



Australian Government

National Capital Authority

BACKGROUND ISSUES

RENEWAL OF KINGS & COMMONWEALTH AVENUES

2013

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1. RENEWAL OF KINGS AND COMMONWEALTH AVENUE

INTRODUCTION

THE NATIONAL CAPITAL AUTHORITY HAS UNDERTAKEN AN INVESTIGATION INTO THE CONDITION OF KINGS AND COMMONWEALTH AVENUES. THIS PAPER HAS BEEN PREPARED TO INFORM THE COMMUNITY OF THE FINDINGS AND PROVIDE A FRAMEWORK FOR THE RENEWAL OF KINGS AND COMMONWEALTH AVENUES. IT IDENTIFIES THE RELEVANT HISTORY AND CURRENT CONDITIONS; CONSIDERS THE AVENUE'S OVERALL CHARACTER AND PROVIDES RECOMMENDATIONS FOR REINSTATEMENT. IT ALSO DISCUSSES THOSE ISSUES THAT WILL IMPACT THE CONDITION AND FUTURE CHARACTER OF THE BOULEVARDS AND HIGHLIGHTS AREAS THAT REQUIRE FURTHER INVESTIGATION.



1.1 THE AVENUES

KINGS AND COMMONWEALTH AVENUES ARE SYMBOLICALLY IMPORTANT ROADS IN CANBERRA. THESE ROADWAYS MAKE UP TWO SIDES OF THE NATIONAL TRIANGLE, AND THEIR ENDPOINTS CONNECT PARLIAMENT HOUSE TO THE DEFENCE PRECINCT AND TO CITY HILL RESPECTIVELY; THEY PROVIDE THE PRIMARY CONNECTIONS BETWEEN NORTH AND SOUTH CANBERRA, AND ARE ENTRYWAYS INTO THE PARLIAMENTARY ZONE.

The Avenues are the point of arrival in Canberra – where dignitaries such as the Queen and Presidents travel to ceremonial events. The Avenues help frame visitors initial and lasting impressions of Canberra, and what it represents.

As such central roads in the National Capital it is important to understand the history of these roads, and use this to plan well for their future character. Any future plan for the Avenues needs to consider the impact of climate change, traffic congestion and the need for Canberra's urban environment to continue to intensify. Addressing these issues is part of ensuring a strong character for the Avenues in the future and maintaining their role as a key structure in the layout of the National Capital.

Each Avenue has similar heritage, landscape, transport and movement issues. Kings and Commonwealth Avenues are therefore largely considered together. Griffin's design concept clearly envisaged the importance of the character and scale of the built form and land uses flanking the Avenues. While this is central to the character of the Avenues this discussion looks only at the road reserve, which is a Designated Area in the National Capital Plan.

1.2__ WHY IS RENEWAL REQUIRED?

Currently the landscape along Kings and Commonwealth Avenues does not fulfil the role of established and landscaped avenues. Overall the character of the landscape is fragmented and its parts are a product of different eras, diminishing the symbolic connections of the endpoints. The initial grand plans of the early designers and horticulturalists can be seen now in the geometry of the roads and in the remnants of planting, but the vision for the Avenues has never been fully realised. While some parts of the Avenues contain substantial canopy trees and enclosure, large sections are dominated by traffic, and have a low quality streetscape, inconsistent with their central position in the city. The Avenues do not promote harmonious, multi-modal movement and accommodation for car movement dominates the road to the detriment of trees, integrated public transport, and space for cyclists and pedestrians. Considered together, the character of the three central Avenues doesn't communicate their important interconnection, and how they make up edges of the National Triangle.

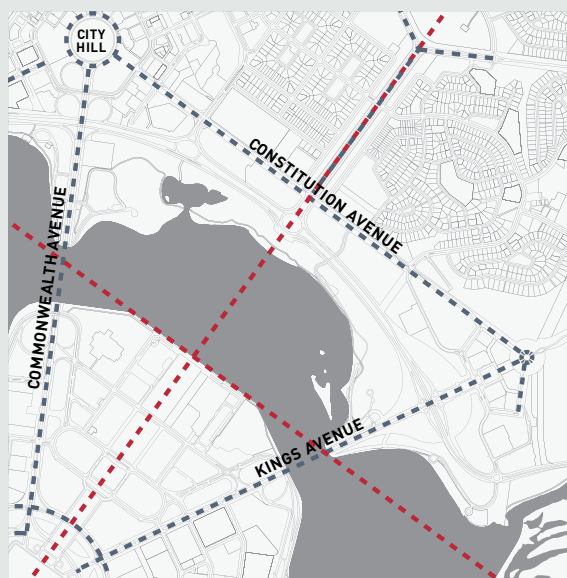


Figure 1: The Study Area - Kings and Commonwealth Avenues

The need for this investigation arises from the following factors:

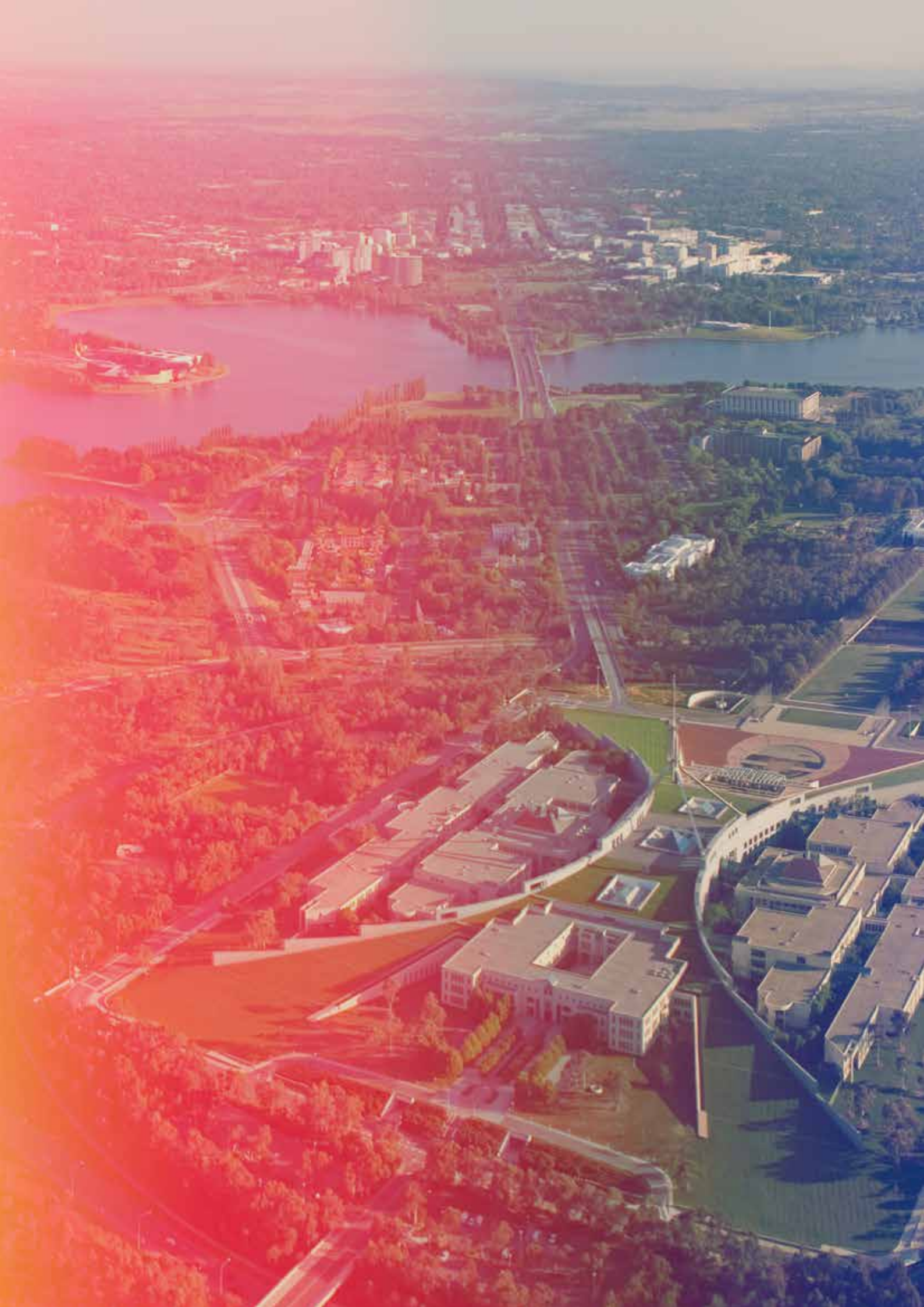
- » The Avenues are a symbolically and historically important part of the Griffin plan. Work on renewing Constitution Avenue is well underway, and this work is the next step in renewing the appropriate character of the National Triangle.
- » The Avenue's role as landscaped corridors has only been partially realised.
- » Many of the street trees are declining, and it's timely to plan for tree renewal.
- » Currently vehicular traffic and its associated infrastructure dominate the character of the Avenues. There is a need to rebalance this so that the Avenues are high quality streetscape environments that are accessible to a wide range of users.

This paper will discuss the issues in relation to the Avenues in four sections as follows:

- » Historic intent and value
- » Current planning policy context
- » Current conditions
- » Future plan and design direction



Figure 2: The National Triangle in relation to the lake topography



2. HISTORIC INTENT AND VALUE

2.1 SYMBOLIC GEOMETRY

KINGS, COMMONWEALTH AND CONSTITUTION AVENUES FORM THE TRIANGLE OF ROADS THAT MAKE UP THE NATIONAL TRIANGLE AND ARE A CORE ELEMENT OF THE GRIFFIN PLAN. THE PLAN WAS MODIFIED OVER TIME BETWEEN 1912 AND 1918, BUT OVERALL THE LAYOUT OF KINGS AND COMMONWEALTH AVENUES REMAINED CONSTANT. THEY CONNECT THE IMPORTANT NODES IN THE CITY OF PARLIAMENT HOUSE, CITY HILL (CIVIC) AND RUSSELL (DEFENCE PRECINCT). THE CHARACTER OF THESE AVENUES PLAYS A KEY ROLE IN COMMUNICATING THE SYMBOLIC IMPORTANCE OF THE NATIONAL CAPITAL.

Central Canberra was designed as a city of boulevards. These are Griffin's main avenues, which provide the principal organising framework – the backbone of the city plan today. They are among the most memorable parts of Central Canberra because of the combination of their major traffic role with a grand and highly formalised design that visually connects the city to its natural setting and to its national buildings and monuments.

(Griffin Legacy)

The plan adjacent was part of Griffin's submission for the Federal Capital Design Competition. The red lines show the principal structural axes on which the design is based. This plan shows that the triangle is the structural core around which the axes are arranged and is fundamental to how the layout of the city is understood.

2.2__GEOMETRY AND TOPOGRAPHY

Canberra's engagement with its natural setting has been part of its history from the early days of planning the Federal Capital. The brief to the surveyor general for the selection of the site for Canberra requested that the site should be *'...for a beautiful city, occupying a commanding position, with extensive views, and embracing distinctive features which will lend themselves to the evolution of a design worthy of the object, not only for the present, but for all time...'* (p6) Further in the Federal Capital Design Competition brief (1911) it states that the future city will be:

...the permanent seat of government of the Commonwealth of Australia, the place in which the federal parliament will meet, where all commonwealth legislation will be enacted and where the Governor General will have his official residence. The city will, therefore, be primarily the official and social centre of Australia.

It is no co-incidence then that the geometry and layout of the Griffin plan engaged with the existing natural features of the topography, and used them to enhance the symbolic layout of the city. The axes shown on the plan above drew on the local high points for their terminus – using Mount Ainslie, Black Mountain and Mount Pleasant as an organising framework.



Figure 3: Plan of City and Environs 1911 – Griffin competition entry

The competition brief also asks for:

The contour of the surface and the panoramic value of the city surroundings should influence the designing of the main avenues, the principal means of intercommunication, and the location of the park lands, together with the adornment of the whole.

Kings and Commonwealth Avenues terminate at City Hill, Camp Hill and Mount Pleasant. These natural features have evolved to accommodate meaningful city structures including Parliament House and the Defence Precinct. The natural features and end points to the Avenues are important because they:

afford objective points of prospect to terminate great garden and water vistas, with conspicuous positions for future commemorative monuments and conversely offer points of outlook over the city arranged in an orderly way in reference to them (quoted in the Griffin Legacy 2004).

The way in which the natural topographical features were used is clearly illustrated in a design study carried out in 1995 shown in figures 4 and 5.

