidation of existing regulation should be considered.

**Principle 7:** Regulation should be periodically reviewed, and if necessary reformed to ensure its continued efficiency and effectiveness.

---

<sup>5</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 6.

## 2 *The need for government action*

### 2.1 *The benefits to the community from Trust land*

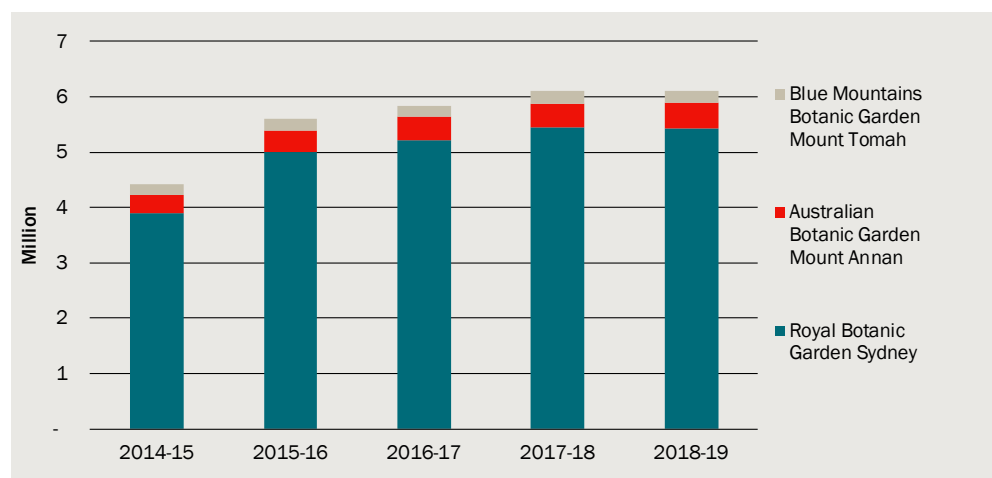
The land managed by the Trust provides significant benefits to the NSW community. These benefits are discussed below.

#### 2.1.1 *User benefits*

The largest category of benefits to the NSW community provided by Trust land are likely to be the ‘user benefits’. User benefits reflect the value derived from individuals directly interacting with Trust land. This includes the positive impacts associated with recreation, enjoyment and promotion of physical health and psychological wellbeing; green space may increase opportunities and reduce barriers for activity, social interaction and increase opportunities for recreational activity.<sup>6</sup> These are distinguished from ‘non-user benefits’, which are those that are indirectly realised for individuals regardless of whether they are users of Trust land.

In 2018-19, there were more than 6 million visitors to the 3 botanic garden sites managed by the Trust (chart 2.1). This includes NSW residents and interstate and international visitors.

#### 2.1 Visitors to Trust lands



Data source: Royal Botanic Gardens and Domain Trust, Annual Report 2018-19, p. 35.

<sup>6</sup> Symons, J., Jones, R., Young, C. and Rasmussen, B. 2015, Assessing the Economic Value of Green Infrastructure: Literature Review. Climate Change Working Paper No 23. Victoria Institute of Strategic Economic Studies, Victoria University, Melbourne.

There are a range of studies that seek to quantify the user benefits of urban green space. In standard economic analysis, the benefits to consumers (or users) of goods and services (in this case the services provided by urban green space) is measured in terms of 'consumer surplus'. Consumer surplus measures the value each consumer places on consuming the a good or service (reflected in their 'willingness to pay' for it) less the price actually paid for it (in the context of users of Trust land this is normally nothing as entry is free except for some special events). Estimates from a range of studies on the consumer surplus from urban green space is summarised in table 2.2. Most Australian estimates from the literature indicate that consumer surplus per visit ranges between \$9 and \$50 per visit.

## 2.2 The value of green space

Source	Description	Value per visit
<b>Sydney Royal Botanic Garden Studies</b>		
Mwebaze & Bennett (2012)	Estimation of consumer surplus per visit to the Royal Botanic Garden Sydney using a Travel Cost model	\$20 if part of a multiple site trip or \$50 if a single trip.
Mwebaze & Bennett (2012)	Estimation of consumer surplus per visit to the Royal Botanic Garden Sydney using contingent valuation method	Marginal willingness to pay of around \$5 per visit
<b>Other Australian Studies</b>		
Lockwood & Tracy 1995	Estimation of the user value of Centennial Park using a Travel Cost Model	\$13 to \$18
Mwebaze & Bennett (2012)	Estimation of consumer surplus per visit to the Australian National Botanical Garden using a Travel Cost Model	\$18 if part of a multiple site trip or \$30 if a single trip
Mwebaze & Bennett (2012)	Estimation of the consumer surplus per visit to the Royal Botanic Garden Melbourne using a Travel Cost Model	\$21 if part of a multiple site trip or \$47 if a single trip
Varcoe et al. (2015)	Estimation of the indicative recreation value per visit to a metropolitan park in Melbourne using Travel Cost Models	\$9
<b>UK studies <sup>a</sup></b>		
Demir (2012)	Estimation of visitor willingness to pay to visit to the Royal Botanic Garden, Kew, London using the contingent valuation method	\$11
Demir (2012)	Estimation of consumer surplus per visit to the Royal Botanic Garden, Kew, London using the Individual Travel Cost Model	\$94

<sup>a</sup> Values have been inflated using 2017 quarter 4 UK inflation data specific to 'Recreation and culture', (the most recent data available) and then converted to Australian dollars using a conversion rate of 0.55

Note: Values have been converted to 2017\$ (Quarter 4) using the CPI for all groups for Australian capital cities.

Source: CIE analysis and references reported in the table

Of most relevance, Mwebaze and Bennett (2012) specifically estimate the consumer surplus from the Royal Botanic Garden in Sydney, as part of a broader study of 3 botanic gardens in Australian cities (the others are the Royal Botanic Garden in Melbourne and the Australian National Botanic Gardens in Canberra) using both the travel cost method (TCM) and the contingent valuation method (CVM).

- The TCM infers the willingness to pay for a particular facility (in this case botanic gardens) from the travel costs incurred in getting there. Using this approach,

Mwebaze and Bennett (2012) estimated the average consumer surplus for each visit to the Royal Botanic Garden were:

- around \$45.83 (in 2010 dollars) for single-site visitors (i.e. those users that travel specifically to visit the Royal Botanic Garden), which would be around **\$54.90** in 2019 dollar terms (inflated using the national Consumer Price Index), and
  - around \$18.12 (in 2010 dollars) for multi-site visitors (i.e. those that include a visit to the Royal Botanic Garden as part of a trip that involves multiple sites), which would be around **\$21.71** in 2019 dollar terms.
- The CVM estimates willingness to pay based on responses to survey questions. Using this approach, Mwebaze and Bennett (2012) estimated the average willingness to pay of around \$5 in 2010 dollars, which would be around **\$5.99** in 2019 dollars.

The study notes that the estimates using the different methodologies are not strictly comparable because the survey question for the CVM was framed in term of a willingness to pay an entry fee and therefore reflected the marginal willingness to pay (in addition to the travel costs) in contrast to the TCM which estimated average consumer surplus. Nevertheless, even when expressed in comparable terms, the willingness to pay estimates using the CVM were around half those using the TCM. Bennett and Mwebaze provide several plausible explanations as to why the TCM may overstate actual willingness to pay and the CVM may understate it. This suggests that actual willingness to pay may fall somewhere between the two estimates.

Combining its estimated consumer surplus per visitor based on the TCM and 2010 visitor statistics (around 3.8 million visitors in total), Bennett and Mwebaze (2012) estimated the total consumer surplus for the Royal Botanic Garden in Sydney to be around \$124 million in 2010 Australian dollars.<sup>7</sup> This would be around **\$148.9** million in 2019 dollar terms. Note that this estimate includes the use benefits of the Royal Botanic Garden only.

In a report for the Trust, Deloitte Access Economics (DAE) recently estimated that user benefits to the NSW community could be around \$107 million per year, which is around **\$113 million** in 2019 dollar terms.<sup>8</sup> This was based on:

- Mwebaze and Bennett's estimates of the average consumer surplus per visit using the TCM (see above), and
- an estimated 2.9 million visitors from NSW based on an ABS survey suggesting that around 37.8 per cent of the NSW population visited one of the Botanic Gardens sites per year (51 per cent of visitors were assumed to be single-site visitors and 49 per cent multi-site visitors based on Mwebaze and Bennett's survey results).

DAE's estimate represents the benefits to NSW residents only (i.e. it does not take into account the benefits enjoyed by tourists) consistent with NSW Government CBA

<sup>7</sup> Mwebaze, P. and Bennett, J. 2012, Valuing Australian botanic collections: a combined travel-cost and contingent valuation study, *The Australian Journal of Agricultural and Resource Economics*, 56, p. 510.

<sup>8</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, pp. 15-17.



Guidelines.<sup>9</sup> However, it may understate the number of visitors because it does not take into account NSW residents that may visit one of the sites managed by the Trust on multiple occasions during the course of a year (for example on average each respondent to Mwebaze and Bennett's survey visited the Royal Botanic Garden 6.8 times per year).<sup>10</sup> As noted above, there were more than 6 million visitors to the 3 Botanic Gardens sites managed by the Trust, although this presumably includes a significant number of inter-state and international tourists.<sup>11</sup>

On the other hand, the TCM may overstate the willingness to pay of NSW residents (as discussed above). So overall, around \$113 million may be a reasonable estimate of the use value of Trust land to residents of NSW.

### **2.1.2 Other benefits**

In addition to the user benefits outlined above, Trust land also delivers a range of other benefits to the community, including:

- environmental benefits
- heritage value, and
- economic benefits through increased tourist spending.

#### **2.1.2.1 Environmental benefits**

A key environmental benefit from Trust land is its contribution to preserving biodiversity. Trust land enhances biodiversity by providing habitat, different ecosystems and planting of diverse plant species.

- The living collection in the Royal Botanic Garden is noted for its rarity and diversity.<sup>12</sup>
- DAE refers to the crucial role the Mount Annan and Blue Mountains sites play in the conservation and regeneration of native flora and fauna in NSW.<sup>13</sup>

Other environmental benefits from Trust land are likely to include the following.

---

<sup>9</sup> NSW Treasury, *NSW Government Guide to Cost-Benefit Analysis*, Policy and Guidelines Paper TPP 17-03, March 2017, p. iii.

<sup>10</sup> Mwebaze, P. and Bennett, J. 2012, Valuing Australian botanic collections: a combined travel-cost and contingent valuation study, *The Australian Journal of Agricultural and Resource Economics*, 56, p. 502.

<sup>11</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 1.

<sup>12</sup> NSW Office of Environment and Heritage website, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045297>, accessed 30 April 2018.

<sup>13</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 16.

- Urban heat islands — trees and vegetation provide a cooling effect through evapotranspiration and shading on hard surfaces that would otherwise absorb heat from direct sunlight.
- Greenhouse gases — the US EPA report that the process of evapotranspiration and shading effects from trees can reduce local air summer temperatures by 1 to 5 degrees Celsius.<sup>14</sup> It is estimated that every one-degree Celsius reduction in temperature reduces household energy usage by 5 per cent.<sup>15</sup> It is likely that this benefit may be experienced by commercial buildings that receive a cooling benefit from nearby greenspace.
- Air quality — trees directly influence air quality by capturing pollutants on the plant surface, absorbing gaseous pollutants (e.g. ozone and nitrogen dioxide) into the leaf, resuspending particles into the atmosphere, emitting particles (e.g. pollen) and disrupting the dispersion of pollution as a result of wind systems. A Sydney based study found that higher concentrations of urban forestry in Sydney is associated with decreasing particulate matter.<sup>16</sup>
- Flood mitigation — vegetation and the green spaces of parks may help regulate the flow of water and provide protection against flooding, with permeable surfaces in green open space areas and planted tree or plant beds reducing the volume and velocity of stormwater reaching waterways.<sup>17</sup>
- Water quality — greenspace can improve urban water quality by naturally purifying and filtering stormwater runoff and reducing the release of soil sediment, pollutants and organic matter that would otherwise reach waterways. A Victorian based study estimated that Victoria’s metropolitan parks reduced nitrogen loads by 182 tonnes relative to the alternative where the land is converted to residential development.<sup>18</sup> This equated to \$33 million per year in avoided cost for filtration infrastructure (or \$2 150 per hectare of greenspace per year).

#### 2.1.2.2 Heritage value

Trust land also has significant heritage value. In particular, the Royal Botanic Garden and Domain are considered to be of ‘exceptional national, state and local significance’ and are therefore listed on the State Heritage Register (see box 2.3).

<sup>14</sup> US Environmental Protection Agency, 2016, *Using Trees and Vegetation to Reduce Heat Islands*, <https://www.epa.gov/heat-islands/using-trees-and-vegetation-reduce-heat-islands> Website last updated August 12, 2016.

<sup>15</sup> Lehmann, S. 2014, ‘Green spaces can combat urban heat stress’, *The Adelaide Review*.

<sup>16</sup> Irga, P.J., Burchett, M.D., Torpy, F.R, 2007, Does urban forestry have a quantitative effect on ambient air quality in an urban environment?, *Atmospheric Environment*, 120 (2015) 173-181.

<sup>17</sup> Parks Victoria and Department of Environment, Land, Water and Planning. 2015, ‘Valuing Victoria’s Parks Accounting for ecosystems and valuing their benefits: Report of first phase findings’, p 79, available at: [https://www.forestsandreserves.vic.gov.au/\\_\\_data/assets/pdf\\_file/0027/57177/Valuing-Victorias-Parks-Report-Accounting-for-ecosystems-and-valuing-their-benefits.pdf](https://www.forestsandreserves.vic.gov.au/__data/assets/pdf_file/0027/57177/Valuing-Victorias-Parks-Report-Accounting-for-ecosystems-and-valuing-their-benefits.pdf).

<sup>18</sup> Ibid. p 76

### 2.3 The heritage value of the Royal Botanic Garden and the Domain

According to the State Heritage Register:

- The Royal Botanic Garden:
  - is one of the earliest surviving colonial botanic gardens in the world and one of the oldest, richest and most extensive early public cultural landscapes in Australia with a substantially intact area and major precincts that are nationally rare from a historic, scientific, aesthetic and social perspective, and which continue to fulfil diverse use expectations by remaining freely accessible and in high demand from a broad community spectrum, and
  - contains three of the most important collections for botanical science in Australia notable for their rarity, diversity, size and scientific value — its living collection which is distinguished by many rare and unusual cultivated plants, the extensive preserved collections of the Herbarium and comprehensive botanical library (scientific/technical and research values).
- The Domain is of historical and aesthetic value on a national level for its ability to demonstrate its dual role as the prime example of a pleasure ground attached to Government House and as a leading example of a public park developed from the mid 19th century (as an early designated landscape for public use (1831) the site was at the forefront of international concerns for the integration of public parks within city planning and development).<sup>19</sup>

To some extent, these heritage values would be reflected in the ‘user benefits’ outlined above. The value that many visitors place on the Royal Botanic Garden and the Domain would reflect the heritage value.

However, in addition to the user benefits, there are various non-use benefits (i.e. benefits to those that do not interact directly with Trust land), including:

- option values — the value to community members of having the option to visit the sites in the future
- bequest value — the value associated with the knowledge the sites will be preserved for future generations, and
- existence value — the benefits gained from knowing the sites are conserved.<sup>20</sup>

DAE estimated the non-use benefits of the three Botanic Gardens sites at around \$79.1 million per year (around **\$84.9 million** in 2019 dollars), which includes the existence, altruistic and bequest values that NSW residents ascribe to these sites.<sup>21</sup> This

<sup>19</sup> NSW Office of Environment and Heritage website, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045297>, accessed 30 April 2018.

<sup>20</sup> Adapted from Productivity Commission 2006, Conservation of Historic Heritage Places, p 14.

<sup>21</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 17.

was based on an estimated **\$10.20** per person, extrapolated from a previous DAE study that estimated the 'willingness to pay' for the Adelaide Botanic Gardens in (based on an 1800 person survey using the CVM). The details of the survey on which these estimates are based are not clear. Nevertheless, the survey sample appear to be taken from visitors to the Adelaide Botanic Garden.<sup>22</sup> It is therefore possible that the survey results may be capturing some use benefits and/or may not be representative of the broader community and therefore overstating the non-use value.

An alternative approach to estimating the heritage value of the Royal Botanic Garden and the Domain can be extrapolated from choice modelling by the Allen Consulting Group (ACG).