2.3__DESIGN INTENT

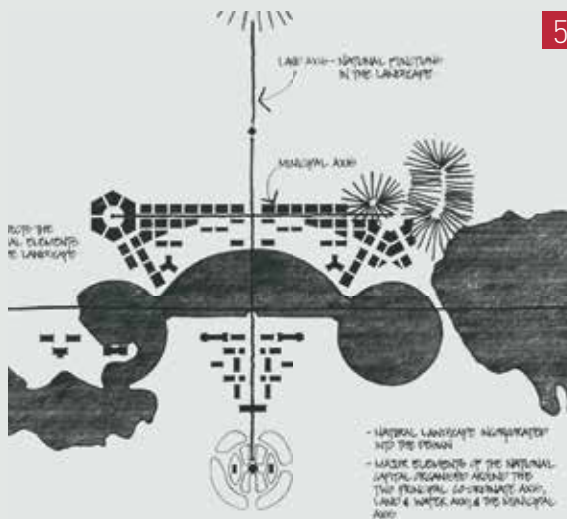
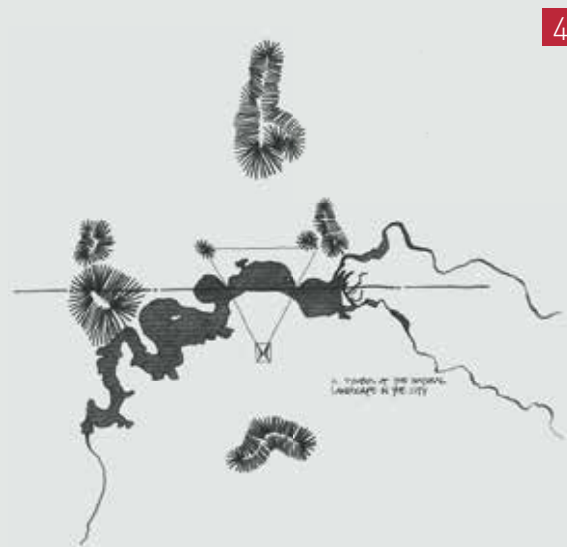
An important part of the future plans for Kings and Commonwealth Avenues is a clear understanding of the original design intent, and how this has changed over time. The core question that this section seeks to answer is: *What was the intended Avenue character and how did it evolve?*

The Griffin Legacy describes Griffin's intent for the 'Main Avenues' as:

Elegant tree lined thoroughfares lined with prestigious architecture [which] would provide direct access between the principal destinations of the city. The greatest intensity of activity and mix of land uses (including the main retail strips) occurs on these main avenues. At the hubs where the spokes of radiating avenues converge, are business centres...¹

The original expression of Griffin's intent for Canberra and the Avenues is recorded in the report accompanying the competition submission called the 'Report Explanatory'. Broadly the design intent for Kings and Commonwealth Avenue was to create direct connection between the 'three business centres' and providing a 'framework' that maintained the 'final scale of a capital city from the outset'. This included a concept of the important role of the 'Main Avenues'. Griffin describes:

The basic circulation system comprises the triangle connecting simultaneously the three business centres of Government activity (Government, University, Military) and the two urban centres of local business (Administration and Merchandising).



Figures 4 and 5: Central National Area Design Study NCA 1995 showing the topography and the relationship to the National Triangle

1 NCA (2004) p.72, The Griffin Legacy.

The Avenues are further described as:

Never less than triple roadways can be considered sufficient to handle avenue traffic ultimately, with tramways fast and slow vehicles in both directions...

He highlighted the important multiple roles of trees in softening the expanse of roadways:

The street area if reduced to three roadways, is a desert, dangerous and unpleasant to traverse, so in a sunny country of stately open-branched broad-leaf evergreen avenue trees, additional space is required for a final arboreal accompaniment of a least quadruple rows and supplemental shrubbery parkways for shade and shelter, wind and dust arresting. From considerations also of architectural setting, ventilation, fire stop, command of crossings and the eventual rapid transit, a uniform width of 200 feet [60m] is required. (Griffin p15 Report Explanatory)

The detailed design of the Avenues was not part of the scale of the design competition. Paul Reid in his book Canberra following Griffin states 'Although Griffin's 1912 competition plan was closely shaped to the topography of the Molonglo Valley he made no detailed landscape proposals either in the drawings or the report.

2.4__ GRIFFIN AND WESTON 1920s

The activity that followed the design competition saw translation of the grand plan into a design on the ground. There were two main periods of activity and influence that produced the avenues inherited today and these are further discussed below. These eras and their influences were:

- » 1913 - 1927 – Griffin and Weston
- » 1960s – National Capital Development Commission (NCDC)

These periods of activity broadly reflect when development was possible in the times, around the two world wars, and the depression.

During the first period around 1920, two individuals were mainly responsible for the design direction and implementation of landscape works respectively: Walter Burley Griffin was the Federal Capital, Director of Design and Construction until 1920; and Thomas Weston was made Officer in Charge, Afforestation, Canberra, in 1913 and held the position until 1927.² This included his time from 1921 when he took over part of Griffin's former role and was concurrently Director of City Planting.³ Weston proved to be as industrious and prolific as he was meticulous and much of Weston's contribution to the landscape of Kings and Commonwealth Avenues remains today.

Weston and Griffin worked together in the period 1913-1920. Some correspondence between Griffin and Weston is documented in the *Instructions received by T C G Weston from Director of Design and Construction (W.B.Griffin)*. In this the industrious planning for the landscaping of the National Capital is recorded in detailed notes that chronicle the procurement, selection and testing of plant species.

Weston is often credited as the master forester that implemented Griffin's grand vision. While the partnership was reportedly not always smooth, it provided the necessary skills to landscape the capital, including strategic vision and principles as well as on the ground endeavour, firmly backed by horticultural excellence.

2 Coleheart, Lenore, Nursery Tales for a garden City, the historical context of the records at Canberra's Yarrlumla Nursery, (2011) The Australian Garden and History Society.

3 Gray, J E, T.C.G Weston (1866-1935) Horticulturalist and Aboriculturalist, A critical review of his contribution to the establishment of the landscape foundations of the Australian National Capital, (July 1999). Thesis submitted for the Doctorate of Environmental Designs of the University of Canberra.

2.5__INDIGENOUS OR EXOTIC TREES?

The Griffins were clearly enamoured with the Australian landscape, and this was evidenced by prolific seed collection and investigations into native Australian flora during their time in Australia. Developments such as Newman College in Melbourne, where the Griffin's landscape plan was dominated by Eucalyptus species, evidence this interest, as does Marion's documentation of native flora. Species selection was not a part of the competition submission; however the Griffin's appreciation of the Australian landscape later informed a conviction regarding the value of Eucalyptus species and native flora generally. Walter Burley Griffin made the following statement in a radio interview shortly after his arrival in Australia:

*No tree equals the eucalyptus for embellishing the landscape....planting of foreign trees in place of the indigenous eucalypt is, to my way of thinking, a great mistake.*⁴

The 1919 Civic Centre Tree Planting Plan signed by Griffin shows species selection for Commonwealth Avenue that includes *Eucalyptus rubida* (Candlebark) in the median and the native along the verges. Griffin was also criticised for his sometimes unscientific pursuit of particular species, such as the poorly performing plantings of Californian redwoods in Pialligo.

2.6__SPECIES AND HORTICULTURAL PRACTICE

Weston sought out plants that would thrive in the harsh local conditions and also provide wind and dust breaks. He propagated and planted over a million trees in Canberra and has been credited with creating the foundation for much of the landscape setting that Canberra is famous for today.

The width of the central medians in Commonwealth and Kings Avenues (approx. 12m) were a generous planting environment and also made it possible to plant layers of trees that more effectively

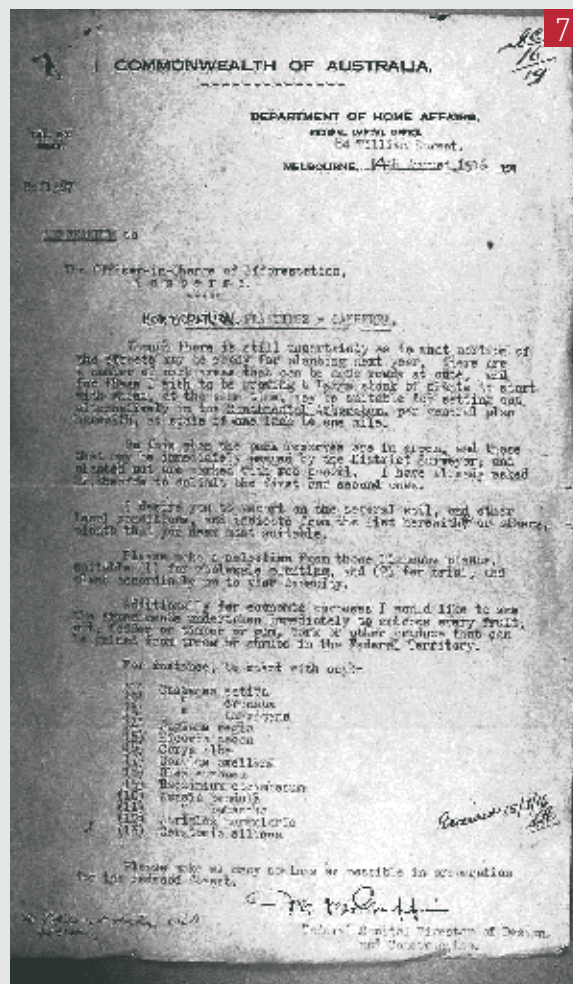
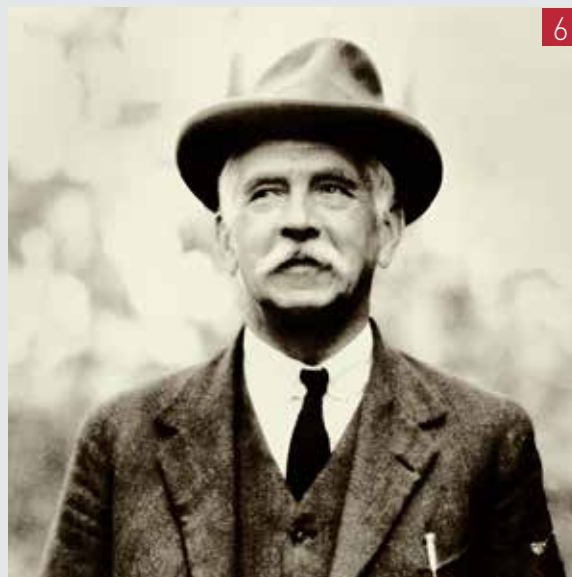


Figure 6: TCG Weston

Figure 7: Excerpt from correspondence between Walter Burley Griffin and TCG Weston.

4 Exhibition 'The dream of a century' National Library of Australia (2013)



Figure 8: Walter Burley Griffin and Marion Mahony Griffin

mitigated wind and dust than a single row. Weston was renowned for his planting preparation. Early photos of Commonwealth Avenue show that there was extensive soil preparation, even in some circumstances using explosives to break up the soil.

Weston had a liberal approach to species selection neither favouring introduced or indigenous trees, nor exclusively evergreen or deciduous. He discouraged the slavish use of European trees and had a preference for trees appropriate to the local conditions and a balance of deciduous and evergreen species. In John Gray's thesis on Weston, he quotes Weston's view of *Cedrus* sp. (p74)

In my opinion the three cedars Cedrus : deodara, cedrus atlantica, and libani, will, if planted as they should be in enormous quantities, form the chief arboreal feature of Canberra. They are all notoriously long lived and almost alike indifferent to extremes of drought and cold. (p81)

For Commonwealth and Kings Avenues, this choice was defining and *Cupressus* and *Cedrus* species were then the bulk of species selected. The advanced cedars now frame many streets across central Canberra.

The species used in the Avenues on the south side were:

- » *Cedrus atlantica* (Atlantic cedar)
- » *Cedrus deodara* (Deodar cedar)
- » *Ulmus carpinifolia* (Smooth leaf elm)
- » *Ulmus parvifolia* (Chinese elm)

On the north side of Commonwealth Avenue *Cupressus sempervirens* (Italian cedar) were planted but it is unclear if this was at the same time as the planting south of the lake.

2.7__DESIGN DETAILS

There is little detailed documentation of the intended character of the Avenues, such as would be expected from a design and construction process now. However, road types were differentiated from each other by their spatial allocation and from this the importance of the 'Main Avenues' is clear. This is shown in the 1917 section 'Canberra – Typical Highways' which illustrates the different treatments for various streets. Section AA for '200' [60m] *Highways Commonwealth and Federal [Kings] Avenue's* shows 50' (equivalent to 15.25 metres) allocated to 'park and pathway' along the edge of Kings and Commonwealth Avenues. This is proportionally more than all other streets identified, reinforcing the importance of the Avenues. It also shows space for planting within the central median, alongside a tramway and a generous public space apron within the verges.

A slightly later plan of Civic in 1919 shows the northern end of Commonwealth Avenue that is largely consistent with the section above. This plan, signed by Griffin, shows four rows of trees, with a single row in the verge and a double row in the median. The species shown on Commonwealth Avenue in this plan are natives, which were never implemented in this way.

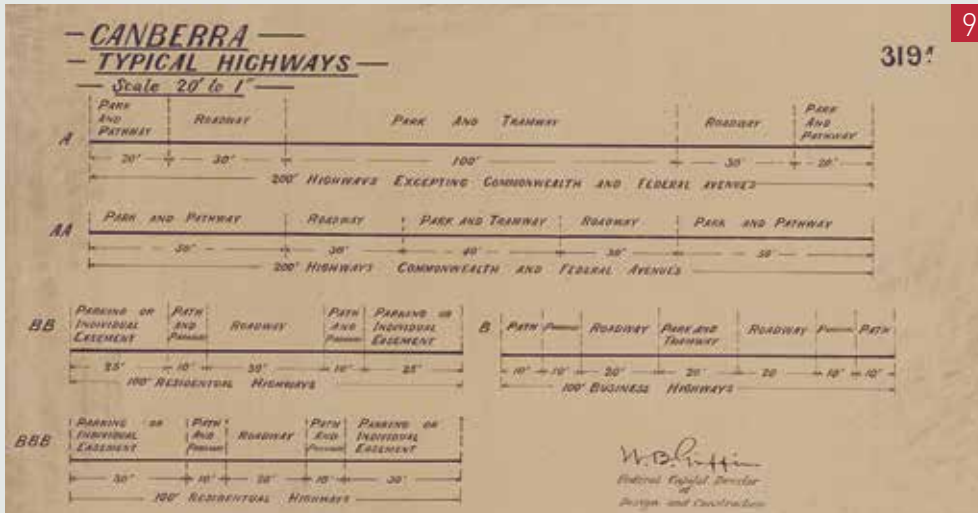
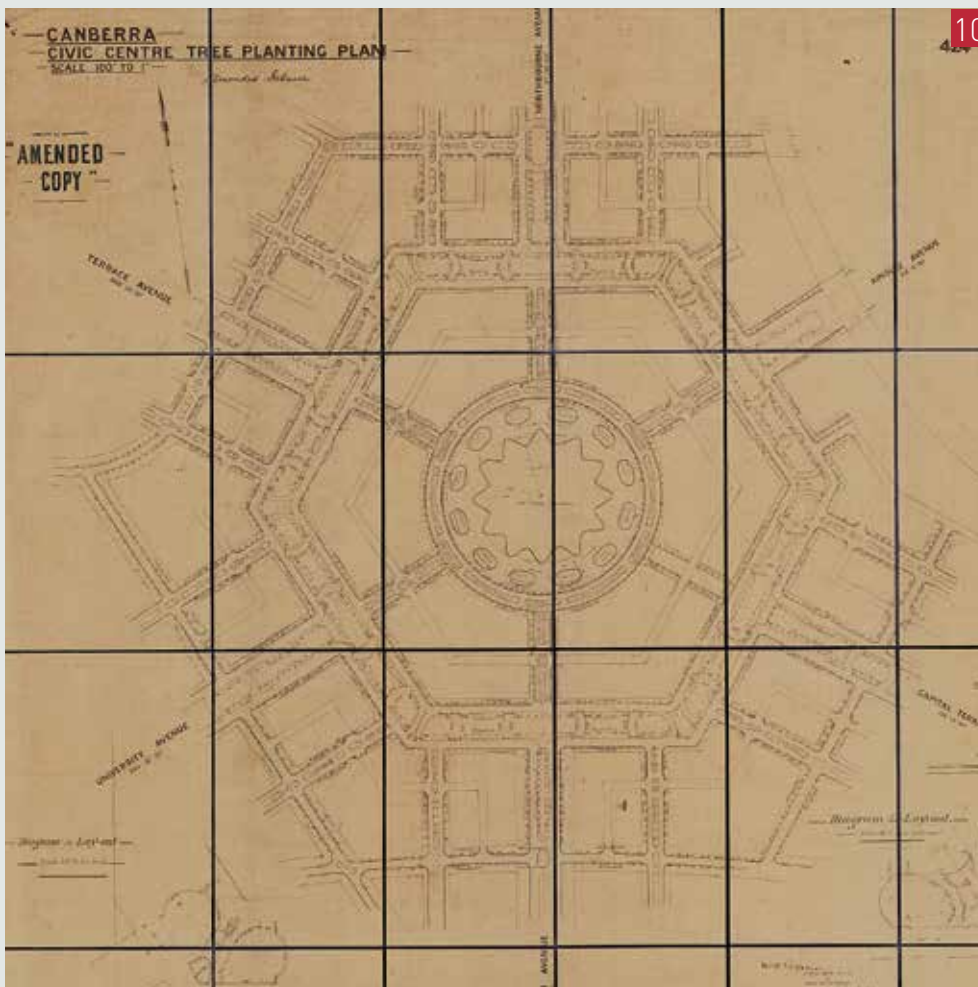


Figure 9: Canberra Typical Highways - section AA

Figure 10: Planting Plan for Civic 1919 showing the northern most end of Commonwealth Avenue



Weston is credited with creating the planting pattern in Kings and Commonwealth Avenues which remains today in the southern sections. The pattern of planting followed specific format that allowed a line of central trees, with staggered plantings within the gaps: as shown in figure 11 overleaf.

Symmetry of plant species along either side of streets was an important design approach in suburban areas and across the city.⁵

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Coleheart, Lenore, p 29. Nursery Tales for a Garden City Dec 2011

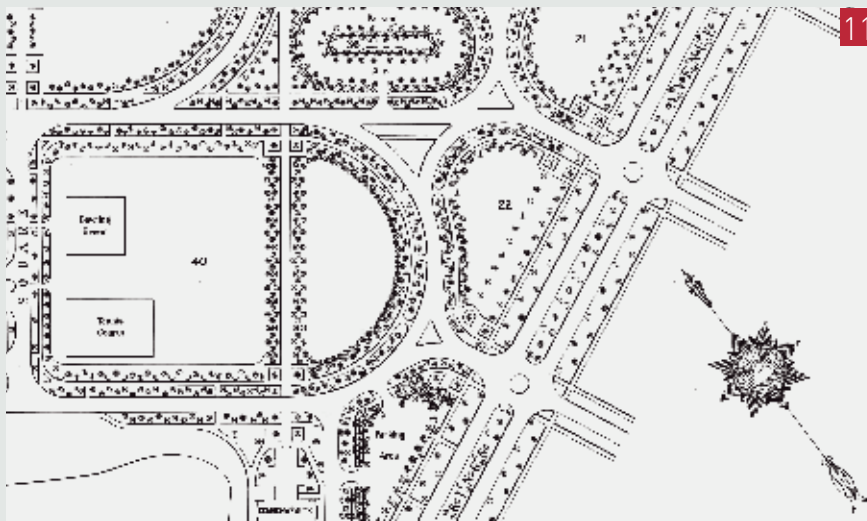


Figure 11: Permanent Planting Plan 1928 showing the Weston planting pattern in the median 2/1/2, and staggered verge planting

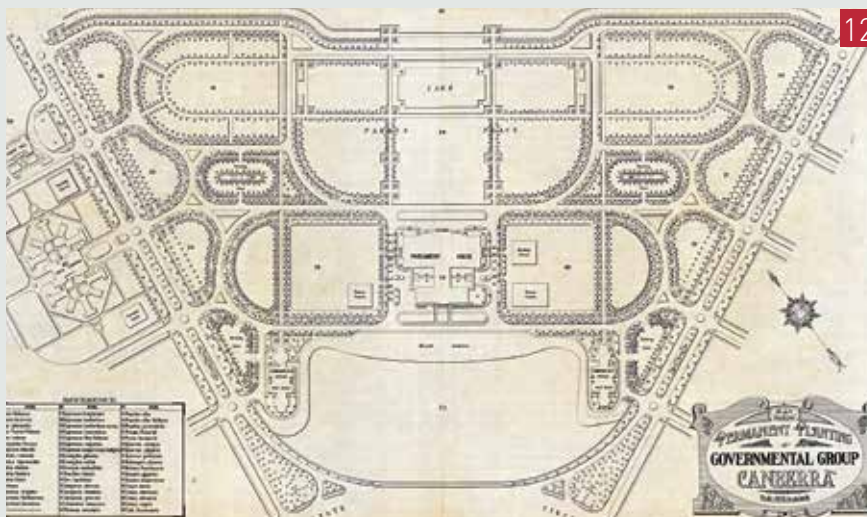


Figure 12: Plan for Permanent Planting around Parliament House between Commonwealth Avenue and Kings Avenue

*In addressing design issues he [Weston] called for adoption of the principle of ... one avenue one kind of tree ..., for ... a magnificent display of blossom in the spring ... on boulevards, and for ... clumps of trees and shelterbelts from the west and south.*⁶

Weston's planting plan published in 1928, in addition to photos, shows the layout of planting for the southern sections of Kings and Commonwealth Avenues. This shows the 2/1/2 pattern pictured above, alternating *Cedrus* species. *Ulmus parvifolia* (Chinese Elm), and *U. carpinifolia* (Smooth leafed Elm) are planted along the edges. Weston's plan also used a number of different species in the verge plantings, and staggered their positions, which enabled a greater density of trees.

Early photos/records suggest that the landscape planting in this period was frenetic, and tree planting often preceded formal roadway construction. Planting of the key avenues was reportedly complete by 1928. A succession of city managers followed Griffin and Weston, but the foundations for the character of the Avenues were set but this duo.



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Figure 13: NCDC Plan - Canberra the Central Area, 1973, showing cloverleaf exit/entry ramps and Parkes Way

2.8__1960s – NATIONAL CAPITAL DEVELOPMENT COMMISSION (NCDC)

The second phase of development that is in evidence in the Avenues is characterised as the National Capital Development Commission (NCDC) period.

The NCDC was established in 1957 with a mandate to develop and construct Canberra as the National Capital. During this period the NCDC planned and stimulated substantial growth, with an explicit strategy to expand Canberra's population.

Development in this period saw a succession of changes that gave Kings and Commonwealth Avenues a more dominant roadway character. This included the construction of the bridges that remain today, modifications to the carriageway, cloverleaf entry and exit ramp construction and the associated removal of many trees.

The Molonglo River was dammed in 1963 to make Lake Burley Griffin, which filled by 1964. Kings Avenue Bridge was opened in 1962 and in 1963 the current Commonwealth Avenue Bridge was completed. While there had been a succession of bridges before these, the construction of the lake and the finished bridges brought a new sense of connection between north and south Canberra and it also provided a much improved sense of the end to end connections of the Avenues.

Species change

The bridge's construction and roadway regrading resulted in tree removals on the northern side of the lake. The *Cupressus sempervirens* (Roman cypress) that had been planted by Weston by 1928 were removed and replaced with *Ulmus procera* (English Elm). The *Ulmus* species were planted in multiple rows on the sides of Commonwealth Avenue.

Ulmus procera was also used to replace *Ulmus parvifolia* (Chinese Elm) along the edge of the Avenues south of the lake. This reflects Lindsay Pryor's influence after the Second World War, in



Figure 14: Commonwealth Avenue today - established plantings on north side

thinning shrubbery planted by Weston in the approaches to the bridges. Lindsay Pryor (superintendent from 1944-58) also fuelled the debate about native vs indigenous species. Pryor believed that the main avenues should '*be marked with evergreen trees, and..principally Eucalyptus should be used*⁷, Autumn foliage or striking flowering trees should also be used.

In preparation for the construction of Kings Avenue Bridge many earlier plantings were removed.

Other species planted alongside the north side of Kings Avenue in this period included:

- » *Cupressus sempivierens* (Italian cypress)
- » *Pinus radiata* (Monterey pine)
- » *Robinia pseudoacacia* (Black locust)

2.8.1__Endpoints and Buildings

In 1957 the Australian American memorial was completed forming a striking endpoint to Kings Avenue. The eagle and sphere atop the column stands an imposing 73 metres in the forecourt of the Defence Offices at Field Marshal Sir Thomas Blamey Square, Russell. The construction of this monument is further re-enforcement of the role of Canberra in embodying important stories about the nation in its

layout and features.

The John Gorton Building was completed in 1958, consistent with the original 1924 plan and was the first permanent building in the Parliamentary Zone. Subsequent buildings constructed in this period, created landmarks which included the National Gallery of Australia in 1967 and the National Library of Australia in 1968. Largely the Avenues have had an edge unframed by buildings except for those stand-alone buildings like the Canberra Hotel.

Parkes Way was proposed as a solution to efficient movement for the increased population in 1967. The construction of Parkes Way and the cloverleaf connections from the Avenues to surrounding streets further fragmented the Avenues and limited the available land for tree planting.

7 Taylor, Ken p 85, (2006) Canberra City in the Landscape. Halstead Press.



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Figure 15: Australian American Memorial

Figure 16: Parkes Way



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Figure 17: Commonwealth Avenue approach, date unknown but pre 1960

Figure 18: Commonwealth Avenue (North Side) 1946 showing Roman Cypress

Figure 19: Parliament House, view from "land axis"

Other changes within this era marked a period where the character of the Avenues changed to expressways, with their landscape fragmented, and the investment of the original plantings short-circuited.

1980s onwards

Later, a number of other developments influenced the character of the Avenues providing improved endpoints but also with associated road construction that eroded the intended character of the Avenues.

Mitchell/Giurgola/Thorp Architects won the design competition for the new Parliament House and in 1988 the new building was opened. The construction of the new Parliament House provided a striking end point to both Kings and Commonwealth Avenues. In particular the building provided a landmark topped by an 81 metre

flagpole visible from an expansive area around Canberra. Access ramps to the elevated building and the resulting construction of an extension to Commonwealth Avenue decreased the planting area available on Commonwealth Avenue. Native planting dominated by Eucalyptus species characterised the landscaping around Parliament house and these plantings remain today.

Later governance changes modified the responsibility for design and maintenance of the Avenues. In 1988 the ACT changed to self-government and acquired responsibility for managing the Avenues from the NCDC. This land was returned to NCA control in 2007. A flagpole was erected on City Hill in 1989 to mark this change, providing a further identifiable landmark, see figure 21.