- This study suggested that on average, the community was willing to pay \$1.35 per person per year (in 2005 dollars) for a 1 per cent increase in the proportion of heritage sites in good condition.<sup>23</sup> Inflating to 2019 dollars using the national CPI, this is around \$1.87 per person per year.
- Based on a NSW population of around 7.9 million,<sup>24</sup> this implies a willingness to pay of around \$14.7 million for a 1 per cent increase in the proportion of heritage sites in good condition.
- ACG reported that in 2005 around 20 per cent of heritage sites were in good condition. The Royal Botanic Garden and Domain is one of 1650 sites listed on the State Heritage Register. If the number of heritage sites in good condition has remained constant since 2005, this implies around 330 sites in good condition.
- This information implies that the NSW community is willing to pay around **\$4.5 million** per year for the Royal Botanic Garden and Domain to be kept in good condition (as the site is 1 of 330 sites the increase in heritage sites in good condition is around 0.3 per cent).

This is significantly lower than the DAE estimate outlined above. One explanation is the ACG study relates to unspecified heritage sites; the community may value the Royal Botanic Garden and the Domain more highly than the marginal heritage site, suggesting this estimate could be significantly understated. Furthermore, this estimate excludes non-use values of the Mount Annan and Blue Mountains sites.

Overall, the non-use benefits of the sites managed by the Trust are highly uncertain, but could be in a range between around \$4.5 million and \$84.9 million per year.

---

<sup>22</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust* (unpublished), Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 17.

<sup>23</sup> The Allen Consulting Group, *Valuing the Priceless: The Value of Historic Heritage in Australia*, Prepared for the Heritage Chairs and Officials of Australia and New Zealand, November 2005, p. 36.

<sup>24</sup> Australian Bureau of Statistics, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Sep%202017?OpenDocument>, accessed 30 May 2018.

### 2.1.2.3 Economic benefits

The use benefits to the NSW community outlined above reflect the enjoyment that NSW residents receive from visiting the Gardens and the Domain. This does not include the enjoyment of visitors that live outside of NSW (i.e. tourists), as these benefits that accrue outside the NSW community; under the NSW Government's Guidelines, a CBA should focus on impacts to the NSW community.<sup>25</sup>

That said, visiting the Gardens and the Domain (including for special events held on Trust land) may be a key factor that encourages some tourists to visit NSW, rather than an alternative destination or alternative forms of consumption. The Gardens and the Domain could also encourage other tourists to spend longer in NSW than they otherwise would have.

To the extent that Trust land encourages additional visitors to NSW or encourages some visitors to stay longer in NSW, there will be some additional benefits to the NSW economy from increased demand for other tourism-related services, such as accommodation, restaurants and other related services.

DAE estimated that the sites managed by the Trust directly increases tourism expenditure by around \$60 million per year.<sup>26</sup>

## 2.2 The case for government action

Under the NSW Government's Guide to Better Regulation, it is necessary to establish the case for government action (Principle 1). The need for government action is typically justified on the basis of market failures.<sup>27</sup>

The case for government action (i.e. remaking the regulations) is based on the 'negative externalities' associated with some activities on Trust land. Negative externalities arise where some activities impose a cost on others. This includes activities that:

- damage natural features — this includes lawns, playing fields, trees other vegetation, rocks, soil, animals and their habitats and waters;
- damage structures — including fences, roads, paths, drinking fountains, the sea wall surrounding the Royal Botanic Garden and other structures;
- reduce the safety and enjoyment of other users of Trust land.

The Trust issues relatively few penalty notices under the current regulations and most of the penalty notices issued relate to driving and parking offences (table 2.4). Nevertheless, that the regulations are used to impose fines on occasions indicates a need for them. The

---

<sup>25</sup> NSW Treasury, *NSW Government Guide to Cost-Benefit Analysis*, Policy and Guidelines Paper TPP 17-03, March 2017, p. iii.

<sup>26</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 9.

<sup>27</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 11.

possibility of a fine associated with a penalty notice issued under the regulations may also deter people from engaging in the relevant activities.

## 2.4 Penalty notices issues under current regulations

	Relevant regulation	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Protection of natural features and structure</b>						
Unauthorised entry into the Gardens	5(3)	5	3	0	2	0
Climbing of fences	24	0	0	2	0	0
Damage to roads and paths	28	0	0	1	0	1
Damage to lawns, playing fields and greens	12(1)	0	0	1	0	0
Damage to other vegetation	13(1)	0	0	1	7	0
Damage to protected structures	26(a)	0	0	3	1	0
Vehicles parked on grass	80	7	7	19	5	2
<b>Enjoyment and safety of users</b>						
Offensive conduct	64	0	0	0	1	0
Cyclists disobey signs	45(2)	3	0	1	0	0
Personal training in the domain	48(2)	0	1	2	0	0
Drivers disobeyed signs	79(2)	66	6	11	1	15
Disobeyed parking signs	81(1)	85	71	152	73	102
<b>Other</b>						
Entry into parts of Trust lands where entry is restricted	6(5)	0	1	0	0	0
Requirement to obey directions of authorised persons	84(1)	10	2	0	1	1
<b>Total</b>		<b>176</b>	<b>91</b>	<b>193</b>	<b>91</b>	<b>121</b>

Source: Revenue NSW website, <https://www.revenue.nsw.gov.au/help-centre/resources-library/statistics>, accessed 17 March 2020.

Furthermore, the costs associated with these activities could be significant, suggesting a strong case for government intervention to manage these risks.

### 2.2.1 Potential for increased maintenance costs

The cost of maintaining Trust land to a high standard is significant. According to the Trust's Annual Report, maintenance costs were around \$13.7 million in 2018-19 (table 2.5).

## 2.5 Annual maintenance costs

	2017-18	2018-19
	\$'000	\$'000
Maintenance expense	2 723	2 548
Contracted labour	500	620
Personnel services	10 702	10 553
Total	13 925	13 721

Source: Royal Botanic Gardens and Domain Trust, Annual Report 2018-19, p. 60.

If some members of the community engage in activities that damage natural features or structures, these costs will be higher (although it is not clear to what extent).

### 2.2.2 Potential for loss of enjoyment for users

As estimated above, the use benefits from Trust land are significant, with available estimates suggesting they could exceed \$100 million per year.

Evidence from visitor surveys referred to in Forbes (2016) shows that the key attractions of botanic gardens in Australian capital cities are peace, tranquillity and beauty.<sup>28</sup>

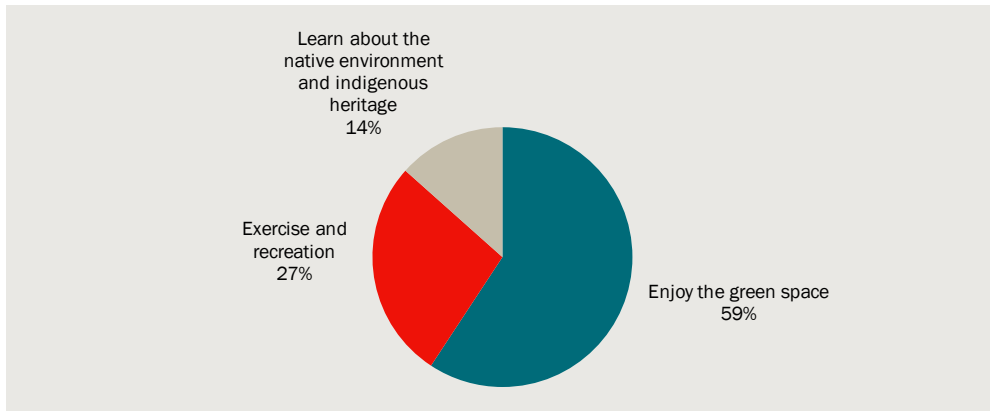
DAE reports other evidence that support this finding. Based on the survey completed by Mwebaze and Bennett (2012), DAE reports that around three-quarters of visitors to botanic gardens visit for mainly passive activities, such as enjoying the green space and learning about the native environment and indigenous heritage (chart 2.6).<sup>29</sup> This suggests approximately a 3:1 ratio between passive and more active uses (although it should be acknowledged that this may be a *result* of the regulations that restrict recreational activities). Other research for the Trust cited by DAE suggests that around one quarter of visitors to the Botanic Gardens visit to take a break from daily life stress.<sup>30</sup>

<sup>28</sup> Forbes, S. *Truth and beauty: The purpose and reception of (botanical) gardens*, Landscape Australia website, <https://landscapeaustralia.com/articles/truth-and-beauty-the-purpose-and-reception-of-botanical-gardens/>, accessed 14 May 2018.

<sup>29</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 12.

<sup>30</sup> Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 12.

## 2.6 Reasons for visiting the Botanic Gardens



Data source: Deloitte Access Economics, *A walk through the gardens: An economic, social and cultural contribution of the Royal Botanic Gardens and Domain Trust*, Prepared for the Royal Botanic Gardens and Domain Trust, July 2018, p. 12.

If attributes such as peace and tranquillity are key attributes valued by a proportion of visitors to the Gardens, activities that reduce these attributes should be managed proportionally through government intervention to ensure balanced and sustainable equity of use.

On the other hand, the Domain is a high-use sports and recreation area. A greater range of recreational activities are therefore permitted in the Domain.

### 2.2.3 Potential for loss of heritage value

As discussed above, the Royal Botanic Garden and the Domain is a heritage-listed site. Non-use values to the community could also be significant. Extrapolating from previous studies, the benefits of maintaining these heritage value could be in a range from around \$5 million to \$85 million, in addition to use benefits.

Activities that damage rare plant species and structures with significant heritage value could potentially reduce some of these heritage benefits.



## 3 Objectives and options

### 3.1 Objectives

Under the *Royal Botanic Gardens and Domain Trust Act 1980* (section 7), the principal objects of the Trust are:

- to maintain and improve the Trust lands, the National Herbarium and the collections of living and preserved plant life owned by the Trust
- to increase and disseminate knowledge with respect to the plant life of Australia, and of New South Wales in particular, and
- to encourage the use and enjoyment of the Trust lands by the public by promoting and increasing the educational, historical, cultural and recreational value of those lands.

The Act also requires that, when acting in pursuance of its objects, the Trust shall give particular emphasis to encouraging and advancing the study of systematic botany, and to plant conservation.

In this regard, the overarching objective of additional government intervention are to allow the Trust to manage Trust land in a way that maximises benefits to the community, including by:

- protecting natural features on Trust land, including rare plants species that form part of the Trust's 'living collection'
- protecting structures on Trust land, including preserving structures that have significant heritage value
- restricting activities that negatively impact on the enjoyment other users of Trust land, and
- holding events on Trust land that are valued by the community and by providing the Trust with additional revenue to help it meet its broader objectives.

### 3.2 Options

As outlined in the SLA and the NSW Government's *Guide to Better Regulation*, RISs are required to consider a range of options for achieving the government's objectives.

According to the *Guide to Better Regulation*, a RIS should consider the option of taking no action or maintaining the status quo.<sup>31</sup> In the context of remaking regulations that will be automatically repealed under the provisions of the SLA, 'no action' and 'maintaining the status quo' are not the same thing.

---

<sup>31</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 12.

- If the NSW Government took ‘no action’, the current regulations would be automatically repealed. This would mean that there would be no regulations to support the Trust’s objectives.
- On the other hand, ‘maintaining the status quo’ would involve remaking the regulations.

Both these options therefore need to be considered. Other options suggested in the *Guide to Better Regulation* include:

- non-regulatory approaches like provision of information, self-regulation, quasi-regulation or co-regulation, and
- creating markets or developing market-based instruments, such as through imposing government charges or creating financial liability for the detrimental effects of an activity or performance based versus prescriptive regulatory approaches.

The requirement to consider policy options that are generally considered to be more ‘light-handed’ is to ensure that regulation achieves its objectives without being unnecessarily restrictive. As outlined above, the main problem that potentially warrants government action relates to activities and behaviours that potentially impose costs on the Trust (through increased repairs and maintenance costs) or other users of Trust lands. In general, these activities are not amenable to non-regulatory approaches or market-based incentives.

Based on this discussion, the two options being considered are outlined below.

### ***3.2.1 Option 1: No regulation***

As discussed above, the existing regulations will be automatically repealed on 1 September 2018. Consequently, without government action, there will be no regulations to support the Trust’s activities.

Under this option, some of the activities covered by the regulations are likely to be covered by other laws (particularly those activities in relation to damaging natural features or structures on Trust land). However, the Trust would lack powers to enforce these laws and would therefore need to rely on the police for enforcement.

### ***3.2.2 Option 2: Proposed regulations***

The second option considered is the proposed regulations. In general, the proposed regulations support the Trust’s ability to achieve its objectives as follows.

- The proposed regulations provide the Trust with various discretionary powers to manage Trust lands, including powers to:
  - close Trust lands and buildings to the public
  - limit the number of persons who may enter Trust lands
  - impose conditions on entry
  - designate Trust land for various specific purposes
  - set fees, and

- provide written consent to engage in activities not otherwise permitted (see appendix A).
- The proposed regulations create offences for:
  - damaging natural features or engaging in activities that could potentially damage natural features without written consent
  - damaging structures or engaging in activities that could potentially damage structures without written consent, and
  - engaging in activities that compromise the safety or enjoyment of other users of Trust land.
- The proposed regulations prescribe penalties that apply for the various offences.
- The proposed regulations provide some powers to facilitate enforcement, including:
  - a requirement for people to obey directions of an authorised person and if not to leave the Trust lands
  - a requirement to state name and address.

In some cases, the proposed regulations apply slightly differently in the Gardens and the Domain. Table 3.1 summarises the discretionary powers given to the Trust under the proposed regulations, as well as the activities that require written consent.

### 3.1 Summary of proposed regulations

Powers provided by the proposed regulations	
Discretionary powers of the Trust	<ul style="list-style-type: none"> <li>■ The Trust may:               <ul style="list-style-type: none"> <li>– close Trust lands and buildings to the public</li> <li>– limit the number of persons who may enter Trust lands</li> <li>– impose conditions on entry.</li> </ul> </li> <li>■ The Trust may designate Trust lands or buildings for:               <ul style="list-style-type: none"> <li>– an organised sporting activity</li> <li>– an organised entertainment</li> <li>– an organised ceremony or other event</li> <li>– any other organised activity</li> </ul> </li> <li>■ The Trust may designate Trust lands, or any buildings within Trust lands, as lands that may be used for specified activities, including:               <ul style="list-style-type: none"> <li>– weddings and organised ceremonies</li> <li>– fly a kite</li> <li>– use a starting pistol</li> <li>– erect a tent or marquee (or similar structure)</li> <li>– ride a bicycle, Segway, hoverboard, scooter or skateboard or use rollerblades</li> <li>– conduct a fitness assessment, exercise class, personal training session or other exercise program</li> <li>– address a public function, public meeting, public demonstration or other public gathering.</li> </ul> </li> <li>■ The Trust may impose restrictions on bringing liquor into any part of, or consuming liquor on Trust lands.</li> <li>■ The Trust is given the power to set fees, including:               <ul style="list-style-type: none"> <li>– parking fees</li> </ul> </li> </ul>

Powers provided by the proposed regulations	
	<ul style="list-style-type: none"> <li>– other fees.</li> <li>■ The Trust has the power to provide written consent for the activities listed below.</li> </ul>
Activities requiring written permission	<ul style="list-style-type: none"> <li>■ See appendix A for a list of the activities that require written permission on Trust lands.</li> </ul>
Powers to facilitate enforcement	<ul style="list-style-type: none"> <li>■ The regulations require users to obey reasonable directions given by authorised persons.</li> <li>■ If a person fails to obey the above directions, they must leave Trust land if directed to do so.</li> <li>■ If a person fails to leave, they may be removed from Trust land.</li> </ul>

Source: Royal Botanic Gardens and Domain Trust, CIE.

### 3.2.2.1 Differences in the regulations that apply to the Gardens and the Domain

As noted above, there are some differences between the activities that are permitted in the Gardens and the Domain. These differences are summarised in table 3.2.

## 3.2 Differences between restrictions in the Gardens and the Domain

Activity	Restrictions in the Gardens	Restrictions in the Domain
Fishing	Not permitted	Permitted in designated areas
Throwing, kicking or hitting balls	Not permitted	Permitted for organised activity or informal game
Addressing public gatherings	Not permitted	Written permission required
Bringing animals into Trust lands	Not permitted	Horses permitted with written permission
Bringing dogs into prohibited areas	Prohibited	Dogs permitted but not in prohibited areas

Source: RBGDT.

### 3.2.2.2 Proposed changes from the existing regulations

To a large extent, the proposed regulations are a remake of the existing regulations, although many of the regulations have been substantially restructured. Proposed substantive changes include the following.

- The new regulations allow the Trust to designate spaces for specific activities and events for safety, complementary use and crowd control
- In relation to the use of vehicles on Trust lands, the new regulations:
  - specify entry/exit points and times
  - allow the Trust to specify vehicle-free periods to manage visitor safety for large events
  - allow the Trust to specify speed restrictions
  - introduce restrictions for learner drivers and large vehicles
  - exempt emergency vehicles from vehicle regulations.

- Several additional commercial and public activities have been prohibited:
  - collecting a petition or conduct a survey
  - busking
  - organising or participating in a public meeting/ demonstration
- Under the new regulations:
  - a person who uses equipment for a prohibited commercial or public activity must immediately remove the equipment from Trust land when directed to do so by a relevant authority
  - if a person fails to comply with a direction, a relevant authority may remove the equipment: to the care of the person to whom the direction was given; or to a place of safekeeping at the expense of the owners or the person responsible for it.
- Abandoning property such as shade shelters, tables, trailers, vehicles and animals has been prohibited.
- Several additional recreational activities have been prohibited:
  - use of a land sailing vehicle
  - operate a drone
  - use a metal detector
  - use a starting pistol
  - throw a javelin, shot put or any object likely to cause injury
  - erect a tent or marquee
  - conduct or participate in an any activity which unduly interfere with the amenity of the area
- Additional restrictions in relation to the use of bicycles and rollerblades have been applied, including prohibitions on:
  - using rollerblades/rollerskates without a helmet
  - riding in a group of more than 16 persons
  - riding alongside 2 or more persons.
  - riding while holding onto a moving motor vehicle
- In relation to personal training on Trust lands:
  - Personal training has been prohibited in both Gardens and Domain without written permission.
  - Leaving exercise equipment in the Gardens and Domain for more than one hour has been prohibited.
  - Under the current regulations (2013) personal training was:
    - ... prohibited in Gardens
    - ... permitted in Domain if for private purposes or with written consent for commercial purposes.
- The prohibition on smoking near play equipment has been removed (this is already legislated in Smoke Free Environment Act 2000)
- A designated area for addressing public gatherings has been introduced

- Additional activities that may cause damage have been prohibited:
  - plant a tree or vegetation
  - block access to a gate, path or road
  - pass through any temporary or permanent fencing or barricade regulating access
  - throw an article or substance into an lake, pond or watercourse
  - leave any waste except in the receptacle provided for the purpose.
- Tying exercise equipment to a tree or structure not designated for that purpose has been prohibited.
- Entering Trust land in possession of prohibited things has been prohibited (previously only liquor, now extended to other prohibited items)
- Possession of liquor during the conduct of a licensed event (and has not heeded a warning) has been prohibited.
- Carrying firearms unless a police officer or licenced under the Security Industry Act 1997 for a specific function has been explicitly prohibited.
- Horse are permitted in the Domain with written permission (under the current regulations horses are not permitted).
- Trapping or capturing of animals has been prohibited.
- Allowing an animal to bather or swim in any lake, pond or stream has been prohibited.
- Other administrative changes include the following.
  - The new regulations clearly states the Trusts' authority to determine fee for use of Trust lands and consequences of non-payment of fees
  - Permission may be granted to use Trust lands subject to conditions e.g. security, waste management, maintenance.
  - A person must be given a warning of an offence for a failure to comply with direction offence to occur.
  - Exemption for lessees and licensees if an act or omission is authorised expressly by the terms or conditions of any lease or licence granted.
  - Simplification of the penalty fee amounts.
  - The inclusion of the Executive Director as a person who has authority to approve/prohibit certain activities.

## 4 *Impacts*

### ***4.1 Approach to assessing the impacts***

As outlined above, the proposed regulations give the Trust various powers, including the power to:

- restrict public access to Trust lands (or parts thereof), including by:
  - specifying opening times for the Gardens (but not the Domain)
  - closing parts of Trust land
  - reserving parts of Trust land for events
- designate Trust land (or parts thereof) for various specific purposes;
- set fees
- issue directions, and
- provide written consent to engage in activities not otherwise permitted (see below).

The impacts of the regulations therefore depend on how the Trust exercises these powers. As the proposed regulations are largely a remake of the existing regulations (with some relatively minor amendments), it is reasonable to assume that the decisions made by the Trust in how it has exercised these powers over recent years is a reasonable indicator of how it would continue to exercise these powers over the five-year regulatory period.

### ***4.2 The impact of the proposed regulations***

In general, the impact of the regulations (relative to the baseline) can be categorised as follows.

- Regulations to protect:
  - natural features on Trust land, and
  - structures on Trust land.
- Regulation that restricts activities that may compromise the safety or enjoyment of other users.
- Regulation that allows parts of Trust land to be reserved for events.

The restrictions that contribute to each of these outcomes is summarised in appendix A. The impacts of each groups of regulations are summarised in table 4.1 and discussed in more detail below.

#### 4.1 Summary of impacts of proposed regulations

Category	Impact
Protection of natural features	<ul style="list-style-type: none"> <li>▪ Benefits include:               <ul style="list-style-type: none"> <li>– Reduces maintenance costs.</li> <li>– Potentially prevents irreparable damage to rare plants in the 'living collection'.</li> </ul> </li> <li>▪ The cost is the loss of amenity for people that would choose to engage in the restricted activities.</li> </ul>
Protection of structures	<ul style="list-style-type: none"> <li>▪ Benefits include:               <ul style="list-style-type: none"> <li>– Reduces maintenance costs.</li> <li>– Potentially prevents irreparable damage to structures with heritage value.</li> </ul> </li> <li>▪ The cost is the loss of amenity for people that would choose to engage in the relevant activities.</li> </ul>
Improved safety for users of Trust land	<ul style="list-style-type: none"> <li>▪ Benefits include improved safety outcomes for users.</li> <li>▪ The cost is the loss of amenity for people that would choose to engage in restricted activities.</li> </ul>
Improved enjoyment of users of Trust land	<ul style="list-style-type: none"> <li>▪ Benefits could include:               <ul style="list-style-type: none"> <li>– higher visitor numbers; and</li> <li>– more enjoyable visit for visitors.</li> </ul> </li> <li>▪ For activities where the Trust regularly provides written consent, the costs include:               <ul style="list-style-type: none"> <li>– the administrative costs for the applicant, including time costs and any fees;</li> <li>– the administrative costs for the Trust in assessing application and providing written consent (if not covered by fees); and</li> <li>– the opportunity cost of being restricted from undertaking relevant activities (where written consent is refused).</li> </ul> </li> <li>▪ For activities where the Trust rarely (if ever) provides written consent the activity is effectively prohibited. The cost is the opportunity cost for those people that would otherwise choose to engage in restricted activities.</li> </ul>
Allows parts of Trust land to be reserved for events	<p>The impacts are as follows.</p> <ul style="list-style-type: none"> <li>▪ The benefits are the community value created by the events, which includes:               <ul style="list-style-type: none"> <li>– benefits to participants (consumer surplus);</li> <li>– revenue for the Trust; and</li> <li>– any additional commercial benefits (producer surplus) in excess of the payments to the Trust.</li> </ul> </li> <li>▪ The costs include: the loss of amenity to users of Trust land from being unable to use the relevant areas for the period of time; and any loss of visual amenity from the relevant infrastructure.</li> </ul>

Source: CIE.



### ***4.2.1 Protection of natural features and structures***

The regulations support the Trust's ability to protect the natural features and structures on Trust land by requiring written consent for activities that could potentially damage natural features and/or structures on Trust land. Activities to protect natural features and structures on Trust land covered by the regulations are summarised in table 4.2.

Where the Trust does not provide written consent for these activities, the effective impact of the regulation is to prohibit these activities (although the regulations potentially allow the Trust to provide written consent should the circumstances arise).

The regulations also provide the Trust with a means of enforcing the above restrictions, through:

- requiring that a person comply with any reasonable direction given by Trust staff (either through signs or verbally)
- requiring that a person who fails to comply with directions given by Trust staff leaves Trust land if directed to do so
- allowing authorised persons to remove a person who has failed to comply with a direction to leave Trust land, and
- allowing authorised persons to issue fines (which are specified in the regulation).

#### ***4.2.1.1 Benefits***

The potential benefits of the regulations that protect natural features and structures include:

- lower costs associated with maintaining natural features
- prevention of damage to rare plant and animal species
- lower costs associated with maintaining structures, and
- prevention of irreparable damage to structures with heritage value.

#### ***4.2.1.2 Costs***

The costs of restricting activities on Trust land are the loss of enjoyment for those that would otherwise undertake those activities on Trust land.

### ***4.2.2 Improved safety and enjoyment of users***

As discussed above, some activities can reduce the safety and enjoyment of other users of Trust land (i.e. impose costs on others). The regulations support the Trust's ability to improve the safety and enjoyment of users of the Gardens and the Domain by restricting the activities set out in appendix A.

As outlined above, the regulations generally do not explicitly prohibit particular activities. Rather, the regulations specify activities for which permission from the Trust is required. This gives the Trust significant discretion as to how restrictive the regulations are in practice.

As discussed above, where the regulations give the Trust discretion, the impact of the regulations is being assessed on the basis of how the Trust has applied these discretionary powers in the past.

- Where permission has been regularly given, the regulations effectively establish a permit system. There are a number of activities for which permits are regularly given, including:
  - personal training for commercial purposes (in the Domain only);
  - weddings and other ceremonies (outside of designated areas);
  - wedding photography;
  - picnic bookings requiring a reserved space (picnics for the general public do not require a booking unless seeking a reserved location) and garden parties; and
  - filming and photography for commercial purposes.
- On the other hand, activities where written consent is rarely (if ever) given, the impact of the regulations is equivalent to the activity being prohibited on Trust land.

As noted above, there are some different restrictions that apply in the Domain and the Gardens, including:

- fishing (in designated areas of the Domain only);
- throwing, kicking or hitting balls
- dogs on leashes (or otherwise under effective control) are permitted in the Domain (except in prohibited areas), but not the Gardens.

Furthermore, the Trust may be more likely to give permission for some activities (such as personal training) in the Domain than in the Gardens.

In general, some ‘active’ activities may be permitted in the Domain but not in the Gardens. As the Domain and the Royal Botanic Garden are adjacent, this effectively separates Trust land into two separate zones. Specifically:

- the Domain is established as a zone where active uses are permitted; and
- The Royal Botanic Garden is established as a zone for more passive uses and low-intensity active uses (such as walking).

As above, the regulations also provide the Trust with the same means of enforcing the regulations.

#### *4.2.2.1 Benefits and costs of a permit system*

Where the Trust regularly provides written consent for various activities, it effectively operates a permit system. It therefore appears to fall under the broad definition of licensing under Licensing Framework developed by IPART. An assessment against the Licensing Framework — as required under the NSW Guide to Better Regulation — is provided in appendix C.<sup>32</sup>

Where the Trust grants permits for various activities, there are generally fees involved. The Trust charges permit fees for the following activities:

---

<sup>32</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 11.

- wedding ceremonies
- engagement and wedding photography
- picnics (for more than 20 people) and garden parties
- personal training.<sup>33</sup>

The permit fees have a dual purpose.

- The fees are a mechanism through which individuals and organisations that benefit (including commercially) from the use of Trust land contribute to its upkeep.
- Where these activities are limited, the costs imposed on other users of Trust land are likely to be modest. However, at high intensity these uses are likely to have a significant impact on amenity. The fees provide a price signal that limits these activities on Trust land.

The costs of permit systems include:

- administrative cost for applicants, including:
  - time costs associated with, and
  - fees (note that fees are a transfer from the payee to the Trust)
- administrative costs for the Trust in collecting fees and allocating permits (this is offset by fee revenue), and
- costs associated with restricting some from participating in the activities covered by the regulations.

#### *4.2.2.2 Benefits and costs of prohibiting activities*

Where various activities are effectively prohibited (i.e. the Trust has the power to provide written consent but does not routinely do so):

- the costs relate to the restrictions placed on users of Trust land (i.e. the foregone enjoyment for those that would have participated in the prohibited activities); and
- the benefits are the increased enjoyment of others users of Trust land that would have otherwise been affected by those activities.

#### *4.2.3 The impact of designating Trust land for events*

The proposed regulations allow the Trust to designate parts of Trust land for organised events, such as sporting, recreational, entertainment or other (commercial or non-commercial) activities.

---

<sup>33</sup> For details of the current permit fees, see: Royal Botanic Gardens and Domain Trust website, [https://www.rbgsyd.nsw.gov.au/getmedia/05c07f4f-1671-4a9a-b2fb-e35428c967ba/192722-Wedding-Rate-Card-update\\_CON1.pdf.aspx](https://www.rbgsyd.nsw.gov.au/getmedia/05c07f4f-1671-4a9a-b2fb-e35428c967ba/192722-Wedding-Rate-Card-update_CON1.pdf.aspx); <https://www.rbgsyd.nsw.gov.au/venue-hire/picnics-garden-parties/picnics-garden-party-fees>; <https://www.rbgsyd.nsw.gov.au/about/business-opportunities/personal-trainers/personal-trainer-policy>, accessed 18 March 2020.

These events can take place anywhere on Trust land, but are mostly held in the Domain in the following locations.

- The Phillip Precinct — this is the largest open space in the Sydney central business district. This area is used for passive recreation and informal sporting activities when not in use for events, rallies and protests throughout the year. A temporary stage is generally erected over the summer period and used for a number of large concerts and festivals, including both commercial and non-commercial events.
- The Fleet Steps area in the Yurong Precinct — the area between the Yurong gate and Mrs Macquarie's point is used for events, such as the open-air cinema and Opera Australia's annual Opera on Sydney Harbour.

#### *4.2.3.1 Benefits*

The benefits of the regulations are the community value created by the events that can only occur if the Trust has the power to designate Trust land for these purposes. Key benefits include the following.

- Benefits to attendees (consumer surplus) — attendees at the various events are a key group of beneficiaries through their enjoyment of the events. Even where attendees pay to attend, the enjoyment that many receive from the event (as reflected in the willingness to pay) is higher than the ticket price.
- Revenue for the Trust — the Trust also receives some revenue through the various events. The Trust can either receive revenue directly from selling tickets or through payments from commercial operators of the events. This revenue is used to partly fund the Trust's operations, including maintaining Trust land or its scientific operations. In the absence of access to this revenue, either of the following scenarios would occur (although it is not clear which).
  - The Trust would be unable to fund its current operations (most likely scenario) — this would affect the public through less well-maintained Gardens and parks (thereby reducing visitors' enjoyment of Trust) or less scientific work.
  - Alternatively, the NSW Government would need to make up the shortfall — any additional funding to the Trust would necessitate either higher taxes on the NSW community (which also incurs an additional 'dead-weight loss' over and above the revenue collected); or cuts to spending elsewhere.
- Any additional commercial benefits (producer surplus) to event organisers (producer surplus) — where the revenue earned by the event organiser exceeds the cost of the event (including payments to the Trust, a reasonable risk-adjusted rate of return on capital and the opportunity cost of labour), this is a benefit to the event organiser.
- Increased tourism — events are a significant component of state and national-level tourism strategies to create a sense of place, attract visitors and provide an engaging tourism experience generating increased visitor numbers and length of stay. To the extent that the events held on Trust land encourage additional tourism, there may be some economic benefits from increased demand for tourism services.

#### 4.2.3.2 Costs

The events facilitated by the regulations (i.e. would not be possible without the regulations) also impose costs on some members of the community.

- Closing parts of Trust land to allow these events to occur imposes costs on users of Trust land (or prospective users) by reducing the enjoyment they receive from their visit.
  - As discussed above, a temporary stage is generally erected in the Phillip precinct in around October and is generally removed by late January. This generally involves the area around the stage being closed to the public over this period. In addition, the whole area may be closed to the public for around 10 days around major events.
  - Events around the Fleet Steps area of the Domain (such as the open air cinema and the Opera Australia) result in the area between the Yurong Gate and Mrs Macquarie’s Point being closed to the public between January and April (or around one-third of the year).
- Some events held in the Domain (or the Royal Botanic Garden Sydney) also impose costs on residents in neighbouring properties through noise. In this regard, the Trust has a Noise Management Plan to manage these impacts (see box 4.5 for a summary of the noise reducing strategies set out in the Trust’s Noise Management Plan).