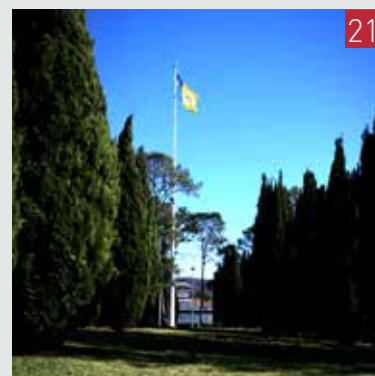
More recently traffic related changes have continued to modify



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the character of the roadways. Ramps streamlining vehicle's entryway onto Commonwealth Avenue from London Circuit continue the 'expressway' not 'boulevard' feel of the northern section of Commonwealth Avenue.

Kings Avenue overpass, at the intersection of Parkes Way was remodelled and opened in 2011. Already high traffic volumes in addition to anticipated traffic increases from new development were the catalyst to build the overpass. This bridge separates Kings Avenue from Parkes Way, replacing a roundabout and creating pedestrian crossings above Parkes Way, connecting to the Russell Defence precinct.

This work required the removal of *Eucalyptus biocostata* (Tasmanian Blue Gum) at the intersection of Parkes Way and Kings Avenue which had been planted in the 1960s. New tree planting along this section of Kings Avenue was carried out using *Ulmus procera* (English Elm).

Subsequent influential city/landscape managers continued to affect the character of the Avenues but none so profoundly as Griffin and Weston. Largely the need for the Avenues to be formal in character has continued across eras, but the overall aspirations and initial planning has been eroded by traffic planning over time.

Figure 20: Commonwealth Avenue Bridge and Cloverleaf Entry Ramps 1965 and the lake filled

Figure 21: City Hill flag pole

Figure 22: Kings Avenue - Bridge complete and Australian American Monument constructed – *Eucalyptus* plantings in Kings Park in the middle ground



3. CURRENT PLANNING POLICY CONTEXT

‘THE PLANNING AND DEVELOPMENT OF THE NATIONAL CAPITAL WILL SEEK TO RESPECT AND ENHANCE THE MAIN PRINCIPLES OF WALTER BURLEY GRIFFIN’S FORMALLY ADOPTED PLAN FOR CANBERRA.’



3.1 PLANNING POLICY

A number of policies have relevance for the intended character of the Avenues. These are described briefly below.

3.1.1__The National Capital Plan

The National Capital Plan (the Plan) (gazetted in 1990) is the primary policy relevant to Kings and Commonwealth Avenues. The Plan is currently under review. The Plan defines Commonwealth and Kings Avenues as Main Avenues. It outlines the requirements that the avenues be: 'high quality landscaped corridors' where an 'established design theme of irrigated grass verges and medians and formal tree plantings will be maintained'. Section one of the Principles, Policies and Standards under 'The Parliamentary Zone and its setting' states:

The planning and development of the National Capital will seek to respect and enhance the main principles of Walter Burley Griffin's formally adopted plan for Canberra.

Griffin's formally adopted plan for Canberra still guides strategic planning projects within and around the National Triangle. The main principles of the plan include: 'A geometric plan with the central triangle formed by grand avenues terminating at Capital Hill, the symbolic centre of the nation.'

The Plan sets out a number of general policies. Section two of the Plan sets out policies in relation to maintaining the significance and formality of the Main Avenues and approach routes. Of relevance to Kings and Commonwealth Avenues are the following policies:

- » building up expectations by progressively formalising the design character as travellers approach the Central National Area
- » enhancing views to recognisable and popular images of the National Capital so as to further build expectation and define the approach

3.1.2__The Griffin Legacy

The Griffin Legacy project (2004) renewed the direction of the original plan, while incorporating a future vision for Canberra in the 21st Century.

The Griffin Legacy was incorporated into the National Capital Plan. In addition to generally conserving important elements of the Griffin plan, the following were the specific objectives set out in relation to avenues. It is described in the Plan as follows:

The Griffin Legacy is a blueprint for Canberra and the Territory. The Griffin Legacy directs future public and private investment in core areas of the capital where opportunities are created for vibrant, mixed use precincts alongside cultural institutions, government buildings and major national attractions. It restores the intended urbanity and vitality of Canberra as a cosmopolitan lakeside city.

Point six of the plan is part of a number of policies derived from the Griffin Legacy and is particularly relevant to Kings and Commonwealth Avenues. The Avenues should be reinforced by:

- a. realising the identified main avenues of Constitution, Northbourne, Commonwealth, Kings, University, Sydney, Brisbane, and part of Canberra and Wentworth Avenues as multi-use boulevards providing corridors of higher-density mixed-use development, public transport, broad tree-lined footpaths with potential for outdoor dining and street parking.
- b. preventing the Central National Area from being overwhelmed by through traffic.
- c. providing a flexible, efficient and sustainable public transport and pedestrian and bicycle systems that reduce car dependency.
- d. developing a sufficient density and mix of land uses to support public transport.
- e. improving the urban design and streetscape qualities of the main avenues as approaches to the Central National Area.
- f. maintaining the ease and comfort of movement around the city to cater for a diversity of pedestrian, cycle, vehicular and public transport modes.
- g. providing streets with a quality architecture and landscape character that fosters a compact, connective and pedestrian-friendly environment for central city living.
- h. reducing the barriers of major roads to make it

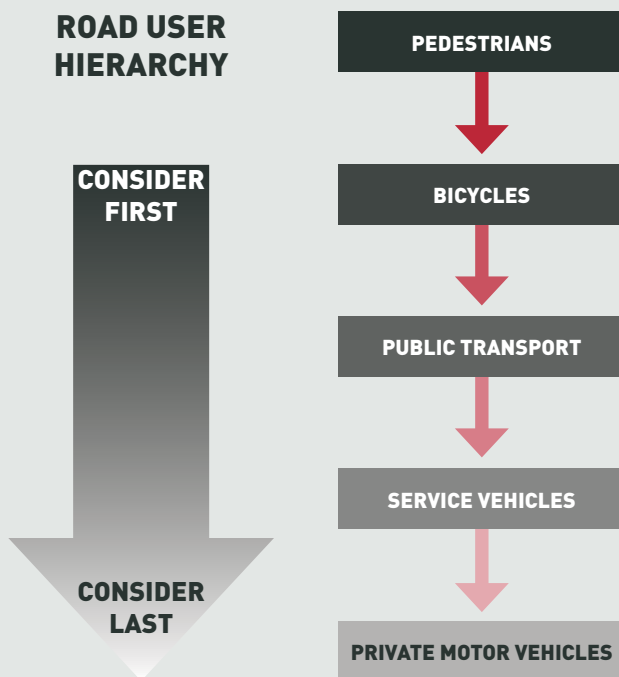
easier for people to access the public spaces of the city, particularly in the Central National Area.

There are also a number of National Capital Authority reference documents that provide guidance on design quality. These are:

- » The Outdoor Lighting Policy
- » The Design Quality Manual – Principles for Architecture, Landscape and Urban Design within Canberra’s Central National Area

Also relevant, although site specific, is the *Constitution Avenue Public Realm Handbook* which sets out a design framework for streetscape elements on Constitution Avenue. Importantly the principles outlined at the start of the document apply equally to Commonwealth and Kings Avenues. These are:

- » Transform the link into a destination
- » Create a street for people
- » Foster distinctiveness
- » Create diversity
- » Environmental integration
- » Unify the street



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Figure 23 Urban Design Protocol - Road User Hierarchy

3.2__AUSTRALIAN GOVERNMENT POLICY

Recent Australian Government initiatives have seen renewed emphasis on overarching principles related to the health and wellbeing benefits of the effective design of the built environment, the need to adapt to climate change and the promotion of more compact and sustainable cities. The national urban design protocol released in 2011, identifies the user hierarchy that prioritises pedestrian movement over other users (figure 23). The NCA is a champion of this protocol. The implication for Kings and Commonwealth Avenue is that the planning principles dictate that the layout and design should better accommodate walking, cycling and public transport.

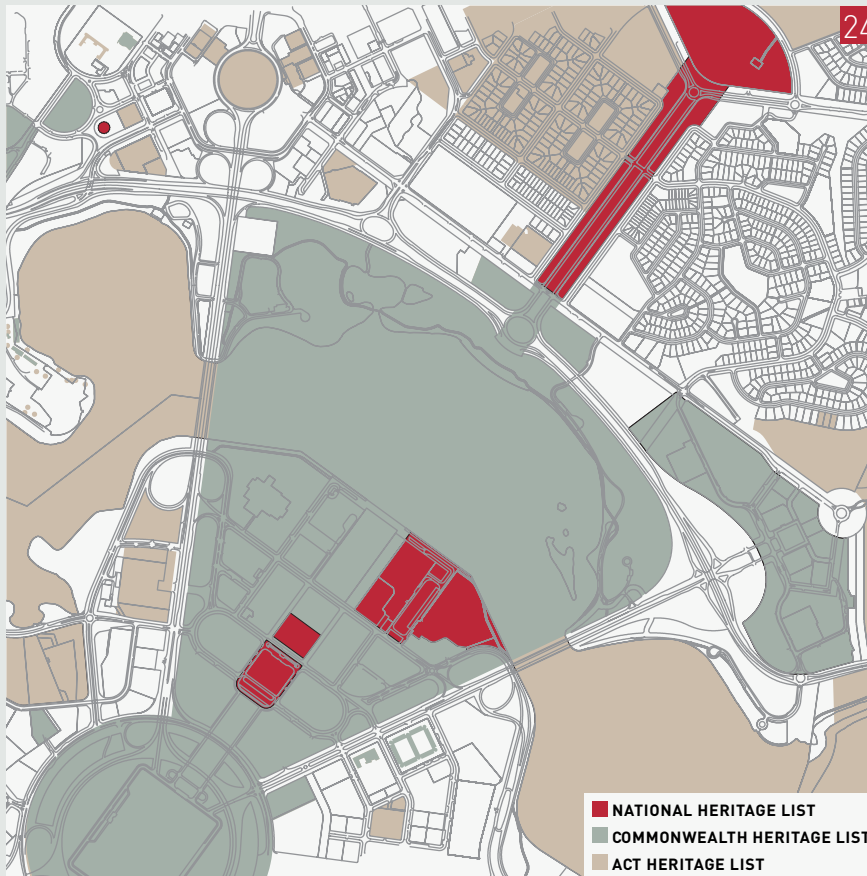


Figure 24: Heritage Policy Areas

3.3__HERITAGE POLICY

Kings and Commonwealth Avenues are important because they are integral elements of the original Griffin plan. The Avenues are identified as having heritage significance because they are:

- » a significant part of Canberra's and Australia's planning history and development
- » representative of a distinctive aesthetic in the Kings and Commonwealth Avenue Bridges
- » representative of the landscape design of the entire city
- » evidence of an unusual process of a planned city
- » part of a period of planning development in Australia

Legislative protection of these heritage values are provided under:

1. The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which defines relevant provisions relating to heritage places generally and especially those relating to places on the Commonwealth Heritage List. Kings and Commonwealth Avenues are not currently on the list but are under review. The Avenues have clear heritage significance locally and beyond and as such in the context of this investigation should be treated as listed, pending official recognition; and
2. The *ACT (Planning and Land Management) Act 1988*, which defines the term Designated Areas. These areas have special significance in relation to the National Capital, and the NCA has responsibility to 'prepare and administer the National Capital Plan' in Designated Areas and across the Territory. The object of the plan is to 'ensure that Canberra and the Territory are planned and developed in accordance with their national significance.'

The Lake Burley Griffin and Adjacent Lands Heritage Management Plan (HMP) includes an assessment of the national heritage values of the study area. Kings and Commonwealth Avenues overlap this area and are in close proximity to it, and the recommendations of the report are relevant. Kings and Commonwealth Avenue bridges are identified as having Commonwealth heritage value in this HMP.