#### 4.2 Noise reducing strategies

The Trust’s Noise Management Plan includes several noise reducing strategies, including the following.<sup>34</sup>

- Restrictions on events, including:
  - the number of events;
  - starting and finishing times (10 am and 11pm respectively);
  - the duration of events; and
  - the number and duration of rehearsals and sound tests.
- Early warning alerts — sound operators are alerted when the noise level approaches the maximum limits.
- Speaker positioning — sound systems are required to be positioned to minimise the noise impact on residential premises.

<sup>34</sup> Royal Botanic Gardens and Domain Trust website, [https://www.rbg Syd.nsw.gov.au/getmedia/2e605894-f0bb-4310-8bf7-072a621fbdfc/BGT\\_Noise\\_Management\\_Plan\\_1106.pdf.aspx](https://www.rbg Syd.nsw.gov.au/getmedia/2e605894-f0bb-4310-8bf7-072a621fbdfc/BGT_Noise_Management_Plan_1106.pdf.aspx), accessed 27 April 2018.

## 5 *Cost-benefit analysis*

To meet the RIS requirements, the impacts of the proposed regulation (and any alternative options) must be assessed and where possible, quantified.

### **5.1 Approach to the CBA**

In the cost-benefit analysis, the ‘no regulation’ option will be used as the baseline, against which the costs and benefits of the proposed regulations will be assessed.

Costs and benefits will be estimated in net present value terms over the five-year regulatory period. Future costs and benefits are discounted to present value terms using a real discount rate of 7 per cent, consistent with NSW Treasury CBA guidelines.<sup>35</sup>

### **5.2 Regulations to protect natural features and structures**

The costs and benefits of the regulation aimed at protecting natural features and structures are difficult to measure.

- That said, these regulations do not appear to be overly restrictive as they mostly cover activities that most members of the community would not expect to engage in public gardens and parks. As such, the costs to the community are likely to be low.
- The regulations nevertheless provide the Trust with a means of preventing any members of the community that would otherwise choose to engage in activities that damage natural features or structures on Trust land. These activities could potentially increase maintenance costs or permanently damage rare plants or heritage features.

On this basis, it is likely that the benefits of these regulations outweigh the costs.

#### **5.2.1 Reduced maintenance costs**

The extent to which more effective enforcement facilitated by the regulations reduces maintenance costs is not known. That said, even if the regulations reduce maintenance costs by 1 per cent per year, this would be more than \$137 000 per year. Over the five-year regulatory period, this would be around \$600 000 in present value terms (using a discount rate of 7 per cent).

---

<sup>35</sup> NSW Treasury, *NSW Government Guide to Cost-Benefit Analysis*, Policy and Guidelines Paper TPP 17-03, March 2017, p. 15.

### ***5.2.2 Preservation of heritage assets***

The Royal Botanic Garden and Domain is a heritage listed site.<sup>36</sup> As noted in the State Heritage Register:

- the 'living collection' in the Royal Botanic Garden contains many rare and unusual cultivated plants is one of the most valuable assets to botanical science in Australia (along with the preserved collections of the herbarium and the RBG library), and
- many of the structures in the Royal Botanic Garden, including statuary, fountains, and memorials were constructed in the 1800s and have historic value.

The nature of these assets means that it may not be possible to repair damage caused by activities covered by the regulations to the original condition.

We previously estimated that non-use values (such as existence, bequest and option values) could be in a range between \$4.5 million and \$85 million per year. This partly relates to the preservation of heritage assets.

The regulations are only one of several contributing factors to preserving the heritage value of the Royal Botanic Garden and the Domain. Nevertheless, even if the contribution of the regulations were around 10 per cent, the benefits could range between around \$450 000 and \$84.9 million per year (or between \$2 million and \$37 million in net present value terms over the five-year regulatory period, using a discount rate of 7 per cent).

### ***5.2.3 Cost of restrictions***

As discussed above, the cost of a restriction on what people can do is notionally a cost to those individuals that would otherwise be free to pursue those actions and would choose to do so. The cost of restrictions on the behaviour of users of Trust land depends on the extent to which users would engage in such behaviour in the absence of the regulations. This also depend on the extent to which people expect to be able to engage in these behaviours.

It is unlikely that most users of Trust land would expect to able to engage in the sorts of behaviours covered by these regulations. As such, the costs would be low.

Furthermore, some of the activities covered by these regulations amount to vandalism and would therefore be covered by other laws. To that extent, the impact of the regulations is to provide the Trust with enforcement powers they would not otherwise have. This is likely to improve the effectiveness of enforcement; in the absence of the regulations, the Trust would need to rely on the police.

It would also be unusual to attempt to measure the cost of the enjoyment prospective vandals may receive from the act of vandalising natural features or structures on Trust land in a CBA.

---

<sup>36</sup> NSW Office of Environment and Heritage website, <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5045297>, accessed 27 April 2018.

#### ***5.2.4 Change in enforcement costs***

The Trust has advised that the additional enforcement costs associated with the regulations are minimal. In particular, the Trust would employ rangers regardless of whether it has the regulatory powers to impose penalties and take other enforcement actions.

In this regard, the regulations do not add to the Trust's costs to any significant extent. More likely, without the regulations, the Trust would need to rely on the police for enforcement. Giving the Trust enforcement powers could therefore reduce the call on police resources as well as improve the effectiveness of enforcement.

### ***5.3 Restrictions to improve the enjoyment and safety of visitors***

These regulations allow the Trust to restrict activities on Trust land that may impact on other users. As above, the benefits and costs are difficult to measure.

In general, there are some activities that are permitted in the Domain, but not in the Gardens. As the Domain is located adjacent to the Royal Botanic Gardens, the regulations allow for both active and passive uses of Trust land in the Sydney central business district by establishing the Domain as an area where more active uses are allowed and the Royal Botanic Garden as an area for more passive uses.

- This approach is likely to deliver significant benefits to more passive users of the Royal Botanic Garden who are able to enjoy the Gardens without more active users impinging on their enjoyment and safety.
- Similarly, the costs are likely to be minimised as some active uses are allowed on the Domain, which is adjacent to the Royal Botanic Garden.

It is therefore likely that the benefits of the regulations outweigh the costs.

#### ***5.3.1 Increased enjoyment and safety of users***

The extent to which the proposed regulations would increase the enjoyment and safety of visitors (and encourage more visitors) depends on:

- the extent to which some visitors would engage in the activities covered by the regulations in the absence of the regulations, and
- the extent to which these activities would impact on the enjoyment and safety of other visitors.

Based on information currently available, this is not known. Furthermore, understanding the extent to which the restricted activities would reduce the enjoyment and safety of other visitors would require detailed survey work.

Nevertheless, we previously cited evidence suggesting that attributes such as peace, tranquillity and beauty are key attributes valued by visitors to botanic gardens. This suggests that activities that disrupt the peace and tranquillity of the botanic gardens could reduce the enjoyment of a large proportion of visitors. Given the relatively large number of visitors (estimated to be around 6 million in total across the three sites, at least



2.9 million of whom are NSW residents),<sup>37</sup> the benefits of restricting activities that may reduce their enjoyment could be quite large. For example, even if allowing the activities restricted by the regulations reduced the enjoyment of the 73 per cent of passive users by \$1 (this is less than 5 per cent of the willingness to pay of multiple site visitors and less than 2 per cent for single site visitors), the loss of consumer surplus would be more than \$2.1 million per year.

### ***5.3.2 Administrative costs of permits***

Given the simple nature of the Trust's permit arrangements (and the relatively small number of permits issued), the associated administrative costs likely to be modest.

To obtain a permit, the applicant must fill out a form.

- for wedding ceremonies, there is a short two-stage online booking form;<sup>38</sup>
- for wedding photography, there is a short online form;<sup>39</sup>
- for personal trainers, there is a one-page form.

To provide an indicative estimate of the administrative costs associated with permits, we estimate that the form would take applicants a maximum of 15 minutes to complete and take Trust staff around 30 minutes to process (this includes the cost of processing the permit only; the cost of providing services which attract fees is not included). Assuming an hourly cost of around \$40 per hour, the total administrative costs for each permit are around \$30.

The total number of permit is not available for all permit types. Nevertheless, the following information is available.

- The Trust has advised that there are currently 10 personal training permits, 5 of which are 12 month permits, with the remaining 5 permits valid for 6 months.
- There were 791 bookings for private events in 2018-19 (although it is not clear whether all of these events required written permission under the regulations).<sup>40</sup>

Under these assumptions, the administrative costs of these permits would be around \$24 180 per year (table 5.1). Over the five-year regulatory period, this is around \$106 083 in net present value terms (using a discount rate of 7 per cent).

---

<sup>37</sup> See chapter 2 above.

<sup>38</sup> Royal Botanic Gardens and Domain Trust website, <https://www.rbgsyd.nsw.gov.au/venue-hire/weddings/wedding-ceremonies/bennelong-lawn#form-embed-489>, accessed 30 April 2018.

<sup>39</sup> Royal Botanic Gardens and Domain Trust website, <https://www.rbgsyd.nsw.gov.au/venue-hire/weddings/wedding-photography>, accessed 30 April 2018.

<sup>40</sup> Royal Botanic Gardens and Domain Trust, Annual Report 2018-19, p. 35.

### 5.1 Indicative estimate of the administrative cost of permits

	Permits	Administrative costs for applicants <sup>c</sup>	Administrative cost for Trust <sup>d</sup>	Total
	No.	\$	\$	\$
Private events	791 <sup>a</sup>	7 910	15 820	23 730
Personal trainers	15 <sup>b</sup>	150	300	450
<b>Total</b>	<b>806</b>	<b>8 060</b>	<b>16 120</b>	<b>24 180</b>

<sup>a</sup> Royal Botanic Gardens and Domain Trust, Annual Report 2018-19, p. 35. <sup>b</sup> Royal Botanic Gardens and Domain Trust. <sup>c</sup> Assumes a cost of \$10 per permit based on the form taking around 15 minutes to complete at a cost of \$40 per hour. <sup>d</sup> Assumes a cost of \$20 per permit based on each application taking 30 minutes to process at a cost of around \$40 per hour. This includes the cost of processing the application only. The cost of providing various services are not included.

Source: Royal Botanic Gardens and Domain Trust, Annual Report 2018-19; Royal Botanic Gardens and Domain Trust; CIE.

#### 5.3.3 Cost of restricting activities

As above, the major cost of restricting activities on Trust land. In general, the sorts of activities covered by the regulations in this category are more consistent with the types of activities that people regularly engage in parks (relative to the activities covered by the regulations that aim to protect the natural features and structures), suggesting that the costs may be somewhat higher.

On the other hand, many of the activities which could potentially be popular with some visitors are permitted in the Domain. This means that the cost of restricting these activities in the Royal Botanic Garden are likely to be relatively low (as visitors wanting to engage in these activities can do so in the Domain).

#### 5.3.4 Change in enforcement costs

As above, the additional enforcement costs associated with the regulations are minimal as the Trust would employ rangers regardless of whether it has the regulatory powers to impose penalties and take other enforcement actions.

### 5.4 Designating Trust land for events

Although it is difficult to measure the benefits and costs of the proposed regulations that allow the Trust to designate parts of Trust land for organised events (as above), it is likely that the costs outweigh the benefits based on the information available.

- These events create significant value to the community.
  - Based on reasonable assumptions, the benefits to attendees the benefits to events attendees could be in a range between around \$8.1 million and \$41.5 million per year (or around \$35.8 million to \$182.4 million in present value terms over the five-year regulatory period, using a discount rate of 7 per cent).
  - These events also generate revenue for the Trust. Location hire fees collected by the Trust are around \$4.5 million per year (although presumably this also includes

some fees for events that do not rely on the regulations), or around \$19.6 million in present value over the five-year regulatory period.

- The cost of these events relate to closing some parts of Trust land to the public as well as noise impacts on neighbours.
  - Overall, these events reduce access to the Royal Botanic Garden and Domain by around 2 per cent per year. If the cost to users was proportional to the proportion of Trust land closed, the cost would be around \$2.2 million per year (or around \$9.5 million in present value terms over the five-year regulatory period).
  - The noise impact on neighbours are minimised through the Noise Management Plan and are estimated to be relatively modest, with an upper bound estimate of around \$700 000 per year (or around \$3 million in present value terms over the five-year regulatory period).

#### ***5.4.1 Benefits to attendees***

Estimating the consumer surplus of special events held on Trust land requiring land to be designated for these purposes requires information on the shape of the demand curve (including both: the functional form that best represents the demand curve; and the elasticity of demand).

As the shape of the demand curve is unknown, we estimate consumer surplus for a sample of major events requiring the closure of parts of Trust land, under various reasonable assumptions (see appendix B for further details). These estimates vary within a relatively wide range between around \$8.1 million per year and around \$41.5 million per year (or around \$35.8 million to \$182.4 million in present value terms over the five-year regulatory period, using a discount rate of 7 per cent), with the most likely estimate around the middle of this range.

To the extent that inter-state and international tourists attend these events, some of these benefits accrue outside of the NSW community; under the NSW Government's CBA Guidelines, only benefits accruing to NSW residents should be included in a CBA.<sup>41</sup> On the other hand, where these events attract additional visitors to NSW (or encourage existing visitors to stay for longer), there may be additional benefits to NSW businesses from an increased demand for tourism-related services that have not been included in the CBA.

#### ***5.4.2 Benefits to the Trust***

The Trust's Annual Report indicates that revenue received for 'location hire' was around \$4.5 million in 2016-17 (although presumably not all of this relates to events that require areas of Trust land to be closed to the public and therefore depend on the regulations).<sup>42</sup> Over the five-year regulatory period, this is around \$19.6 million in present value terms (using a discount rate of 7 per cent).

<sup>41</sup> NSW Treasury, *NSW Government Guide to Cost-Benefit Analysis*, Policy and Guidelines Paper TPP 17-03, March 2017, p. iii.

<sup>42</sup> Royal Botanic Gardens and Domain Trust, Annual Report 2016-17, p. 57.

For the purposes of the CBA, the revenue received by the Trust from the events outlined above is estimated as a benefit to the Trust. However, as discussed above, the Trust uses the revenue to partially fund its activities, which provide benefits to the public.

#### ***5.4.3 Benefits to event organisers***

Most major events on Trust land are held by third-party event organisers. These event organisers pay the Trust a location hire fee (see above), as well as bearing most of the costs of holding the various events.

Benefits to event organisers would typically be measured as ‘producer surplus’. This is a measure of ‘excess profits’ (i.e. profits that exceed a reasonable risk-adjusted rate of return once the cost of holding the event have been covered).

The producer surplus from commercial events facilitated by the regulations is not known. Events would presumably earn at least the organiser’s required rate of return, otherwise they would not continue to run them. This particularly applies to annual events; it is possible that some one-off events incur losses for the organiser due to lower than expected ticket sales (that said, most of the events outlined above sold out).

Furthermore, it is not known whether the beneficiaries of any excess profits (i.e. the event organiser or the shareholders) are NSW residents. As discussed above, under NSW Government CBA Guidelines, only benefits accruing to NSW residents should be included in a CBA.<sup>43</sup>

For these reasons, the benefits to event organisers have not been included in the CBA. This is equivalent to assuming that event organisers earn their required rate of return from organising the event but no more (or less). This is plausible if the Trust is able to extract most of the *excess* profits through the location hire fees.

#### ***5.4.4 Cost of closing parts of Trust land to the public***

The costs of running the events outlined above include: the loss of amenity to users of Trust land from being unable to use the relevant areas for the period of time; and any loss of visual amenity from the relevant infrastructure.

The extent to which closing land affects the amenity of visitors or discourages visitors is not known. To provide some context, the estimated proportion of Trust land (including the Royal Botanic Garden and Domain only) that is closed to the public to hold the various events is around 2 per cent annually (table 5.2).

This is based on the following assumptions.

- The Fleet Steps area is around 1 hectare and is closed to the public for 120 days per year (January to April).
- For events held in the Phillip Precinct, we assume:

---

<sup>43</sup> NSW Treasury, *NSW Government Guide to Cost-Benefit Analysis*, Policy and Guidelines Paper TPP 17-03, March 2017, p. iii.

- the whole area to west of Art Gallery Road (around 8 hectares based on Google maps) is closed for around five days for each event<sup>44</sup>
  - there are around 7 major events, requiring the area to be closed per year, and
  - the temporary stage takes up an area of around 0.5 hectares from October to January.
- For New Years Eve events, the Royal Botanic Garden is closed from 3pm (in December, the Royal Botanic Garden are normally open until 8pm).

## 5.2 Trust land closed for events

	Area closed	Number of days per year	Share of total area <sup>a</sup>	Share of total days	Total share
	Ha	No.	Per cent	Per cent	Per cent
Fleet Steps	1.0	120.0	1.6	32.9	0.5
Phillip Precinct	8.0 <sup>b</sup>	35.0 <sup>c</sup>	12.5	9.6	1.2
Phillip Precinct - stage only	0.5	120.0	0.8	32.9	0.3
New Years Eve	30.0	0.4	46.9	0.1	0.0
<b>Total</b>					<b>2.0</b>

<sup>a</sup> Based on a total of 64 hectares. <sup>b</sup> Based on an estimate using Google Maps, assuming events held in the Phillip Precinct require the whole area to the west of Art Gallery Road are closed to the public. <sup>c</sup> Assumes 7 events per year requiring the relevant area of the Phillip Precinct to be closed to the public for five days per event (based on: Royal Botanic Gardens and Domain Trust website, <https://www.rbgsyd.nsw.gov.au/getmedia/a7cd1506-f36f-49ef-9d23-fe28f9a42778/FAQs-Opera-in-the-Domain-2018.pdf.aspx>, accessed 27 April 2018).

Source: Google Maps; Royal Botanic Gardens and Domain Trust website, <https://www.rbgsyd.nsw.gov.au/getmedia/a7cd1506-f36f-49ef-9d23-fe28f9a42778/FAQs-Opera-in-the-Domain-2018.pdf.aspx>, accessed 27 April 2018; CIE estimates.

As estimated above, use value for visitors of the Royal Botanic Garden was previously estimated at around \$113 million. If the loss of enjoyment for these visitors due to closures of Trust land for events was proportional to the area closed, this implies a cost of around \$2.3 million per year. This is likely to be a lower bound estimate due to the loss of visual amenity. That said, in some cases steps are taken to minimise the impact on visual amenity. For example, the screen for the open-air cinema is hydraulically raised for the screening. Even if the loss of amenity from the closure of Trust land is double the proportion of land closed, the cost would be around \$4.5 million per year (or around \$19.8 million in present value terms over the five-year regulatory period, using a discount rate of 7 per cent).

### 5.4.5 Cost to neighbours of noise from events

The cost to neighbours of noise from events on Trust land depend on:

- the number of households/residents affected
- the extent of the impacts on these households/residents, including:
  - the frequency of events that disturb neighbours, and
  - the extent of noise levels from events on Trust land.

<sup>44</sup> See for example: Royal Botanic Garden website, <https://www.rbgsyd.nsw.gov.au/getmedia/a7cd1506-f36f-49ef-9d23-fe28f9a42778/FAQs-Opera-in-the-Domain-2018.pdf.aspx>, accessed 27 April 2018.

As an upper bound estimate, we assumed that every major event on Trust land affects every household in the most affected areas. We valued the costs based on an approach developed by the UK Department of Environment, Food and Rural Affairs (DEFRA).

- **This analysis suggested an upper bound estimate of around \$700 000 per year, or around \$3.1 million in present value terms over the 5-year regulatory period, using a discount rate of 7 per cent (although actual impacts are likely to be significantly lower than this upper bound estimate).**

Further details on our approach to estimating the cost to neighbours from noise associated with events held on Trust land is set out in appendix C.

## 6 Conclusion

The proposed regulations are largely a remake of the existing regulations (with some relatively minor amendments to update and modernise them) that effectively give the Trust the power to continue to manage Trust land in a way that maximises benefits to the community. In particular, the proposed regulations:

- give the Trust the power to protect natural features (including rare plant species) and structures (including many with heritage value) on Trust land;
- restrict activities that may compromise the safety or enjoyment of other users; and
- allow parts of Trust land to be designated for events.

Although the costs and benefits of the proposed regulations are difficult to estimate precisely, it is nevertheless likely that the benefits of the proposed regulations significantly outweigh the costs. The proposed regulations are therefore the preferred option.

### *6.1 Protection of natural features and structures on Trust land*

The proposed regulations assist the Trust to continue to:

- protect natural features on Trust land, including rare plant species that form part of the Trust's 'living collection', and
- protect structures on Trust land, including preserving a number built in the 1800s with significant heritage value.

The actual impact of the regulations are probably minimal as relatively few members of the public are likely to engage in the activities covered by these regulations. Detailed information on the number of fines issued is not available; however, aside from parking fines, the Trust has advised that relatively few fines are issued (although this may be because the regulations provide a significant deterrent). That said, a small number of people engaging in the sorts of activities covered by these regulations could impose a relatively large cost in terms of additional maintenance costs and preservation of heritage value. The regulations give the Trust the power to:

- impose fines on people engaging in activities that may damage natural features on structures, and
- issue and enforce directions, including directions to leave Trust land.

## *6.2 Improving the enjoyment of users*

The proposed regulations will also give the Trust the power to continue to restrict activities that may negatively impact on the peace, tranquillity and beauty of the botanic gardens (and the Domain), either through effectively prohibiting these activities or through a permit system.

- Evidence suggests that these are some of the key attributes that the community values in botanic gardens.
- On the other hand, the primary purpose of the Domain is for recreation. On this basis, the regulations permit more recreational activities are permitted in the Domain.

As above, the costs and benefits of the proposed regulations are difficult to estimate. This is largely because the impacts mostly relate to the preferences of users of Trust land, which are not directly observable.

That said, the benefits are likely to outweigh the costs.

- Given that visitors to botanic gardens value attributes such as peace, tranquillity and beauty, it is likely that activities that disrupt these attributes could significantly reduce the enjoyment of a large number of users. This suggests there may be significant benefits from restricting the sorts of activities covered by the regulations.
- On the other hand, the costs of restricting are minimised by permitting a greater range of recreational activities in the Domain. This allows those looking to participate in those recreational activities to do so on the Domain, which is adjacent to the Royal Botanic Garden.

## *6.3 Designating Trust land for events*

Finally, the proposed regulations will allow the Trust to continue to designate Trust land for special events. Based on the best information available and some reasonable assumptions, it is highly likely that benefits of these regulations to the community will outweigh the costs.

The Trust tends to consent to a relatively small number of highly popular events held mostly in the Domain. These events are estimated to generate significant community value, including the following.

- Significant benefits accrue to members of the community that attend the various events on Trust land facilitated by the regulations. Based on reasonable assumptions, the majority of the benefits from these events accrue to attendees.
- These events also generate additional revenue for the Trust (location hire fees were around 10 per cent of the Trust's total revenue, although presumably this includes revenue from events that do not necessarily rely on the regulations). This additional revenue allows the Trust to fund activities that benefit the community, including its scientific program and maintaining Trust land.



These benefits are likely to outweigh the costs, which include the following.

- As some events require the Trust to close areas of Trust land, there are amenity costs to users. However, the various events require a relatively small proportion of the land to be closed over the year (around 2 per cent of the total area of the Royal Botanic Garden and Domain combined). Even if the amenity cost was 4-fold higher than the proportion of land closed, these costs would still be lower than a lower bound estimate of the benefits.
- Some events held on Trust land also impose noise costs on neighbouring properties. However, these costs are minimised through the Trust's Noise Management Plan, which restricts the frequency of events, the duration of events, starting and finishing times and imposes maximum sound restrictions. Given the relatively small number of events that generate significant noise, the noise costs on neighbours are estimated to be relatively modest.

## 7 *Consultation strategy*

The draft RIS will be open for public comment for a 6 week period over the June to August period.

- The draft RIS will be publicised on the Trust’s website.
- Stakeholders directly affected by the proposed regulations will be notified directly. Stakeholders relevant to the remaking of this regulation include the NSW community and various agencies of government, including:
  - Art Gallery of NSW
  - Australian Institute of Photographers
  - Bus and Coach Association (NSW)
  - Centennial Park and Moore Park Trust
  - City of Sydney
  - Domain Soccer League
  - Fitness Australia
  - Friends of the Gardens
  - Historic Houses Trust of New South Wales
  - Intrinsic Sports
  - Heritage Branch of the NSW Office of Environment & Heritage (OEH)
  - New South Wales Roads and Marine Services
  - New South Wales South Wales Police Force
  - New South Wales Touch Football
  - Pain in the Domain – running group
  - Parramatta Park Trust
  - Various registered personal trainers
  - Various running groups without a name known to the Trust
  - Sand Hill Warriors
  - Sporting Spectrum
  - St Mary’s Cathedral
  - State Library of NSW
  - Sydney Chamber of Commerce
  - Sydney Festival
  - Sydney Harbour Foreshore Authority
  - Sydney Hospital and Sydney Eye Hospital
  - Sydney Opera House Trust
  - Sydney Striders

## *A Activities that are restricted on Trust lands*

Activities that are restricted on Trust lands under the regulations are summarised in table A.1. The table also:

- Indicates The type of restriction (i.e. whether the activity is prohibited, or whether permission is required)
- Categorises the restricted activity on the basis of whether it is restricted to
  - protect natural features
  - protect structures
  - improve the safety and amenity for users
  - facilitate events/activities.

### **A.1 Classification of restricted activities**

Reg		Restriction <sup>a</sup>	Protection of natural features	Protection of structures	Improved safety and amenity for users	Facilitate events/activities
<b>Part 2: Entry on Trust lands</b>						
4	Closure of Trust lands to the public	Permission	X	X		
5	Entry into Royal Botanic Garden Sydney by sea wall	Permission		X		
6	Limits on number of persons who may enter Trust lands	Prohibited			X	
7	Conditions on entry	Permission			X	
8	Trust lands may be used for designated purposes	Permission			X	X
<b>Part 3: Use of vehicles on Trust lands</b>						
10-12	Restrictions on the entry of vehicles on Trust land	Permission			X	
13	Vehicle free periods	Permission			X	
14	Restrictions on driving and parking vehicles	Permission			X	
15	Restrictions on speed of vehicles	Permission			X	
16	Other restrictions on driving and riding vehicles	Permission			X	

Reg		Restriction <sup>a</sup>	Protection of natural features	Protection of structures	Improved safety and amenity for users	Facilitate events/ activities
<b>Part 4: Commercial and public activities on Trust lands</b>						
18	Prohibited commercial and public activities:					
	sell or hire any goods or services,	Permission			X	
	establish or operate a business	Permission			X	
	use any audio, loudspeaker or broadcasting equipment or camera for commercial purposes	Permission			X	
	collect a petition or conduct a survey	Permission			X	
	distribute any advertising matter or display any advertisement	Permission			X	
	collect money	Permission			X	
	busk	Permission			X	
	conduct an amusement, entertainment, event, promotion, instruction or performance	Permission	0		X	
	organise or participate in a public meeting, function, demonstration or other public activity	Permission	0		X	
	sell or attempt to sell (or purchase or attempt to purchase) a ticket to any activity, ceremony or other event	Permission	0		X	
20	Organising or conducting races	Permission			X	
21	Weddings and organised ceremonies	Permission			X	
<b>Part 5: Recreational activities on Trust lands</b>						
22	Restricted recreational activities					
	play or practise golf,	Permission	X	X	X	
	fishing (except in designated areas of the Domain)	Permission			X	
	practise or demonstrate casting a fishing line	Permission			X	
	bathe, wade, wash or swim, or operate a boat, canoe, kayak or any other water craft, vessel or flotation device	Permission	0		X	
	use a land sailing vehicle,	Permission			X	
	fly a kite (except in a designated area)	Permission			X	
	operate a motorised model aircraft, boat, car, drone	Permission			X	

Reg	Restriction <sup>a</sup>	Protection of natural features	Protection of structures	Improved safety and amenity for users	Facilitate events/ activities
	operate a hang-glider	Permission		X	
	launch or land an aircraft, helicopter, airship, hot air balloon or parachute,	Permission	X	X	X
	use a metal detector	Permission		X	
	set up or discharge fireworks	Permission	X	X	
	use a starting pistol (except in a designated area)	Permission		X	
	throw a javelin, shot put, sharp instrument or other object that is likely to cause damage or injury to any person, animal or thing,	Permission	X	X	X
	erect a tent, marquee or similar structure (except in designated area)	Permission	X	X	
	enter land that is situated within any lake, pond or stream or in any ornamental water	Permission	X	X	
	conduct, or participate in, any game or other activity in a manner that unduly interferes with the amenity of the area	Permission	0	X	
23	Restrictions on use of bicycles, segways, hoverboards, scooters, skateboards or use rollerblades (except in designated areas)	Permission	X	X	
24	Camping	Permission	X	X	
25	Personal training (except in designated areas)	Permission		X	
26	Jogging or running in the Gardens (other than on a road, path or specifically designated circuit)	Permission	X	X	
27	Throwing, kicking or hitting balls (except in designated areas)	Permission	X	X	
<b>Part 6: Offensive and dangerous conduct on Trust lands</b>					
28	Behave in an offensive or indecent manner	Prohibited		X	
30	Addressing public gatherings	Permission		X	
31	Causing noise	Permission		X	
32	Causing damage				
	damage a lawn, playing field or green (except in normal activity on designated area)	Permission	X	X	

Reg	Restriction <sup>a</sup>	Protection of natural features	Protection of structures	Improved safety and amenity for users	Facilitate events/ activities
	remove, uproot, damage, remove a tree, shrub, fern, creeper, vine, palm, plant or other vegetation	Permission	X	X	
	plant a tree or other vegetation	Permission	X	X	
	remove any timber, log or stump, standing or fallen	Permission	X	X	
	bring in, deface, dig up or remove any rock, soil, sand, stone or similar substance	Permission	X	X	
	damage, deface, interfere with, destroy or remove any part of Trust lands (including signs, machinery or equipment)	Permission		X	
	damage, deface or interfere with a road or path	Permission		X	
	climb on any tree, building, fence, seat, table, enclosure, sculpture, statue, monument or fountain	Permission	X	X	X
	block or inhibit access to a gate, access-way, path or road	Permission		X	
	pass through or step over any temporary or permanent fencing	Permission	X	X	X
	light a fire	Permission	X	X	X
	use a drinking fountain or toilet block other than for intended purpose	Permission		X	X
	deposit any oil, hot liquid or similar product, or any ice or frozen liquid onto any ground or vegetation	Permission	X	X	
	empty coal or embers from a barbecue onto any ground or vegetation	Permission	X	X	
	deposit or throw any article or any substance into any lake, pond, stream or other watercourse	Permission	X	X	
	bring in any waste	Permission		X	
	leave any waste (except in receptacle provided by the purpose)	Permission		X	
	moor a boat to the sea wall in the Royal Botanic Garden Sydney	Permission		X	X
33	Affixing items to trees or structures	Permission	X	X	
34	Entering Trust lands while intoxicated or in possession of prohibited things	Prohibited	X	X	X
35	Consuming or possessing liquor on Trust lands	Permission	X	X	X

Reg		Restriction <sup>a</sup>	Protection of natural features	Protection of structures	Improved safety and amenity for users	Facilitate events/ activities
36	Carrying or possessing firearms	Permission	X		X	
<b>Part 7: Animals on Trust lands</b>						
37	Bringing animals into the Gardens	Permission	X		X	
38	Bringing dogs into prohibited areas of the Domain	Permission	X		X	
39	Harming animals	Permission	X		X	
40	Washing/bathing animals	Permission	X		X	
	Tethering animals to a tree or protected structure	Permission	X	X	X	
	Lead a dog from a moving vehicle	Permission			X	
	Abandon an animal	Permission	X		X	
	Failure to remove and properly dispose of any animal faeces	Permission			X	

<sup>a</sup> 'Permission' indicates that written permission from the Trust is required to undertake the restricted activity; 'Prohibited' indicates that the activity is prohibited.

Source: CIE.

## *B Estimating the benefits of events on Trust land*

### *B.1 Events held on Trust land*

The specific events held on Trust land that require parts of Trust land to be closed for a period of time (and are therefore only possible as a result of the regulations) can vary from year to year. However, the number and type of events held have not changed significantly over recent years. Our estimates of the annual benefits are based on events held on Trust land over the a broadly representative period (2017-18). Over this period the events included the following.

- Events in the Philip precinct have included:
  - Lost Picnic festival (15 October 2017)
  - Midnight Oil (and John Butler Trio) concerts (11 and 17 November 2017)
  - Carols in the Domain (17 December 2017)
  - Field Day (1 January 2018)
  - Opera in the Domain (part of the Sydney festival) (13 January 2018).
- Events in the Fleet Steps area have included:
  - Harbourlife dance party (18 November 2017)
  - The open-air cinema (7 January 2018 to 17 February 2018)
  - Opera Australia's *La Boheme* on Sydney Harbour (23 March 2018 to 22 April 2018).
- New Years Eve events — various events are held in the Royal Botanic Garden and the Domain.