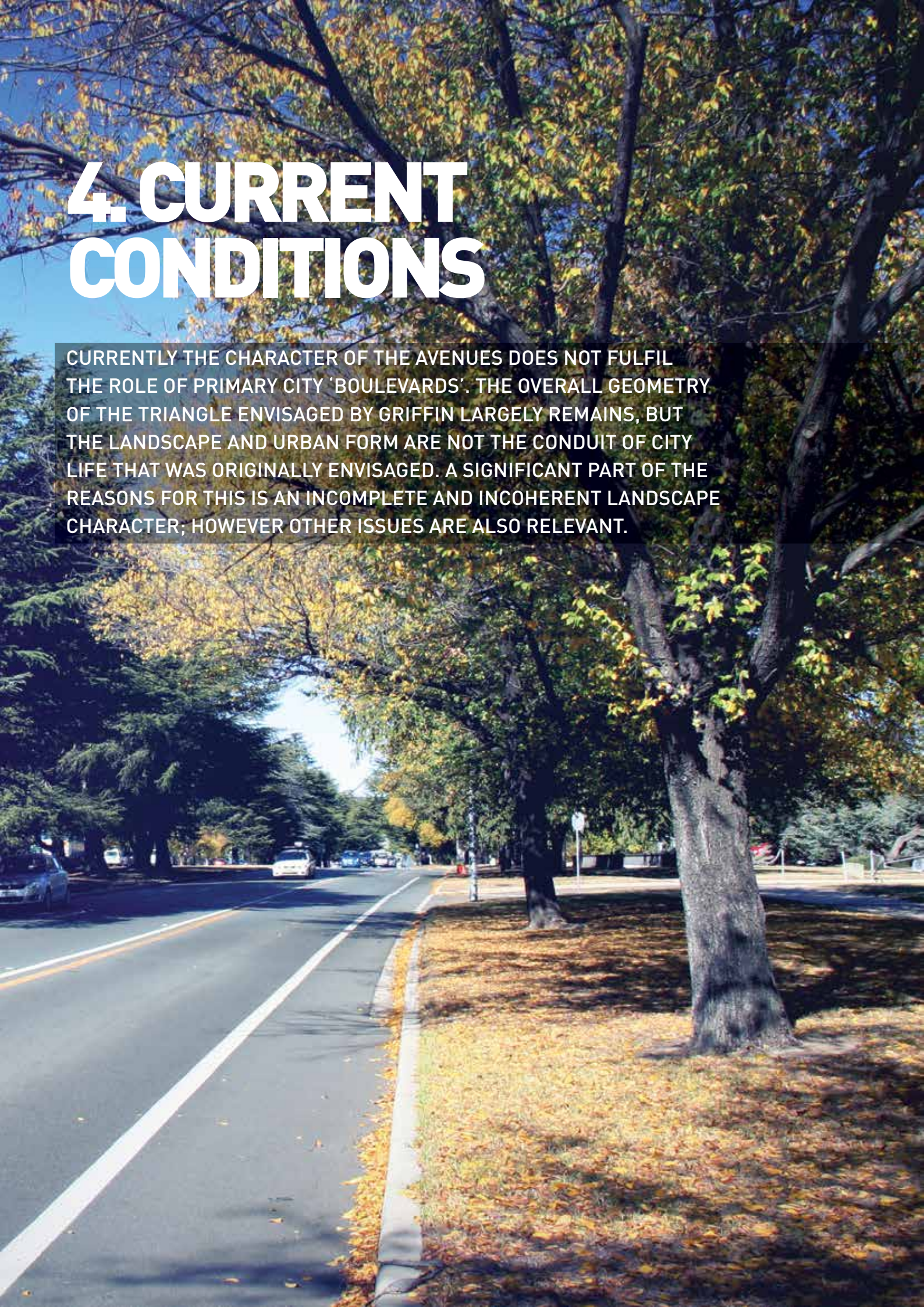
Similarly the Parliament House Vista Area Heritage Management Plan provides relevant background and considerations on land adjacent to the Avenues.

The Draft Commonwealth Heritage Assessments for Certain Roads on National Land in Central Canberra 2013 identifies the heritage value of the Avenues as having national significance. (Marshall et al 2013).



4. CURRENT CONDITIONS

CURRENTLY THE CHARACTER OF THE AVENUES DOES NOT FULFIL THE ROLE OF PRIMARY CITY 'BOULEVARDS'. THE OVERALL GEOMETRY OF THE TRIANGLE ENVISAGED BY GRIFFIN LARGELY REMAINS, BUT THE LANDSCAPE AND URBAN FORM ARE NOT THE CONDUIT OF CITY LIFE THAT WAS ORIGINALLY ENVISAGED. A SIGNIFICANT PART OF THE REASONS FOR THIS IS AN INCOMPLETE AND INCOHERENT LANDSCAPE CHARACTER; HOWEVER OTHER ISSUES ARE ALSO RELEVANT.



Broadly the Avenues need renewal because of the:

- » Lack of consistency of character
- » Separation between the character of the north side and the south side of the lake
- » Traffic domination and lack of facility for pedestrians and cyclist
- » Fragmented built edge
- » Low quality urban environment

The issues with the design of the Avenues are identified in more detail below. Importantly this section identifies those valuable features of the Avenues that are and should be considered part of their character, and those areas that need to change to achieve higher quality urban avenues.

The core question that this section seeks to address is: *What are the existing conditions and is this desirable?*

What is clear is that these are the most central streets in the capital of Australia and they should therefore communicate this in their configuration and quality. Currently this is not the case.

The following is a table of the typical features of main city avenues often characterised as boulevards. This is a checklist for considering the primary deficiencies of the Avenues and these have been broadly recorded here.

Typically avenues have the following features with in the road reserve:

Boulevards can be curving or straight, but their geometry is often grand.	Consistent.
Many have symbolic endpoints or striking views that are framed or oblique.	Consistent. Kings Avenue's endpoints are Parliament House and the Australian American monument. Commonwealth Avenue's endpoints are City Hill, views to the Brindabella mountains, and Parliament House. Both Avenues have striking views to a range of landmarks and across the lake.
They typically have a grassed or paved median and/or verges.	Consistent.
They have consistently strong landscape, with above average established trees.	Not consistent - with the exception of the Weston plantings.
They have slow to moderate traffic speeds, across multiple lanes and usually have multiple modes of transport, including strong public transport.	Not consistent – Kings and Commonwealth Avenue are mostly 70km/hour zones and are dominated by cars, with pedestrians and cyclists barely catered for.
Their character is continuous and has regularity of tree planting, street poles, and street furniture.	Not consistent – there are a variety of character areas and eras of development.
They have a consistency and integrity of built form.	Not consistent, however the National Triangle is not a typical built context.
They are magnets for human scale interaction.	Not consistent – this must be addressed given the symbolic, democratic heart of the nation.

Table 1: Avenue Features Checklist

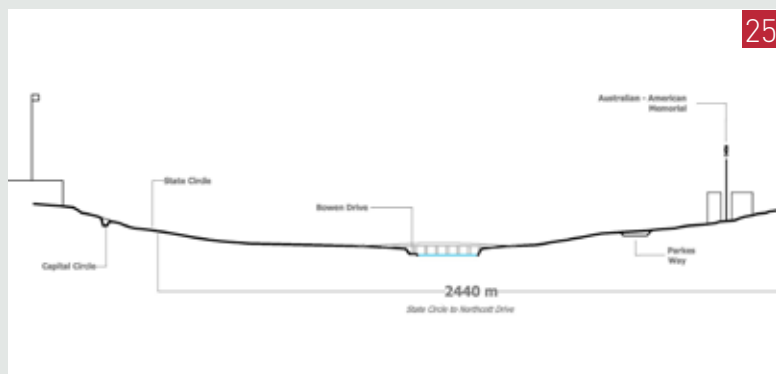


Figure 25: Kings Avenue Section (State Circle to Northcott Drive Roundabout)

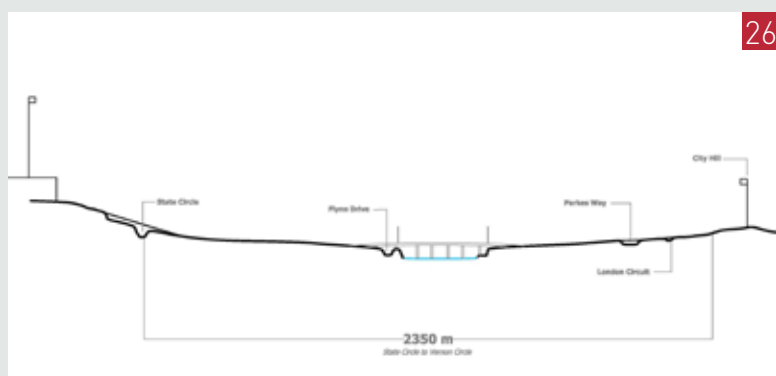


Figure 26: Commonwealth Avenue Section (State Circle to Vernon Circle)

4.1__STRUCTURE

As highlighted earlier the arrangement of the Avenues are of symbolic importance for the city, because of their central location and how they connect key city functions and the surrounding topographical features. Overall the layout and geometry of the Avenues is intact and a generally consistent part of the Griffin plan.

The following structural features are noted because they help build meaning through the layout of the city:

- » National Triangle of Kings, Commonwealth and Constitution Avenues
- » Key views – primarily from the bridges across the lake to local landmarks such as the National Museum of Australia on Acton Peninsula, National Carillion, Captain James Cook memorial water jet and long range views to the Brindabella Ranges, Mount Bimberi and local surrounding peaks
- » Key landmarks that terminate the Avenues: City Hill, Parliament House, the Australian American memorial, provide symbolic nodes connected by the Avenues
- » Lake Burley Griffin and the water axis
- » Kings and Commonwealth Avenue Bridges

The sections above also identify the length of Kings and Commonwealth Avenues. At 2.4km for Kings Avenue and 2.35km for Commonwealth Avenue, they are long and relatively straight roadways with visible elevated endpoints. The slightly undulating topography limits view lines straight along the roadways. The bridges form central high points which enable views of the endpoints. The bridges also provide a break in the landscaped street environment that opens out to long range views.

The features in the city structure that are valued are identified above. The scale and geometry also create particular challenges in terms of the grand proportions in both the width and length of the Avenues. This raises a design challenge of how to reconcile the long, straight and stately geometry of the Avenues with the need for a human scale and connectivity.

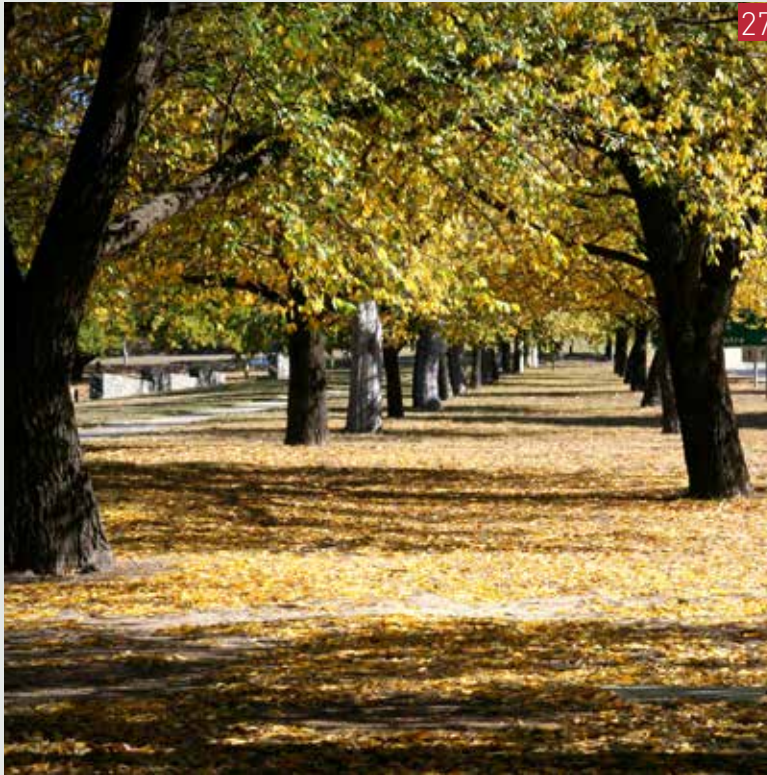


Figure 27: Kings Avenue – Character of established sections

4.2__LANDSCAPE

Consistent and established trees and landscape are the primary recognisable feature of successful Avenues. Canberra is lauded for its landscape setting, established street trees and sensitive layout within the topography. However the landscape character of Kings and Commonwealth Avenues is fragmented and does not have a continuous character to unite it.

There are large sections of Kings and Commonwealth Avenues where there is no continuity of tree planting. The plan at figure 28 shows those broad sections where the landscape character is intact or fragmented. It highlights those sections that provide a sense of enclosure, regular planting and a green edge, and those sections that don't. The era of planting and character areas is also identified. These are:

- » Weston/Griffin plantings. These are confined to the south of the lake except for the plantings on City Hill
- » Unplanted areas
- » 1960s NCDC and later plantings, mainly to the north of the lake
- » Large areas of wide median which are either grassed or have low shrub plantings of Juniper

When these character sections are looked at in more detail a more complex set of issues emerges.

A detailed analysis of the condition, form, and likely longevity of the trees along the Avenues occurs annually. This report identified that a small number of trees along the Avenues are estimated to survive beyond 40



Figure 28: Landscape Character Areas

years. On the north side of the lake the plantings are more recent so a higher proportion of trees are estimated live for 40+ years. The analysis shows that within 50 years, almost none of the trees south of the lake are expected to be alive, or to have a contributory character. Analysis of these surveys are available in Appendix 1.

Of the partially intact Weston/Griffin plantings, there are many striking individual specimens, and a few healthy groups of trees, but overall there are now many gaps where trees have died or are failing – or whole sections that have been removed due to roadway changes. The Commonwealth Avenue sections are the least intact, with large areas of the median now without trees or with an incomplete 'Weston' pattern of planting. On Kings Avenue the Weston/Griffin

plantings stretch for approximately 3 blocks, and achieve a stately and continuous character, with regularly located trunks. Trees on the medians are mixed in health and form, and many are struggling closer to the lake, but with a high density of planting and diversity of species, the edge reads as green. What is clear however is that tree replacement and renewal is needed as these trees age.

On the north side of Commonwealth Avenue, the plantings from the 1960s fail to provide a significant 'tree lined avenue' character. Many trees have poor form or are stunted. Some trees have evidence of damage and as a result have not thrived. There are a number of likely causes for what is an overall poor condition; these include vehicle damage, drought and poor horticultural practices. The

landform along the Avenues is not the original in many places which is a likely contributor to a poor planting environment, especially where there is rock, poor soils or sloping topography such as along the bridge approaches.