### *B.2 Consumer surplus*

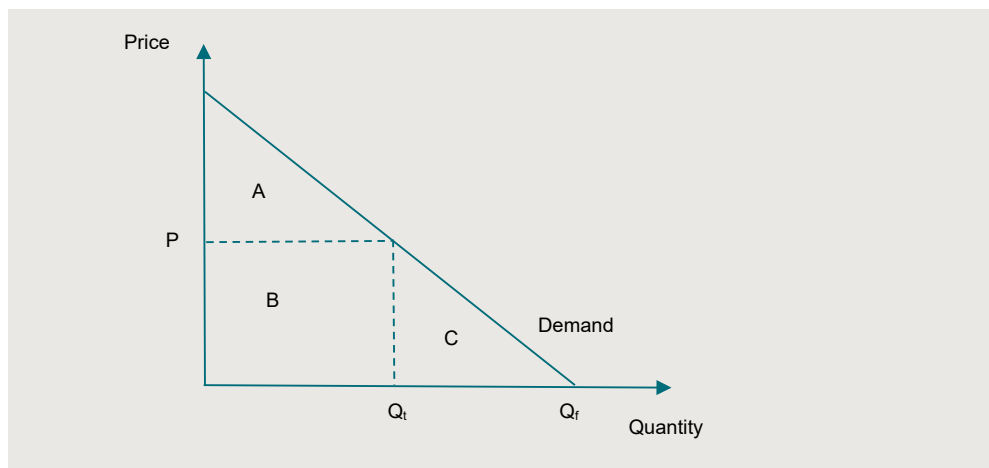
In standard economic analysis, the benefits to consumers (or users) of goods and services is measured using the concept of 'consumer surplus'. Consumer surplus measures the value that each consumer gains by consuming the good or service (i.e. the enjoyment they receive which is reflected in their 'willingness to pay' for it) less the price they actually pay for it.

On a standard supply and demand diagram, the demand curve reflects the community's collective willingness to pay for a good or service (diagram B.1). Consumer surplus is measured as the area under the demand curve, but above the price paid.

- Where the price is  $P$  and the quantity consumed is  $Q$ , the consumer surplus is area A (see diagram B.1).
- Where a good or service is provided for free (i.e. the price is zero) the amount consumed is  $Q_f$  and the consumer surplus is areas A+B+C (see diagram B.1).



### B.1 Consumer surplus



Data source: CIE.

### *B.3 Approach to estimating consumer surplus*

Our approach to estimating the change in consumer surplus as a result of the regulations in various circumstances is outlined below.

#### *B.3.1 Estimating the consumer surplus from events on Trust land*

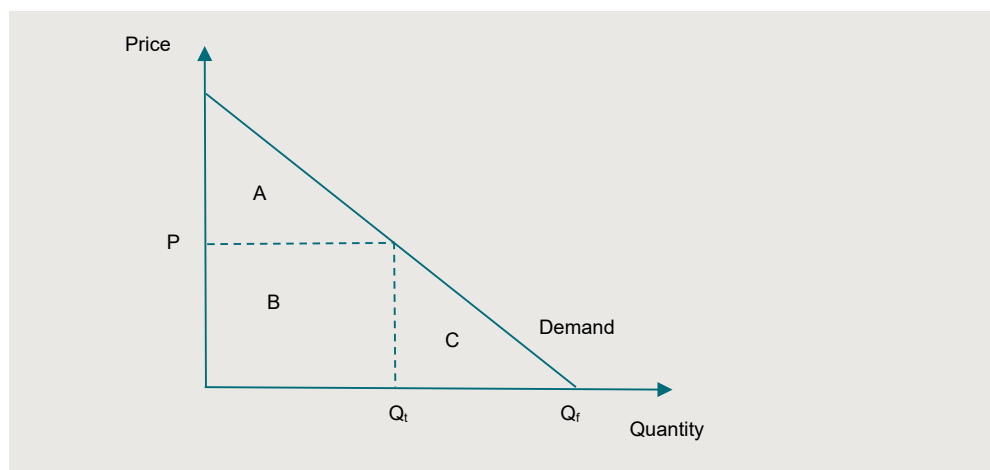
Attendees at the various events on Trust land receive benefits through their enjoyment of the experience. As it may not be possible to hold these events on Trust land without the regulations, these benefits would not be realised without the regulations.

On a standard supply and demand diagram, the demand curve reflects the community's collective willingness to pay to attend each of the various events (diagram B.1).

Consumer surplus is measured as the area under the demand curve, but above the price paid for the event.

- For a ticketed (commercial) event, where the ticket price is  $P$  and the number of attendees is  $Q_t$ , the consumer surplus is area A (see diagram B.1).
- For a free event (i.e. an event where the price is zero) with  $Q_f$  attendees, the consumer surplus is areas A+B+C (see diagram B.1).

## B.2 Consumer surplus from events on Trust land



Data source: CIE.

Consumer surplus will depend heavily on the shape of the demand curve (including factors such as whether the demand curve is linear or takes some other functional form and the slope/elasticity), which is not known. Nevertheless, we can obtain some indicative estimates of the consumer surplus of the events held on Trust land under various reasonable assumptions.

The price elasticity of demand reflects how responsive the quantity of a good or service consumed is to changes in price. Goods and services are: price inelastic if the elasticity of demand is less than 1 and price elastic if greater than 1.

In general, goods and services tend to become more price elastic where more close substitutes are available. Although the events on Trust land have some unique attributes, they are discretionary and therefore there are multiple substitutes. For example, alternatives to the open-air cinema in the Domain could include: an outdoor cinema at an alternative location; an indoor cinema; any other entertainment activity. Therefore, demand for these events are likely to be relatively elastic (i.e. greater than 1).

We estimate the consumer surplus generated by these events under various elasticities (specifically -1.5, -2 and -2.5) assuming demand curves with the following functional forms:

- a constant price elasticity demand curve, and
- a linear demand curve (where the elasticity assumption applies at the initial price and quantity).

### *B.3.1.1 Measuring consumer surplus for linear demand curves*

A linear demand curve takes the form:

$$P = a + bQ$$

Where:  $P$  is price;  $Q$  is quantity;  $a$  is the intercept with the price axis and  $b$  is the slope (as the demand curve will be downward sloping this will take a negative value).

As the elasticity of demand varies along a linear demand curve, the elasticity assumption relates to the equilibrium given by:

- the observed ticket price ( $P^e$ ), and
- the number of attendees ( $Q^e$ ).

The elasticity of demand ( $\varepsilon$ ) is given by:

$$\varepsilon = \frac{\% \Delta Q}{\% \Delta P} = \frac{1}{b} \cdot \frac{P}{Q}$$

This implies that the slope of the demand curve ( $b$ ) is given by:

$$b = \frac{1}{\varepsilon^e} \cdot \frac{P^e}{Q^e}$$

Where  $\varepsilon^e$  is the elasticity of demand at the equilibrium price and quantity;  $P^e$  is the equilibrium price; and  $Q^e$  is the number of attendees at the equilibrium.

The intercept is therefore given by:

$$a = P^e - b \cdot Q^e$$

Consumer surplus ( $CS$ ) is given by:

$$CS = \frac{1}{2} \cdot (a - P^e) \cdot Q^e$$

### ***B.3.1.2 Measuring consumer surplus for constant price elasticity demand curves***

Under this type of demand curve, the elasticity of demand is constant along the demand curve. These curves are convex to the origin and take the form:

$$P = A \cdot Q^{\frac{1}{\varepsilon}}$$

Where  $P$  is the price;  $Q$  is the quantity;  $\varepsilon$  is the elasticity of demand; and  $A$  is a constant.

As above the ticket price and number of attendees gives us one point on the demand curve. Based on this information, we can solve for  $A$  under various elasticity assumptions as follows:

$$A = \frac{P}{Q^{\frac{1}{\varepsilon}}}$$

Consumer surplus is then given by:

$$CS = \int_0^{Q^e} A \cdot Q^{\frac{1}{\varepsilon}} \cdot dQ - P^e \cdot Q^e$$

### ***B.3.1.3 Valuing the benefits of 'Carols in the Domain'***

The largest free event is the annual 'Carols in the Domain' (although there are some tickets sold). As the event is mostly free (i.e. the price is zero), we cannot use the above approaches to estimate the consumer surplus from the event.

An alternative approach is estimate the value consumers place on the event through the 'waiting costs' incurred. Although most attendees pay no entry fee, many must arrive early and therefore incur the cost of waiting. For this event the gates open at 12:00pm, with the carols commencing at 8:30pm.

Analogous to the travel cost method, where willingness to pay is inferred from the costs incurred in travelling to an attraction, the willingness to pay for a free event can be inferred from the disutility incurred by waiting.

- This implies that those attendees who arrive when the gates open will incur the cost of an 8 hour wait (assuming that even for an event with allocated seating, attendees are likely to arrive at least half an hour prior to the event commencing).
- If the event is at full capacity (around 35 000) by around 6:00pm, implying that the minimum waiting time for any of the attendees is around 2 hours.
- We also assume that the event fills up steadily, implying a linear demand curve.

The cost of waiting reflects the opportunity cost of attendee's time. Although there is some entertainment provided in lead up to the event, it is unlikely that most attendees would arrive much later if they had allocated seating.

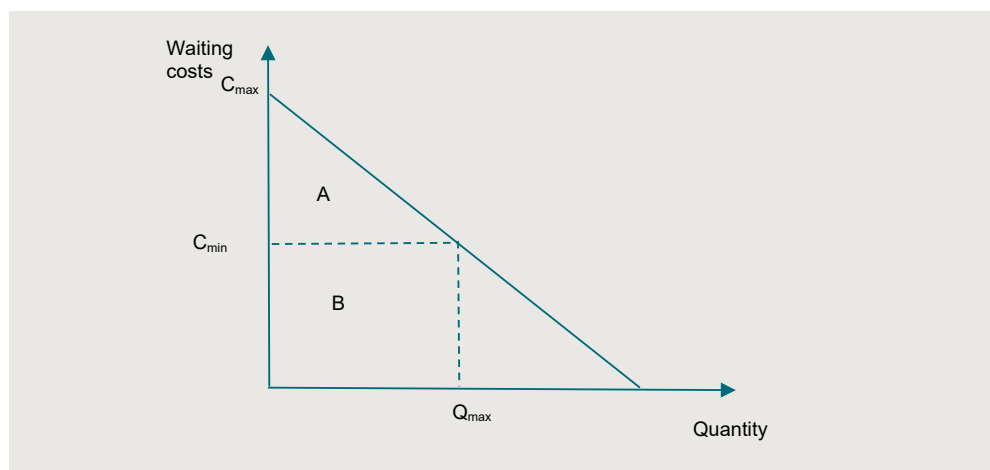
The reason some attendees arrive earlier than others could reflect a range of factors. Some place a higher value on attending the event or value getting a 'good seat' more highly than others. Alternatively, some attendees may have a lower opportunity cost of time.

The opportunity cost of attendee's time is not known. We assume an average cost of \$20 per hour. While would generally be below wage rates for many adults, it is broadly reasonable given the high proportion of children that attend the event. This implies:

- the maximum cost incurred ( $C_{\max}$  in chart B.3) is around \$160 (8 hours x \$20 per hour), and
- the minimum cost incurred ( $C_{\min}$  in chart B.3) by the last person to arrive ( $Q_{\max}$ ) is around \$40 (2 hours x \$20 per hour).

Note that these estimates imply there is some unmet demand. That is, more people may attend if the waiting costs were lower and/or more seats were available within reasonable proximity to the stage.

### B.3 Consumer surplus – Carols in the Domain



Data source: CIE.

From chart B.3, consumer surplus (CS) (area A + B) can be calculated as follows.

$$CS = C_{min} \cdot Q_{max} + \frac{1}{2} \cdot (C_{max} - C_{min}) \cdot Q_{max}$$

#### B.3.2 Input assumptions for events

Input assumptions for the various events are shown in table B.4.

#### B.4 Input assumptions

	Ticket price	Attendees
	\$	No.
<b>Phillip Precinct</b>		
Carols in the Domain	0 <sup>a</sup>	35 000
Midnight Oil	100	48 000
Field Day	140	30 000
<b>Fleet Steps</b>		
Open-air cinema	39	72 000 <sup>b</sup>
Opera on Sydney Harbour	200	45 000
Harbourlife	120	5 000
<b>New Years Eve events</b>		
Lawn with the View	340	960
Harbour Hoopla	325	3 050
The Point	400	800
Midnight at the Oasis	430	1 676

<sup>a</sup> Although there are some tickets sold, the event is free for most attendees. <sup>b</sup> Based on 40 screenings, a seating capacity of 2000 per screening and an assumed average occupancy rate of 90 per cent.

Source: Various sources.

### B.3.3 Consumer surplus estimates

We estimate consumer surplus from the various events assuming:

- both a linear and constant elasticity demand curves, and
- various elasticities of demand: -1.5, -2 and -2.5.

The consumer surplus estimates vary significantly depending on the assumptions about the shape of the demand curve (table B.5). In general, consumer surplus estimates tend to be lower the more elastic is demand. Estimates also tend to be lower where the demand curve is linear, compared to a constant elasticity demand curve.

Estimated consumer surplus ranges between around \$8.1 million per year, up to around \$41.5 million per year. Over the five-year regulatory period, this is between around \$36 million and \$182 million in present value terms (using a discount rate of 7 per cent).

### B.5 Estimated consumer surplus from major events held on Trust land

Functional form	Linear			Constant elasticity <sup>a</sup>		
	Elasticity	-1.5	-2.0	-2.5	-1.5	-2.0
	\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
<b>Phillip Precinct</b>						
Carols in the Domain <sup>b</sup>	3 500	3 500	3 500	3 500	3 500	3 500
Midnight Oil	1 600	1 200	960	7 761	4 362	3 003
Field Day	1 400	1 050	840	6 518	3 715	2 572
<b>Sub-total</b>	<b>6 500</b>	<b>5 750</b>	<b>5 300</b>	<b>17 779</b>	<b>11 577</b>	<b>9 075</b>
<b>Fleet Steps</b>						
Open-air cinema	936	702	562	4 676	2 599	1 782
Opera on Sydney Harbour	3 000	2 250	1 800	14 477	8 151	5 616
Harbourlife	200	150	120	711	430	304
<b>Sub-total</b>	<b>4 136</b>	<b>3 102</b>	<b>2 482</b>	<b>19 864</b>	<b>11 180</b>	<b>7 702</b>
<b>New Years Eve events<sup>c</sup></b>						
Lawn with the View	109	82	65	653	326	218
Harbour Hoopla	330	248	198	1 983	991	661
The Point	107	80	64	640	320	213
Midnight at the Oasis	109	82	65	653	326	218
<b>Sub-total</b>	<b>655</b>	<b>491</b>	<b>393</b>	<b>3 928</b>	<b>1 964</b>	<b>1 309</b>
<b>Total</b>	<b>11 291</b>	<b>9 343</b>	<b>8 174</b>	<b>41 571</b>	<b>24 721</b>	<b>18 086</b>

<sup>a</sup> As a constant price elasticity demand curve can imply unrealistically high consumer surplus in the part of the curve close to the price axis, the estimates presented in this table exclude the consumer surplus of the first 100 attendees. <sup>b</sup> In contrast with the other events where consumer surplus has been estimated, Carols in the Domain is a free event. Consumer surplus has been estimated based on the cost of queueing for these events. <sup>c</sup> The Trust also manages the free public viewing area at Mrs Macquarie's Point which attracts around 14 000 attendees. As this event does not require any part of Trust land to be closed, it does not directly rely on the regulations. That said, the Trust limits the numbers for safety and comfort reasons. In the absence of the regulations, presumably members of the public would still have access to Mrs Macquarie's Point; however, the event may be less safe and comfortable for those that attend. Source: CIE estimates.

In general, a constant elasticity demand curve may be more realistic, but the elasticity of demand for these events is likely to be relatively high. This suggests that the consumer surplus generated by these events might somewhere close to the middle of the range.

## *C Estimating the cost of noise*

### *C.1 Estimating the noise impact on residents*

To estimate the noise costs of events held on Trust land the following information is required:

- the number of people affected
- the extent to which these people are affected, including:
  - how frequently they are affected, and
  - the extent of the noise, and
- an estimate of the value of the noise impact on residents.

#### *C.1.1 Number of people affected*

Estimating the number of people affected by noise from events on Trust land is not straightforward. The extent to which residents in various locations are affected by events on Trust land can depend on weather conditions, including wind direction, cloud cover and other factors. Also, technological improvements in noise production and management in recent years have led to improved sound quality for attendees at events with reduced sound impacts on neighbours.

##### *C.1.1.1 Complaints*

One indicator of the extent to which events affect neighbours is the number of complaints. Based on (now somewhat old) data reported in the Trust's Noise Management Plan, there were around 5-6 noise complaints per year on average over the six-year period from 2002/03 to 2007/08 (table C.1). However, it should be noted that some of the events that were the source of complaints (such as Homebake) are no longer held. Furthermore, the Trust now generally discourages events in Tarpeian and Crescent Precincts.



## C.1 Noise complaints

	Fleet Steps	Phillip Precinct	Tarpeian Precinct	Crescent Precinct	Total
	No.	No.	No.	No.	No.
2002/03	4	1	0	0	5
2003/04	0	1	0	2	3
2004/05	0	0	1	0	1
2005/06	4	15	0	0	19
2006/07	0	4	1	0	5
2007/08	0	1	0	0	1
<b>Average</b>	<b>1.33</b>	<b>3.67</b>	<b>0.33</b>	<b>0.33</b>	<b>5.67</b>

Source: Royal Botanic Gardens and Domain Trust, *Noise Management Plan*, October 2008, p. 18.

Although the number of complaints is relatively low, there are likely to be more residents affected as not all residents affected will make a complaint.

### C.1.1.2 Number of residents in affected locations

As part of the Noise Management Plan, the Trust has a contact database, which is used to advise neighbours of forthcoming events. It is likely that the contact database will include the residents that are most affected by the noise from events.

The Trust has advised that there are 19 contacts in the database. However, this includes some building managers in strata schemes, so the total number of households will be higher.

The Trust's Noise Management Plan identifies the location of residents that are most affected by noise from events in various locations.<sup>45</sup>

- For events held in the Fleet Steps area, the most affected residential locations are:
  - the northern end of Macquarie Street
  - residents on the Potts Point ridge are also occasionally affected by dance parties, and
  - there have been complaints in the past from the Kirribilli area (particularly from Pitt and Upper Peel Streets) relating to the open air cinema) although this is unusual.
- For events held in the Phillip Precinct, the most affected residential locations are:
  - the northern end of Macquarie Street
  - the Potts Point ridge (particularly Victoria, Wilde and Brougham Streets), and
  - there have also been complaints from the Woolloomooloo Wharf apartments, but these residents are generally protected from sound as the apartments sit below the ridge.

Based on ABS Census data at the mesh block level, the number of dwellings/residents in areas most affected by events on Trust land is summarised in table C.2.

<sup>45</sup> Royal Botanic Gardens and Domain Trust, *Noise Management Plan*, October 2008, p. 9.

## C.2 Number of dwellings/residents in areas most affected by noise

	Dwellings	Residents
	No.	No.
<b>Fleet Steps</b>		
Macquarie Street <sup>a</sup>	927	1 240
Potts Point <sup>b</sup>	3 613	4 801
<b>Total</b>	<b>4 540</b>	<b>6 041</b>
<b>Phillip Precinct</b>		
Macquarie Street <sup>a</sup>	927	1 240
Potts Point <sup>b</sup>	3 613	4 801
Woolloomooloo	2 488	4 019
<b>Total</b>	<b>7 028</b>	<b>10 060</b>

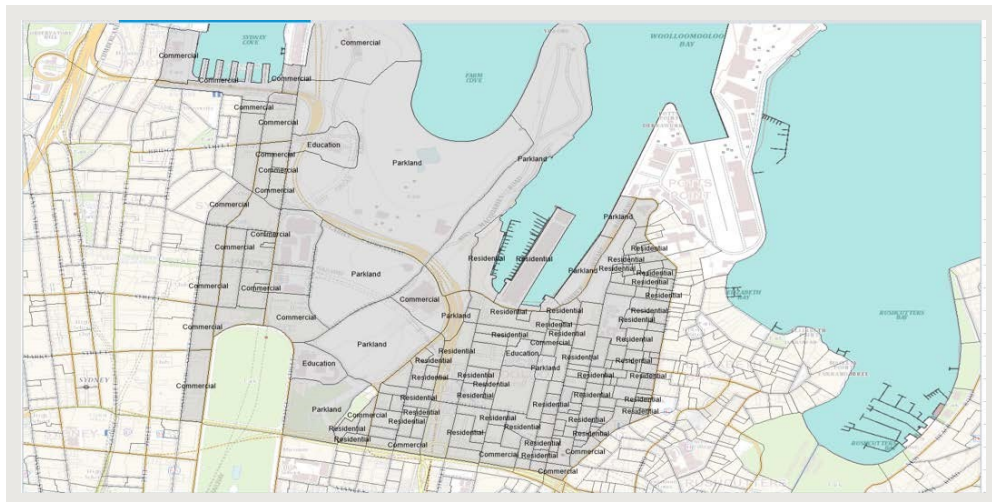
<sup>a</sup> Based on all mesh blocks adjacent to Macquarie Street plus some dwellings/residents on mesh blocks classified as commercial, education or parkland (see chart C.3 above). <sup>b</sup> Includes the area of Potts Point on the western side of Wylde Street.

Source: CIE based on ABS Census data.

The mesh blocks included in these estimates are shown in chart C.3.

- The estimated number of dwellings/residents in Macquarie Street includes all mesh-blocks adjoining Macquarie Street plus a small number of dwellings/residents in adjacent mesh blocks classified as commercial, education and parkland.
- The number of affected residents in Potts Point includes all mesh blocks to the West of Wylde Street.
- Although the Noise Management Plan states that residents in Woolloomooloo are not significantly affected as they sit below the ridge, there may nevertheless be some impacts on these residents due to their proximity to the Phillip Precinct.

## C.3 ABS mesh blocks included in dwelling/resident estimates



Data source: ABS.

### ***C.1.2 Frequency and duration of noise impacts***

As discussed above, the frequency with which residents in various locations are affected by noise from events on Trust land will vary depending on weather conditions.

Based on complaints over the 2002-03 to 2007-08 period, the Noise Management Plan indicates that the maximum number of times a location was impacted in any year was 3 times. That said, data based on complaints may understate the frequency with which particular locations are affected as noted above.

The noise reduction strategies outlined in the Noise Management Plan places an upper bound on the frequency and duration of noise impacts (see box C.4).

#### **C.4 Noise reduction strategies**

Noise reduction strategies outlined in the Trust's Noise Management Plan include the following.

- For events with less than 10 000 people:
  - restricting the number of dance parties held each year at Fleet Steps to two;
  - public events, other than sporting events, must not commence prior to 10am or finish after 11pm; and
  - the total length of an event must not be greater than eight hours.
- For events with more than 10 000 people:
  - no more than 12 such concert/festival-style events may be held on Trust lands per calendar year;
  - 3 events must not be greater than 12 hours in duration and each event held of this duration shall be separated by 10 days;
  - 9 events must not be greater than 4 hours in duration and shall not be held on 4 consecutive days;
  - the maximum duration of each individual rehearsal associated with any such events, with the use of the main speaker system, must not exceed 2 hours and the total duration of rehearsals that are audible beyond land administered by the Trust must be kept to an absolute minimum; and
  - the maximum duration of individual sound tests associated with any category 3 events must not exceed 1 hour and the total duration of sound tests that are audible beyond the land administered by the Trust must be kept to an absolute minimum.
- Early warning alerts — the acoustic monitoring team alerts sound operators to reduce the level of sound when the noise level approaches the maximum limits.
- Speaker positioning — sound systems are required to be positioned to minimise the noise impact on residential premises and other sensitive receivers through consideration of numbers, location and angling of the speaker and system.

Around two-thirds of complaints over the 2002-03 to 2007-08 period related to events in the Phillip Precinct, reflecting the size and nature of these events. The Noise Management Plan limits the number of large events (more than 10 000 people) to 12 per year, although in recent years there seems to have been fewer of these large events held on Trust land.

### ***C.1.3 Extent of noise impacts***

Venue noise limits specified in the Trust's Noise Management Plan provides an indicator of the extent to which events in the Domain could impact on residents.

The Noise Management Plan specifies monitoring points for various locations. These monitoring points include:<sup>46</sup>

- the Sydney Hospital and Sydney Eye Hospital (for events with more than 10 000 people only);
- Beulah Street Wharf in Kirribilli (for small events on or near the foreshore (such as the Fleet Steps); and
- as required at:
  - the top of the Woolloomooloo Bay apartments;
  - the Crescent Precinct adjacent to the Crown Apartments;
  - Victoria Street Potts Point; and
  - other locations of complaint.

Venue maximum noise limits (specified in decibels) are shown in table C.5. These limits are specified in terms of both dB(A) and dB(C) (which measures the impact of bass sound).

### **C.5 Venue maximum noise limits**

	Sydney Hospital and Sydney Eye Hospital		Other locations	
	dB(A)	dB(C)	dB(A)	dB(C)
Phillip Precinct – large events (>10 000 people)	80-85 <sup>a</sup>	100	70	90
Phillip Precinct – small events (<10 000 people)	n.a.	n.a.	55	70
Fleet Steps	n.a.	n.a.	55	70

<sup>a</sup> A maximum limit of 85 dB(A) applies to Carols in the Domain and Sydney Festival Concerts only.

Source: Royal Botanic Gardens and Domain Trust, *Noise Management Plan*, October 2008, p. 9.

Evidence from the UK Department for Environment, Food and Rural Affairs (DEFRA) also does not assess impacts below 45 dBs.<sup>47</sup> Furthermore, the NSW Government's

<sup>46</sup> Royal Botanic Gardens and Domain Trust, *Noise Management Plan*, October 2008, pp. 10-11.

<sup>47</sup> Department for Environment, Food & Rural Affairs, 2014. *Environmental Noise: Valuing Impacts on: sleep disturbance, annoyance, hypertension, productivity and quiet*. London.

Guidelines for Economic Appraisal of Transport and Investment Initiatives (2013) also states that:

Changes in noise level below 50 dB(A) L10(18h) are considered to have no impact on the community.<sup>48</sup>

The noise level chart in table C.6 provides some context for the noise impacts in various locations.

### C.6 Noise level chart

dBA	Example	Home & Yard Appliances	Workshop & Construction
0	healthy hearing threshold		
10	a pin dropping		
20	rustling leaves		
30	whisper		
40	babbling brook	Computer	
50	light traffic	Refrigerator	
60	conversational speech	air conditioner	
70	shower	Dishwasher	
75	toilet flushing	vacuum cleaner	
80	alarm clock	garbage disposal	
85	passing diesel truck	snow blower	
90	squeeze toy	lawn mower	arc welder
95	inside subway car	food processor	belt sander
100	motorcycle (riding)		handheld drill

Source: Noisehelp website, <http://www.noisehelp.com/noise-level-chart.html>, accessed 15 May 2018.

#### C.1.4 Valuing the impact of noise

There are various approaches to measuring the impact of noise on the community. Approaches to measuring the impact of noise in the economic literature have included the following.

- Hedonic pricing approach — this approach is used to estimate the impact of noise on property prices. These studies tend to focus on transport (including traffic, rail and airport noise) and industrial noise, which is generally fairly consistent and can be

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/380852/environmental-noise-valuing-impacts-PB14227.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/380852/environmental-noise-valuing-impacts-PB14227.pdf)

<sup>48</sup> Transport for NSW (2013), Principles and Guidelines for the Economic Appraisal of Transport and Investment Initiatives, March, p.91.

objectively measured. These studies often estimate a Noise Depreciation Index, which estimates the impact on property prices depending on proximity to the noise source.<sup>49</sup>

- Measuring the health impacts of noise — some studies have linked environmental noise to various health impacts. This includes the health impacts associated with sleep disturbance, stress, hypertension, which over time can potentially lead to acute myocardial infarction (AMI), stroke, dementia and other cardio-vascular effects.<sup>50</sup> These health impacts are then valued using the disability adjusted life year (DALY) approach.
- Impact on self-reported wellbeing — on recent study found that *perceived* neighbourhood noise has a negative and highly significant effect on happiness, although the source of ‘neighbourhood noise’ was not specified.<sup>51</sup> This study was based on survey data from the European quality of life survey undertaken in 2003, which involved interviews with 26 000 people across 28 countries. The study used responses to a question on the extent to which there are reasons to complain about noise where the respondent lives as an explainer of reported wellbeing (on a scale of 1 to 10), along with a comprehensive set of control variables that may influence reported happiness levels. This approach was used (rather than alternative methodologies) because the amenity impact of neighbourhood noise is less likely to be reflected in house prices and therefore more difficult to measure for the following reasons.
  - Neighbourhood noise is more sporadic and therefore more difficult to measure objectively.
  - Neighbourhood noise may not be an observable characteristic of the housing stock *ex-ante* meaning that it may not be reflected in house prices.
  - There are high personal and financial costs associated with moving house. This means that people may be less likely to move to avoid a noisy neighbour. For example, some may hope that the noisy neighbour moves away. Furthermore, moving house is not necessarily a guarantee that noisy neighbours will not be an issue at the new property.

#### ***C.1.4.1 Estimates of the value of noise impacts***

In the United Kingdom, the Interdepartmental Group on Costs and Benefits noise subject Group (IGCB(N)) developed an approach for appraising environmental noise for the DEFRA.

The DEFRA study focuses on estimating the impacts of environmental noise (specifically road, rail and air traffic) on health (including direct AMI, strokes and dementia), sleep disturbance and annoyance. Chart C.7 shows the estimated marginal impact of a 1 dB

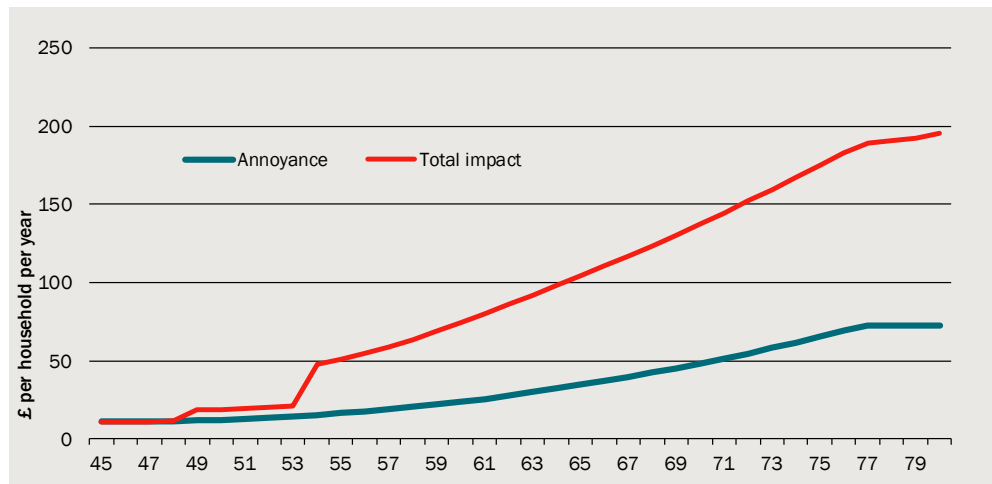
<sup>49</sup> See for example: von Graevnitz, K. 2016, *The Amenity Cost of Road Noise*, Discussion Paper No. 16-087, Centre for European Economic Research.

<sup>50</sup> UK Department for Environment Food & Rural Affairs, *Environmental Noise: Valuing impacts on sleep disturbance, annoyance, hypertension, productivity and quiet*, November 2014, pp. 39-40.

<sup>51</sup> Weinhold, D. 2013, “The Happiness-Reducing Costs of Noise Pollution”, *Journal of Regional Science*, Volume 53, Issue 2, pp. 292-303.

increase in noise from road traffic (the impact of road traffic were estimated to be higher than airports and rail). This suggests that the marginal impact increases as the level of noise increases (note that the decibel scale is logarithmic, such that a 10dB increase represents a doubling in sound intensity).

### C.7 Marginal impact of a 1 decibel increase in noise



Note: Based on the impact of road traffic noise. Total impact includes impact on health (direct AMI, strokes and dementia) and sleep disturbance as well as annoyance).