Ulmus procera (English Elm) is also used along Kings Avenue north of the lake, and as these trees are less than ten years old and do not yet contribute to an Avenue feel. The 'borrowed' landscape from canopies adjacent to the road creates a green edge, but not an Avenue character.

The medians along both Avenues are substantial. They range from 8 metres to 14 metres wide generally and there are large sections that are unplanted, especially on the north. These are high maintenance, green swathes that have an open character, which enhances views, but deplete the continuity of the Avenues.

Unlike the south side of the lake where there is a mixture of species, the trees on the north side are almost exclusively *Ulmus procera* within the road reserve. This species monoculture raises the issue of susceptibility to Dutch Elm disease. This disease is currently not in Australia but is active in New Zealand. The Elm leaf beetle is present in Canberra in Glebe Park and is the carrier of the disease. In the unlikely event of the disease reaching Canberra the trees would likely all succumb.

City Hill presents a significant visual endpoint to Commonwealth Avenue that has largely intact heritage plantings that include *Cupressus species* (Italian and Roman Cypress) planted in 1921.

The ACT Government, who is undertaking tree replacements in line with the original planting plan, manages this area.

The planting character changes from European to Native at State Circle. Around Parliament House the designed landscape is dominated by Eucalyptus species. Renewal is required where mainly Eucalyptus trees have died or been damaged, particularly at the apex of Commonwealth Avenue.

Clearly the trees are the most defining element of the existing character of the Avenues. The presence or not of regular, established, spreading street trees planted consistently along streets is the primary definer of the Avenue's character.

4.3__TRANSPORT AND MOVEMENT

One of the main functions of the Avenues is as efficient thoroughfares. Currently the Avenues are criticised for not providing a balance between character and 'place making', and servicing vehicles. Provision for fast vehicle movements dominates over more sustainable transport forms.

Commonwealth Avenue is predominantly six lanes wide, but with some sections that are reduced to four lanes. Kings Avenue is predominantly four lanes wide for most of its length, but with many turning lanes, that effectively turn it to six lanes in many sections. The areas where the Avenues are two lanes wide

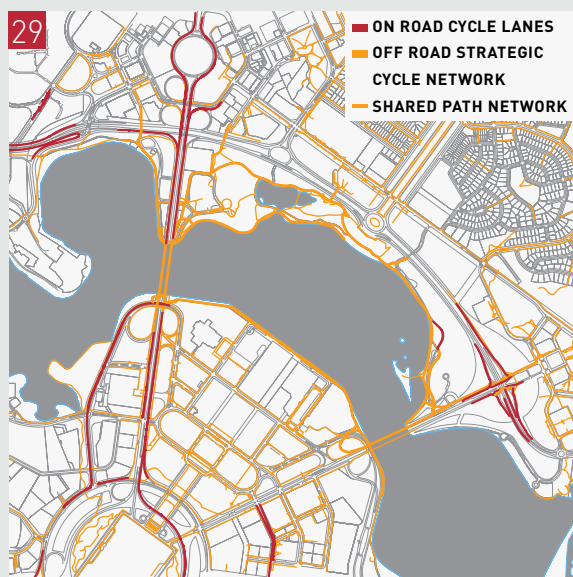


Figure 29: Cycle Lanes - on road and off road

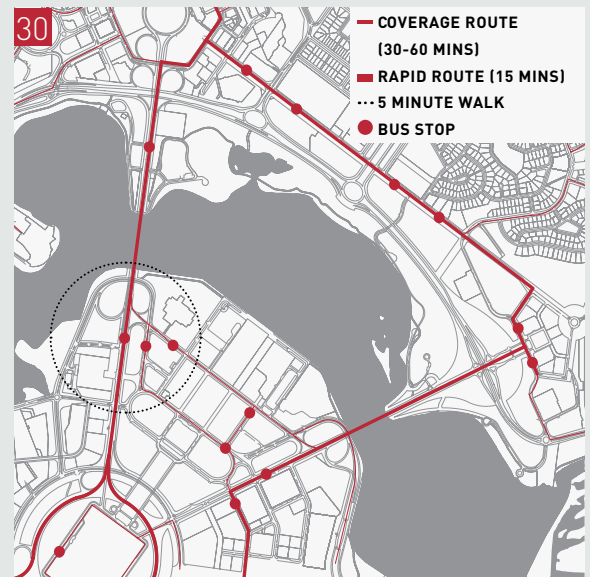


Figure 30: Bus Routes and Stops

each way coincide with the Weston/Griffin planting areas, and slower traffic speeds.

The cloverleaf entry/exit ramps inherited from roadway changes in the NCDC period maintain a constant movement of traffic. This roadway configuration uses up large areas of valuable, central city land that could otherwise be developed. The entry and exit ramps to the cloverleaves also limit the areas available for tree planting along the Avenues, and create barriers to pedestrians and cyclists. Similarly the bridges over the lake and over Parkes Way create a permanent break in the tree planting.

The limited numbers of cross streets and at grade pedestrian crossings exacerbate the 'expressway' character. This limits connectivity across the Avenues and also means that the speed of vehicles is not checked by traffic lights/crossings. Currently the speed limit is 70km/hour for most of the Avenue's length but it drops to 60km/hour in sections. There are only one set of traffic lights along Commonwealth Avenue and four sets of lights on Kings Avenue.

Cyclists and pedestrians are provided for in a shared pathway along most of the length of the Avenues. There are limited sections of on-road cycleway. Conflict occurs between bikes at speed and much slower pedestrians and recreational cyclists. Across the bridges in particular the shared pathway is narrow and fast bikes are forced to use these areas with pedestrians, causing conflict through speed



Figure 31: Existing Road Hierarchy

differentials. There are no design features that effectively separate fast cyclist from slow.

There are bus routes along both Avenues but large distances between stops and few destinations to stop for. The current 'blue rapid' Action bus route uses Commonwealth Avenue and stops at Albert Hall bus stop every 12-15 minutes in peak time. A bus lane is in place on the south side of Commonwealth Avenue and stops just before the lake. Both Avenues are identified in future rapid public transport solutions – although the details of the routes and transport type are still being developed.

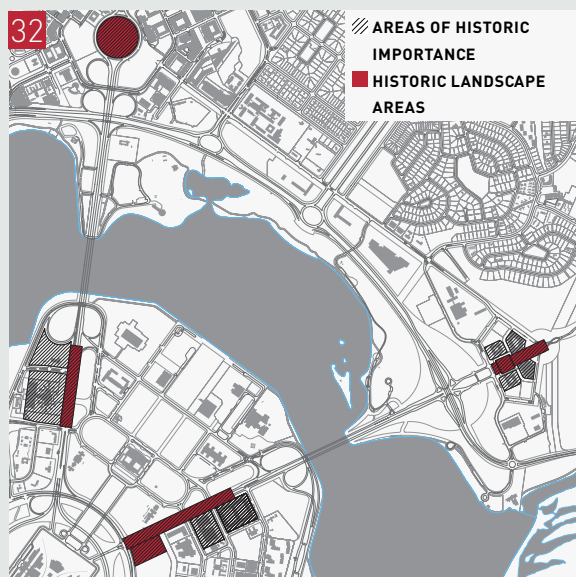


Figure 32: Areas of Historical Importance impacting on Avenue character

4.4__HERITAGE

Kings and Commonwealth Avenues are important because their layout is part of a historically important plan and unique planning process. The statutory protections and policies in relation to this have been covered earlier. However the heritage features of the Avenues contribute to the unique character of Kings and Commonwealth Avenues.

The historic features are concentrated south of the lake, except for City Hill, and are remarkable and historic in a number of ways:

- » The layout of the Avenues is a result of a now historic and unique process of a planned city embodied in the Griffin plan.
- » The street trees, their planting pattern and the species choices are a unique response to the harsh conditions of the Canberra environment. They are also part of a scale of planting and experimentation that has rarely been implemented before.
- » The free standing buildings set in their campus style landscape/plazas within the Parliamentary Zone offer an unusual geometry and aesthetic. The stand-alone buildings with their distinctive 'National Capital roles' are also a product of the planned city process.
- » The Bridges are elegant examples of modernist architectural/engineering design.
- » City Hill planted in 1921 is largely consistent with Griffins plan for the area, with planting supervised by Weston.

The plan adjacent (figure 32) shows those features that may or may not have statutory protection, but nonetheless have historic character. The historic nature of all these elements is an important precedent for the design of the Avenues in the future.



Figure 33: Present and Possible Future Built Edge



Figure 34: Existing and Possible Future Built Form derived from planning policy documents

4.5__BUILT FORM

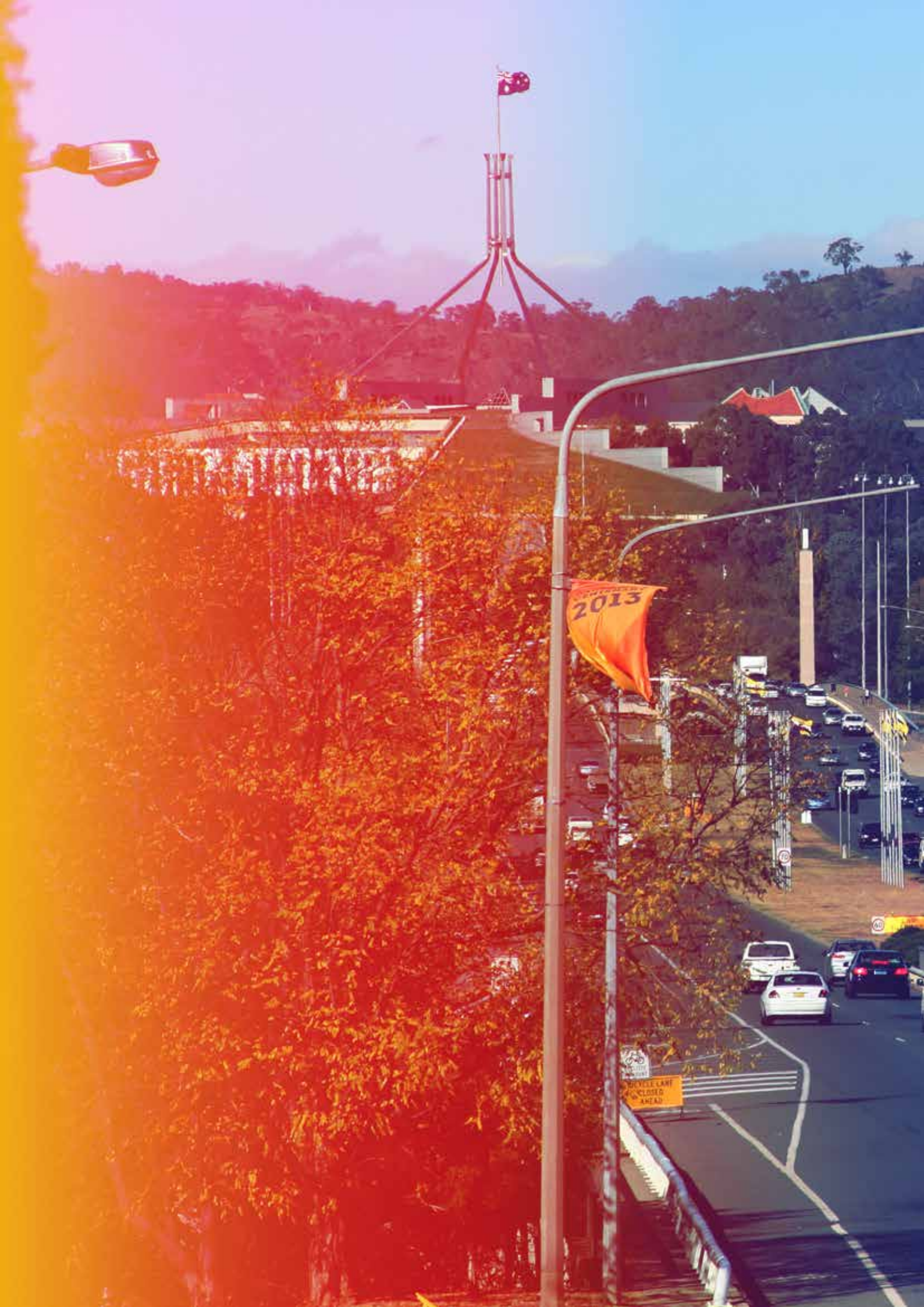
Currently the built edges to Kings and Commonwealth Avenues are fragmented. In some sections that are more established such as in the Parliamentary Zone there is a more consistent built edge, but possible future development will intensify this. The current built character is not consistent with the leafy civic design that was originally envisaged for the major streets in Canberra. The plan above (figure 34) shows the potential development pattern that envisages a more urban building edge to parts of the Avenues in the future. This development pattern is drawn from a range of planning policy documents.

The nature of the layout of the Avenues is that there will always be long sections without building frontages such as along the bridges and part of the bridge approaches. Of those existing buildings, many have important roles; including Government, Diplomatic, cultural, historic architectural and religious roles.