Data source: UK Department for Environment Food & Rural Affairs, Environmental Noise: Valuing impacts on sleep disturbance, annoyance, hypertension, productivity and quiet, November 2014, pp. 39-40.

The 'annoyance cost' estimates are likely to be most relevant to the noise impacts from events held on Trust land; health impacts are likely to occur only from prolonged exposure, while sleep disturbance would be minimised through noise reduction strategies (unlike traffic noise).

A cumulative impact can be estimated by aggregating the marginal impacts (table C.8). As discussed above, impacts below 45-50 dB(A) are generally considered to have minimal impact on the community.

- Increasing noise exposure from 45 to 55 dB(A) is also estimated to have a modest impact on 'annoyance'. Expressed in 2018 Australian dollar terms (converted from 2014 pound sterling using the average exchange rate since 2010 as reported by the Reserve Bank of Australia and inflated to 2018 values using the national CPI published by the Australian Bureau of Statistics), the impact is estimated at only around \$230 per household per year.
- The impacts on 'annoyance' are more significant where noise exposure is increased from 45 to 80 dB(A) at more than \$2000 per household per year (also expressed in 2018 Australian dollar terms).

### C.8 Cumulative annual impact if increased dB(A) exposure

	Estimated costs	
	UK£ (2014) per HH per year	\$A (2018) per HH per year
<b>Annoyance costs</b>		
45-55	126	230
45-70	561	1 023
45-80	1 188	2 168
<b>Total costs</b>		
45-55	191	349
45-70	1 504	2 744
45-80	3 195	5 829

<sup>a</sup> Converted to Australian dollars using the average exchange rate since 2010 as reported by the Reserve Bank of Australia. Estimate then inflated to 2018 based on the national Consumer Price Index published by the Australian Bureau of Statistics.

Source: CIE based on UK Department for Environment Food & Rural Affairs, *Environmental Noise: Valuing impacts on sleep disturbance, annoyance, hypertension, productivity and quiet*, November 2014, pp. 39-40.

These estimates are broadly consistent with the Weinhold (2013) study on the impacts of neighbourhood noise discussed above (although this study was based on self-reported impacts and is therefore less specific about the source of noise and decibel levels).<sup>52</sup> This study estimated that the income transfer required to compensate for the noise was around €172 per month per household.<sup>53</sup> In 2018 Australian dollars, this equates to around \$3285 per household per year (using the average euro to Australian dollar exchange rate since 2010 to convert to Australian dollars and the national CPI to inflate to 2017 dollar terms).

Note that both of these studies will significantly overstate the impact on households affected by events on Trust land.

- The DEFRA estimates are based on road traffic noise, which would be more or less continuous. By contrast, events held on Trust land that create noise impacts are relatively infrequent.
- In Weinhold (2013), the frequency or intensity of noise impacts from neighbours is not specified. Neighbourhood noise may be more sporadic than traffic noise; however, the cost of neighbourhood noise may be relative high because it is unpredictable. By contrast, events on Trust land are known in advance (residents on the notification register are warned in advance) allowing residents to make alternative plans. Furthermore, these events occur within in defined parameters (including start/finish times), which is likely to reduce annoyance/frustration compared with noisy neighbours.

<sup>52</sup> See Weinhold, D. 2013, "The Happiness-Reducing Costs of Noise Pollution", *Journal of Regional Science*, Volume 53, Issue 2.

<sup>53</sup> Weinhold, D. 2013, "The Happiness-Reducing Costs of Noise Pollution", *Journal of Regional Science*, Volume 53, Issue 2, p. 292.



## C.2 Summary of noise impacts

Although it is not possible to estimate the impact of noise from events on Trust land on the community precisely, it is nevertheless possible to use the information available (including the restrictions set out in the Trust's Noise Management Plan) to develop an upper bound estimate of the potential noise impacts. This upper bound estimate is based on:

- the number of dwellings in the areas most likely to be affected by events in the relevant areas (estimated above)
- annual cost per household estimates are based on:
  - the DEFRA study for the maximum dB(A) levels in the relevant areas specified in the Trust's Noise Management Plan
  - These estimates are then pro-rated based on the maximum frequency of events in the relevant areas allowed under the Trust's Noise Management Plan (since the DEFRA study relates to road traffic noise, this would be more or less continuous in contrast to Trust events which are held relatively infrequently).

Based on these assumptions, the upper bound estimate is around \$710 000 per year (table C.9) or around \$3.1 million in net present value terms over the five year regulatory period (using a discount rate of 7 per cent).

### C.9 Upper bound estimated noise impact on neighbours

	Number of households affected	Maximum frequency	Annual cost based on max dB(A) levels	Pro-rata cost per year	Estimated cost
	No.	No.	\$	\$	\$'000
<b>Fleet steps</b>					
Dance parties	4 540	2	230	1.26	5.7
Open air cinema	4 540	40	230	25.19	114.4
Opera on Sydney Harbour	4 540	31	230	19.52	88.6
<b>Phillip Precinct</b>					
Large festivals/concerts	7 028	12	2 168	71.27	500.9
<b>Total</b>					<b>709.6</b>

Source: CIE estimates.

These upper bound estimates are likely to significantly overstate the actual impacts for the following reasons.

- The estimates assume that all households in the relevant SA1 and in Potts Point and Woollomooloo will be affected. This will significantly overstate the number of household affected.
- These estimates assume that maximum sound limits for monitoring locations will reflect the impact on all households in relevant areas. Many events will have no impact on residents. For example, based on complaints data, the Noise Management Plan suggests that the most affected areas may be only affected a maximum of 3 times per year.

The actual impacts are more likely to be less than half of these upper bound estimates.

## *D Assessment against the licensing framework*

### *D.1 Scope*

Rather than explicitly prohibiting particular activities, the proposed regulations require written consent from the Trust. For most activities covered by the regulations, the Trust does not regularly provide written consent. Where the Trust does not regularly provide written consent, the effect of the regulations is effectively to prohibit those activities.

However, for other activities, the Trust regularly provides written consent. These activities include:

- Personal Training in the Domain
- Weddings
- Wedding photography.

In effect, this is a permit system. While the permit system is not specified in the regulations, the regulations allow the Trust to operate this permitting system. It therefore appears to fall under the broad definition of licensing under Licensing Framework developed by IPART. Under the NSW Guide to Better Regulation, an assessment against the Licensing Framework is required for all regulatory proposals that involve licensing.<sup>54</sup>

### *D.2 Assessment*

Given its prime location and the views of Sydney Harbour, the Harbour Bridge and the Opera House, the Royal Botanic Garden is a popular location for weddings and wedding photos. Similarly, the Domain is likely to be a popular location for Personal Training given the relatively scarcity of green space in the CBD and the large number of workers in close proximity.

At low intensity, these activities would have a relatively small impact on other users. However, at higher intensity, the impact on other users could potentially be significant. A permit system provides a relatively efficient mechanism for the Trust to restrict these activities to minimise the impact on other users.

The permit system effectively uses a price signal to restrict these activities. This approach allows these activities to occur where they have a high value to the participants, but restrict them for those who place a low value.

Furthermore, if not carried out responsibly, personal training could potential increase 'wear and tear' on Trust assets and result in higher maintenance costs. The permit system

---

<sup>54</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 11.

also provides a mechanism to minimise these maintenance costs (through the Code of Conduct) and for those that obtain a commercial benefit from the use Trust land to contribute to these maintenance costs.

### ***D.2.1 Is licensing appropriate?***

Government intervention in relation to the activities covered by permitting schemes on Trust land can be justified on the basis of:

- 1 The costs imposed on other users of Trust land (i.e. externalities); and
- 2 The incentive for commercial users of Trust land to over-use Trust land and to free-ride of the maintenance costs borne by the community (similar to an open access resource).

There are various approaches to restricting (but not prohibiting) activities. Fundamentally, activities can be restricted through:

- a price signal — this is where a price is applied and this reduces the quantity demand
- a quantity-based restriction — this is where a maximum quantity (such as a quota) is set. This can then be allocated through various mechanisms, such as ‘first-in, first served’ or auctioning off the property right, or
- a combination of price and quantity-based restrictions.

The Trust mostly uses a price signal, although in the case of weddings there is also a quantity-based restriction due to the limited number of locations. Where the price is set at an efficient level, this is likely to deliver efficient outcomes; price-based restriction allows these activities to occur where they have a high value to the participants, but restrict them for those who place a relatively low value on these activities (i.e. lower than the price).

Responses to the specific questions outlined in the Licensing Framework under this section are set out in table D.1.

### **D.1 Is licensing appropriate?**

Question	Response
Is there an ongoing need for the government to intervene?	<p>There are several grounds for government intervention in relation to the activities covered by permitting schemes on Trust land.</p> <ol style="list-style-type: none"> <li>1 Some activities negatively affect the enjoyment of other users of Trust land (i.e. generate negative externalities). At low intensity, the activities covered by permitting schemes, these negative impacts may be minimal. However, at high intensity, the impact on other users may be significant. The permit scheme is a way of managing these impacts.</li> <li>2 There are significant costs involved in maintaining Trust land to a high standard. Within the context of free public access, there is scope for some businesses to obtain commercial benefits from Trust land without contributing to these maintenance costs.</li> </ol>
Does something else address the problem?	Generic laws do not allow the Trust to restrict the relevant activities and/or provide a mechanism for commercial users of Trust land to contribute to maintenance.
Is there ongoing need for specific regulation in this area?	Without a permit system, the Trust would be unable to restrict some activities from occurring on Trust land.

Question	Response
Is licensing still required to address policy objectives?	<p>The specific policy objectives of the regulations (including the permitting system) are to allow the Trust to manage Trust land in a way that maximises benefits to the community.</p> <p>As the activities covered by the permitting system may impose costs on other users, there are likely to be benefits from restricting these activities. Some form of permitting system is effectively the only feasible way to:</p> <ul style="list-style-type: none"> <li>▪ restrict these activities; and</li> <li>▪ encourage businesses that receive commercial benefits from Trust land to contribute to their maintenance.</li> </ul>

Source: IPART, *Reforming licensing in NSW: Review of licence rationale and design*, Regulation Review – Final Report, September 2014, p. 43; CIE.

### D.2.2 Is licensing well designed?

The Trust's permit systems are simple and do not appear to place onerous restrictions on applicants. Conduct rules imposed through the Code of Conduct for personal trainers) and the 'terms' for wedding ceremonies generally focus on minimising the impact on other users and minimising damage to Trust assets and are not unnecessarily onerous.

Under the Trust's *Fees and Charges Philosophy*, when dealing with entities that operate in a commercial environment, the Trust will generally seek to price on a commercial basis. This approach is broadly consistent with the Licensing Framework which recommends that fees for 'privilege licences' (i.e. licences that confer a privilege on the licensees) reflect the economic value to licensees created by the scarcity.<sup>55</sup>

As noted above, a price signal is likely to deliver efficient outcomes, *where set at an efficient level*.

- However, if the price is set below the efficient level, there may excessive activity on Trust land, resulting in reduced enjoyment of other users.
- Alternatively, if the price is set above the efficient level, the level of activity would be below the optimal level.

That said, the analysis required to set the price at an economically efficient level would be significant. However, as noted in the Guide to Better Regulation, analysis should be proportional with the impacts.<sup>56</sup> On this basis, the Trust's assessment of the 'commercial price' is reasonable.

Responses to the specific questions outlined in the Licensing Framework under this section are set out in table D.2.

<sup>55</sup> Pwc, *A best practice approach to designing and reviewing licensing schemes — Guidance material*, Prepared for IPART, March 2013, p. 50.

<sup>56</sup> NSW Government, *NSW Guide to Better Regulation*, October 2016, p. 18.

## D.2 Is licensing well designed?

Question	Response
Is the coverage the minimum necessary?	The permitting systems targets specific activities that impact on other users. As such, the permitting system is well-targeted.
Is the duration the maximum possible?	<ul style="list-style-type: none"> <li>▪ Most activities covered by the permitting system are one-off events (such as weddings). Appropriately, the permits are therefore issued on this basis.</li> <li>▪ The only ongoing activity for which permits are issued is for personal training in the Domain. Permits are issued for 6 or 12 months. As the primary purpose of the permit is to limit personal training in the Domain and to require personal trainers operating in the Domain to contribute to maintenance costs, this is broadly appropriate. That said, the Trust could consider offering permits for longer periods.</li> </ul>
Are reporting requirements the minimum necessary?	There are no reporting requirements for permit holders.
Are fees and charges appropriate?	Under the Trust's <i>Fees and Charges Philosophy</i> , when dealing with entities that operate in a commercial environment, the Trust will generally seek to price on a commercial basis.
Are conduct rules the minimum necessary?	<p>The rules for Personal Trainers operating in the Domain are set out in the <i>Personal Trainer Code of Conduct</i> (which forms part of the Trust's personal trainer policy).<sup>a</sup> The Code of Conduct generally focuses on:</p> <ul style="list-style-type: none"> <li>▪ minimising the impact on other users; and</li> <li>▪ minimising damage to Trust assets.</li> </ul> <p>These requirements are no unduly onerous.</p>
Are mandatory attributes the minimum necessary?	<p>The Trust currently requires that personal trainers to:</p> <ul style="list-style-type: none"> <li>▪ demonstrate that they have completed an approved course and are registered with Fitness NSW or other recognised governing body; and</li> <li>▪ hold current first aid qualifications and workers compensation, public liability and professional indemnity insurance.</li> </ul> <p>Although consumer protection is not an objective of the Trust's permitting system for personal trainers, these requirements are consistent with broader regulatory requirements.</p>

<sup>a</sup> See Royal Botanic Gardens and Domain Trust websites, <https://www.rbg Syd.nsw.gov.au/about/business-opportunities/personal-trainers/personal-trainer-policy>, accessed 31 May 2018.

Source: IPART, *Reforming licensing in NSW: Review of licence rationale and design*, Regulation Review – Final Report, September 2014, p. 43, CIE.

### D.2.3 Is licensing administered efficiently?

In general, the Trust's permitting activities are relatively small scale and are a small part of the Trust's overall activities. Given the simple nature of the Trust's permit systems, relatively little administrative effort is required and the Trust performs these tasks efficiently.

### D.3 Is licensing administered effectively/efficiently?

Question	Response
Are registering and licensing activities efficient?	Given the simple nature of these permitting activities, relatively little administrative effort is required and these tasks are performed efficiently.
Are stakeholders well informed?	Information, including permit requirements and fees are available on the Trust's website.
Is collecting information targeted?	Minimal information is collected.
Is receiving and responding to complaints optimal?	Given the small scale of the Trust's permitting activities, complaints are handled as part of the Trust's broader complaints management processes.  There have been few complaints received relating to the Trust's permitting activities.
Is monitoring and enforcing compliance best practice?	Compliance is enforced through Trust rangers.
Is the scheme subject to ongoing review?	The scheme is not subject to ongoing review. However, given the relatively low impact of these activities, a detailed review would not appear to be consistent with the proportionality principle.

Source: IPART, *Reforming licensing in NSW: Review of licence rationale and design*, Regulation Review – Final Report, September 2014, p. 43, CIE.

#### D.2.4 Is the licensing scheme the best response?

The Trust's permitting system is a relatively simple and low-cost approach to:

- restrict activities that impose costs on other users of Trust land, and
- require businesses that receive commercial benefits from the use of Trust land to contribute to maintenance costs.

Although the benefits are difficult to measure, it seems likely that the Trust's permit systems deliver net benefits to the community.

### D.4 Is the licensing scheme the best response?

Question	Response
Does a preliminary assessment suggest licensing will result in a net benefit?	<ul style="list-style-type: none"> <li>■ The costs are likely to be small due to:               <ul style="list-style-type: none"> <li>– the small number of permits; and</li> <li>– the minimal requirements.</li> </ul> </li> <li>■ As the purpose of the permitting system is largely to restrict activities that impose costs on other users of Trust land, the benefits to these users are difficult to measure.</li> </ul>
Are there other alternative options that could deliver policy objectives?	Within the context of free public access, there do not appear to be alternative options for achieving the objectives.
Does a cost-benefit analysis show licensing is the optimal option?	As above, measuring the benefits of the permitting system is relatively difficult and is unlikely to be consistent with the proportionality principle.  That said, given the relatively low costs, it seems likely that the permitting system delivers a net benefit to the community.

Source: IPART, *Reforming licensing in NSW: Review of licence rationale and design*, Regulation Review – Final Report, September 2014, p. 43.





**THE CENTRE FOR INTERNATIONAL ECONOMICS**  
*www.TheCIE.com.au*