The character of building form and scale has been for bulky institutional and iconic stand-alone buildings. Building height has been typically moderate along the Avenues with the exception of Russell where more substantial buildings are up to approximately 5-6 storeys high.

The need for architectural excellence, visual interest and a human scale is obvious when the large areas between buildings are noted. There are many potential development sites along the Avenues that could provide a more urban edge. In some areas such as in the Russell precinct, where car parks will be developed eventually, there is potential for buildings to re-frame and re-create a more urban/civic edge.

In the future the NCA, the ACT Government and those involved in development will need to work together on an appropriate built form abutting the Avenues.



5. FUTURE PLAN AND RECOMMENDATIONS

WHAT IS THE INTENDED FUTURE CHARACTER OF THE BOULEVARDS?

WHAT ACTIONS ARE NEEDED TO ACHIEVE THE INTENDED CHARACTER?



This section of the document seeks to address two key questions. These are:

What is the intended future character of the boulevards?

What actions are needed to achieve the intended character?

5.1__ROLES AND PRINCIPLES

The following themes emerged from the investigation into the historic intent, value, policy and current conditions of the boulevards. The boulevards need to fulfil roles in relation to these themes:

- » City Structure
- » Character
- » Heritage
- » Landscape
- » Transport and Movement
- » Built form

These themes are used in this section to frame an urban design outcome that is capable of being implemented over time. The following principles outline the aspirations for the renewal of the Avenues. They should be/have:

1. A unified expression of the National Triangle
2. High quality urban streetscapes
3. Historically appropriate

4. Robust, and have a sustainable landscape framework
5. Provide effective multi-user connections between precincts
6. Active civic spaces that frame the edge of the Avenues

Importantly those possible areas for action to achieve the intended character of the Avenues are also outlined.

5.2__CITY STRUCTURE ROLE

*The Avenues should be:
A unified expression of the
National Triangle*

In order for the Avenues to achieve this principle the following actions are needed:

- » Renew and unify the character of the Avenues from end to end and reconnect the National Triangle

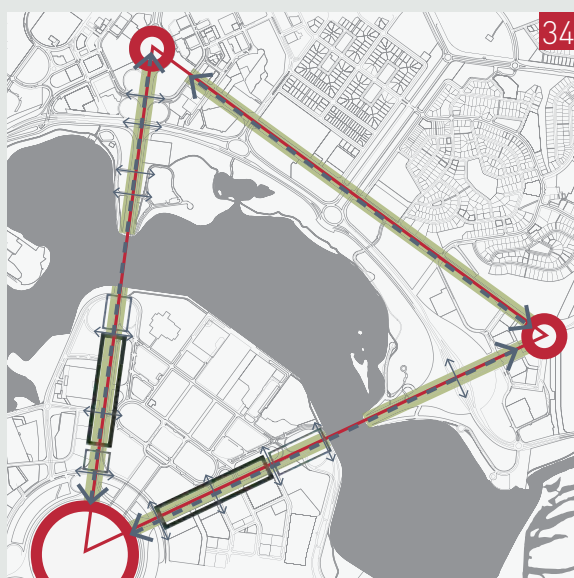


Figure 34: Overall roles and principles

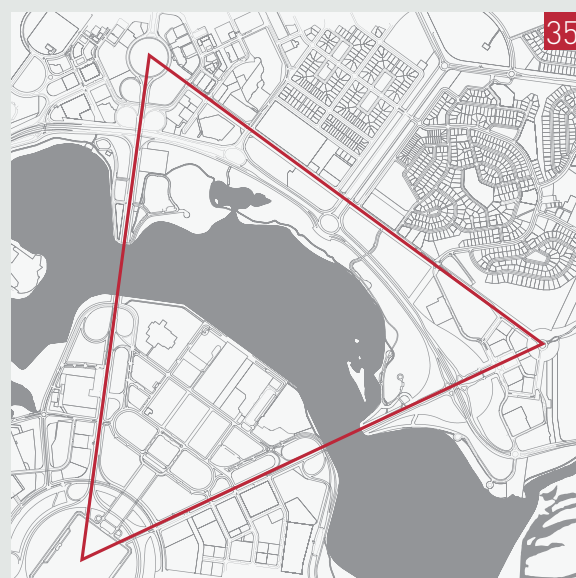


Figure 35: City structure role



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- » Recognise how the layout of the Avenues connects to the symbolic endpoints of City Hill, Parliament House and Russell, and maintain this
- » Protect key oblique views to the National Carillon, National Museum of Australia and Captain James Cook memorial water jet
- » Accept that views along the Avenues will be filtered eventually by street trees
- » Develop a precinct plan for the public space in Russell in line with its symbolic importance
- » Plan and implement a renewal programme

5.3__STREETSCAPE CHARACTER ROLE

The Avenues should be: High quality urban streetscapes

In order for the Avenues to achieve this principle the following actions are needed:

- » Plan high quality public space improvements that add richness and a unique identity
- » Identify features such as lighting and street furniture that will unify the character of the public space
- » Identify appropriate locations for memorials/ artworks/sculpture
- » Maintain a consistent pallet of materials that are high quality, formal and elegant
- » Explore options for character-consistent lighting along the full length of the Avenues that are consistent with the NCA's outdoor lighting policy



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Figure 36: Streetscape character role

Figure 37: Landscape character role

5.4__LANDSCAPE ROLE

The Avenues should be: Robust, and have a sustainable landscape framework

In order for the Avenues to achieve this principle the following actions are needed:

- » Define a pattern of formal, continuous, unified street tree planting along the length of the Avenues
- » Investigate a range of species that have appropriate form
- » Investigate what species are appropriate for the local conditions and for water conservation
- » Plan tree planting in the medians on the north side of the lake on both Avenues
- » Choose future species that can thrive with climate change and manage the risk of diseases such as Dutch Elm Disease
- » Respect and renew the historic landscape and explore historic species suitability
- » Design Water Sensitive Urban Design (WSUD) features to ensure a better planting environment

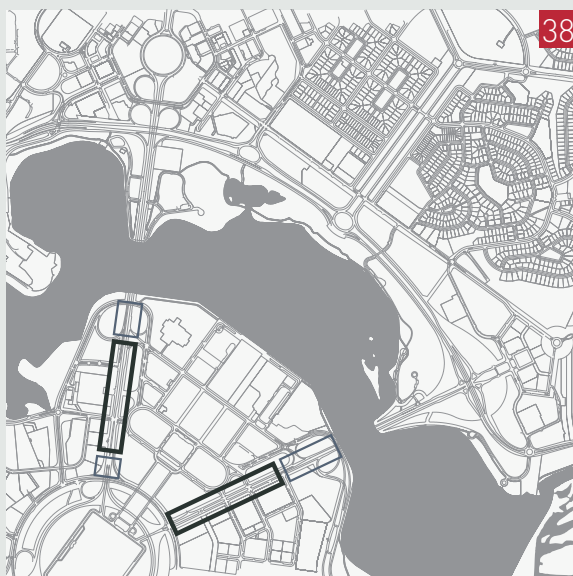


Figure 38: Heritage role

5.5__HERITAGE ROLE

*The Avenues should be:
Historically appropriate*

In order for the Avenues to achieve this principle the following actions are needed:

- » Repair the heritage plantings from the Griffin/Weston era and extend to the lake and to State Circle adjacent to Parliament House
- » Work with the ACT Government to ensure City Hill is maintained consistent with its heritage value
- » Pursue Heritage protection for the Weston/Griffin plantings

5.6__TRANSPORT AND MOVEMENT ROLE

*The Avenues should
be: Effective multi-user
connections between precincts*

In order for the Avenues to achieve this principle the following actions are needed:

- » Maintain the role of the Avenues as important traffic routes but plan to balance this in favour of the needs of pedestrians and cyclists
- » Test the impacts of reducing the speed zone

- » Plan for improved multi-modal transport that more equitably prioritises pedestrians and cyclists over cars
- » Provide generous footpaths that connect to the wider footpath network
- » Consider the constraints of future public transport
- » Integrate with the features of surrounding movement network
- » Plan to phase out the cloverleaf entry/exit ramps
- » Provide separation of cyclists from pedestrians through designated on-road cycle paths along their length
- » High quality, generous pathways along both sides
- » As development occurs, design more crossings and cross streets with traffic lights or pedestrian crossings
- » Plan effective public transport stops that are designed so that are integrated into the streetscape



Figure 39: Transport role



Figure 40: Build form role

5.7__BUILT FORM ROLE

The Avenues should be: Active civic spaces that frame the edge of the Avenues

In order for the Avenues to achieve this principle the following actions are needed:

- » Promote active frontages in buildings abutting the Avenues
- » Continue to adopt a finer grained pattern of the street grid where it abuts Commonwealth Avenue at West Basin
- » Provide a clear building design framework to ensure the future character of the Avenues achieves architectural interest and human scale frontages

6 CONCLUSION

This document sets out the framework to develop detailed planning for the renewal of Kings and Commonwealth Avenues.

The next stage will include technical investigations to properly determine the constraints impacting the Avenues. These investigations need to inform the regeneration and must provide the basis for a cleverer, more equitable and environmentally sustainable streetscape.

Robust consultation will also be carried out to hone the preferred future character for the Avenues. Consultation will ask people what the shape and character of the Avenues should be. This will underpin the detailed consideration of how to achieve a consistent character for the Avenues, from end to end, that will endure in the long term.

A number of directions clearly emerge from this investigation. Protection is required to properly respect the historic nature of the Griffin plan and the historic features of the existing Avenues. Renewal of the tree canopy is also a pressing issue. However the features of the Avenues that detract from their overall unified character need to be addressed. Regeneration is required so that the Avenues can effectively fulfil their symbolic and local roles.

APPENDIX

APPENDIX 1 – ANALYSIS OF TREE SURVEY DATA

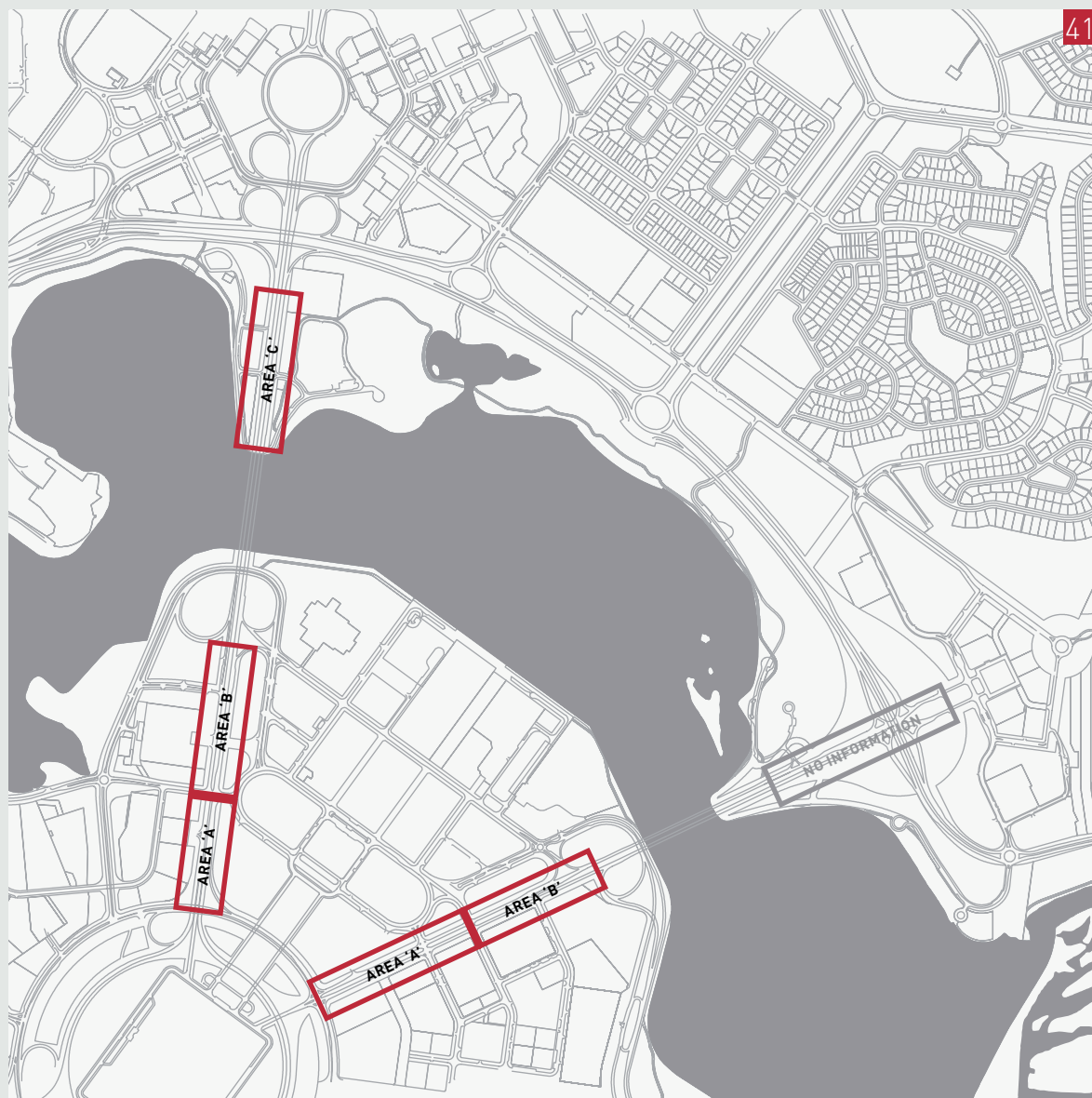


Figure 41: Key areas shown in Tree Survey Analysis

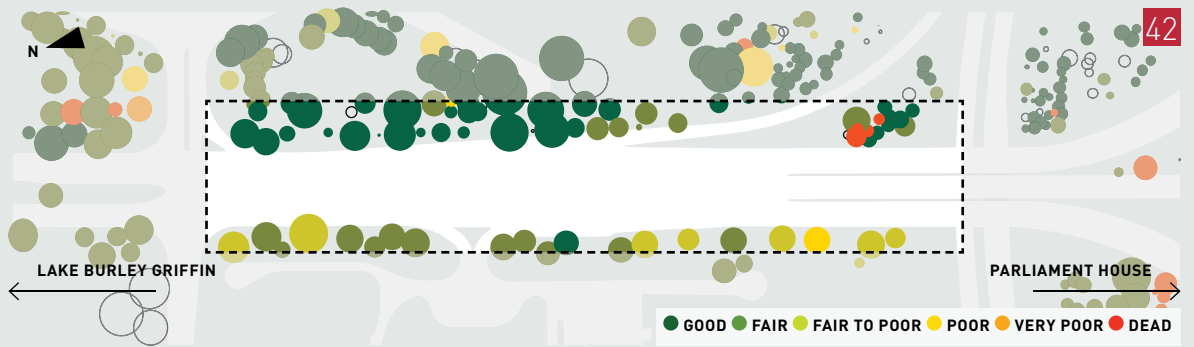


Figure 42: Commonwealth Avenue Area 'A' - Tree Health

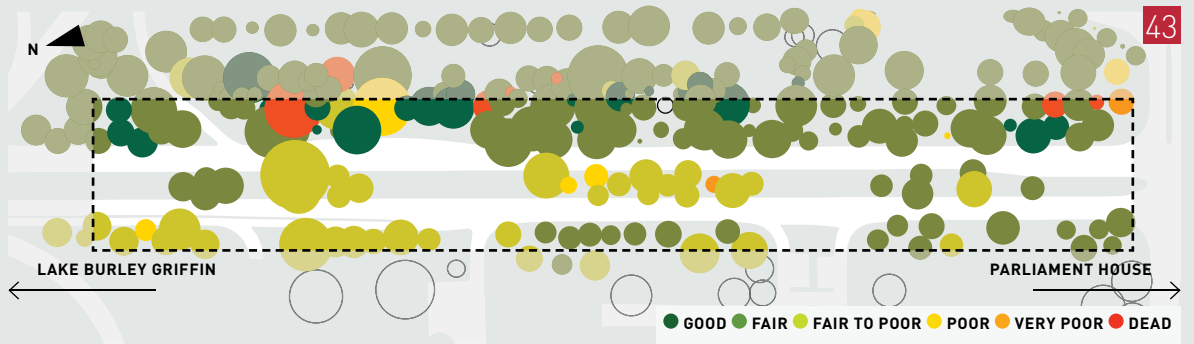


Figure 43: Commonwealth Avenue Area 'B' - Tree Health

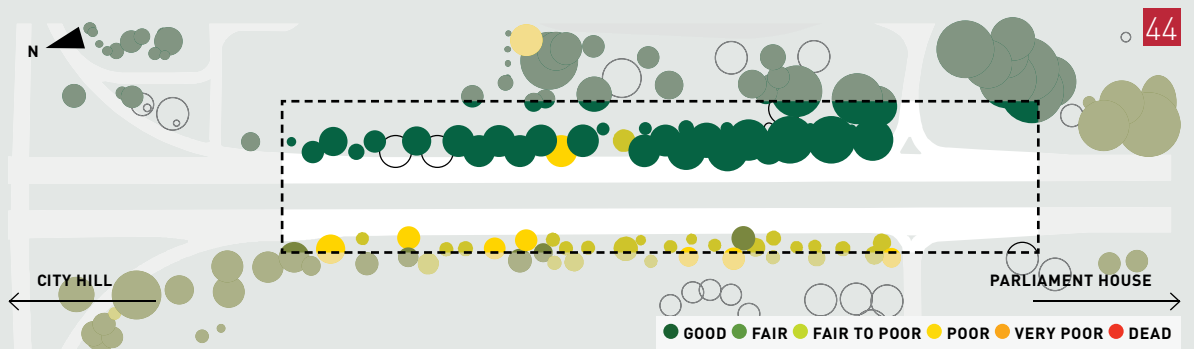


Figure 44: Commonwealth Avenue Area 'C' - Tree Health

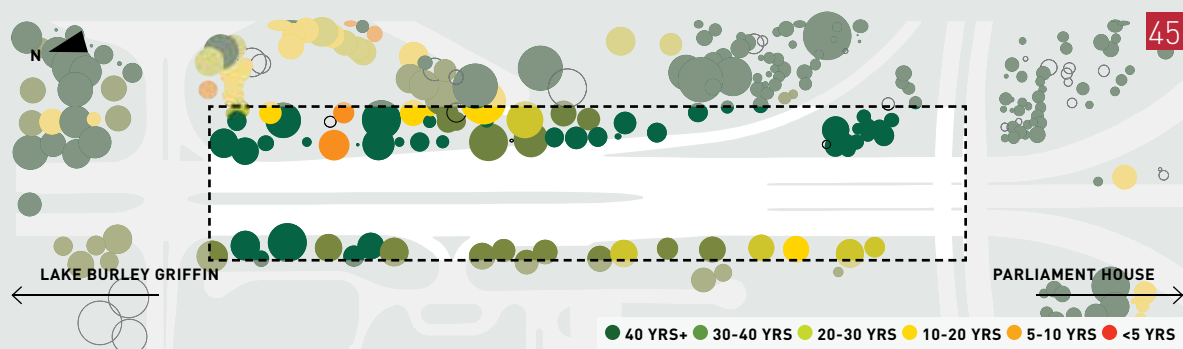


Figure 45: Commonwealth Avenue Area 'A' - Useful Life

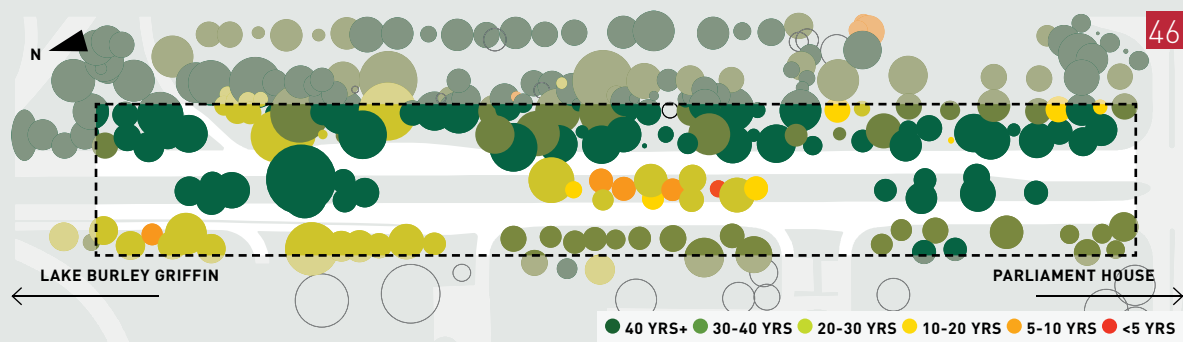


Figure 46: Commonwealth Avenue Area 'B' - Useful Life

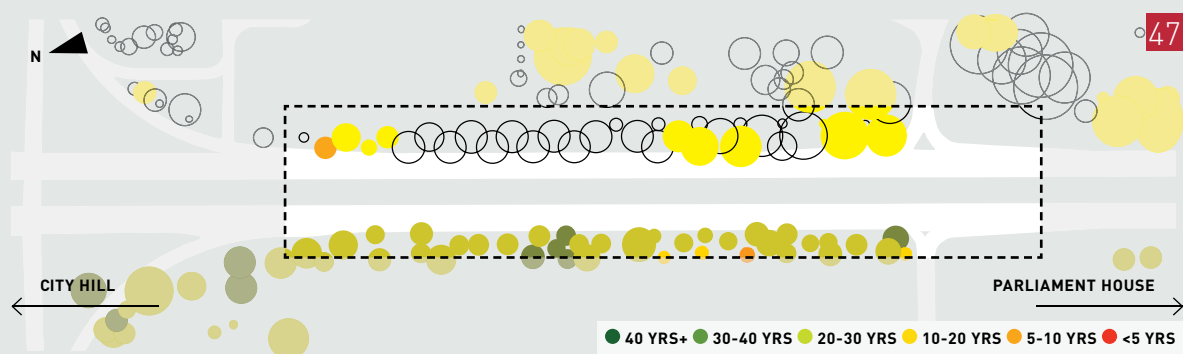


Figure 47: Commonwealth Avenue Area 'C' - Useful Life

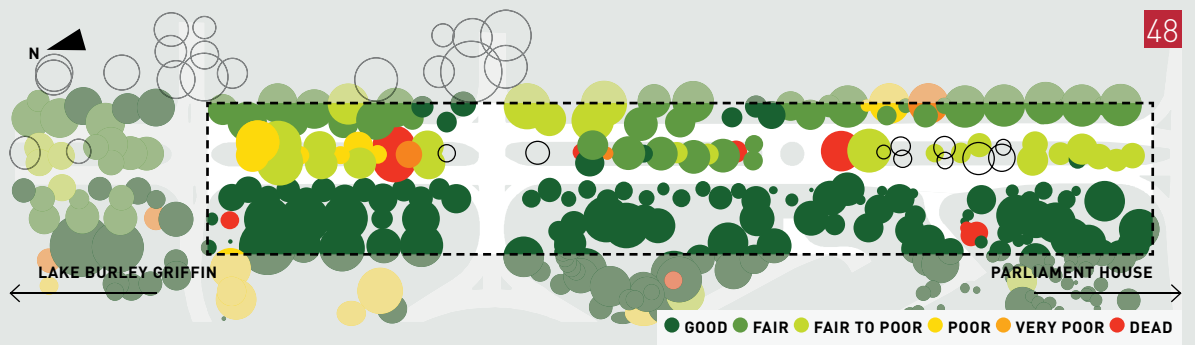


Figure 48: Kings Avenue Area 'A' - Tree Health

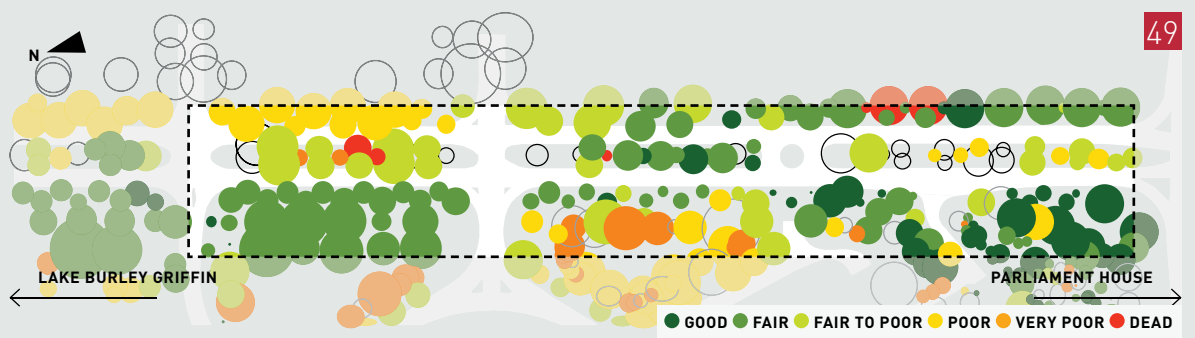


Figure 49: Kings Avenue Area 'A' - Useful Life

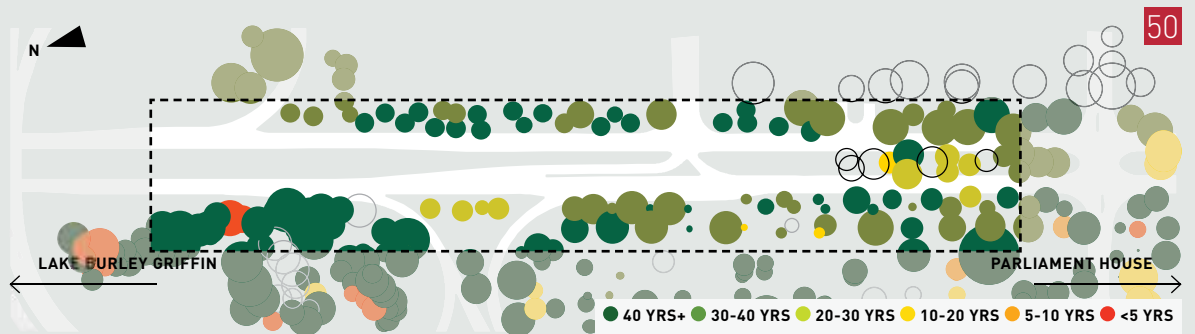


Figure 50: Kings Avenue Area 'B' - Tree Health

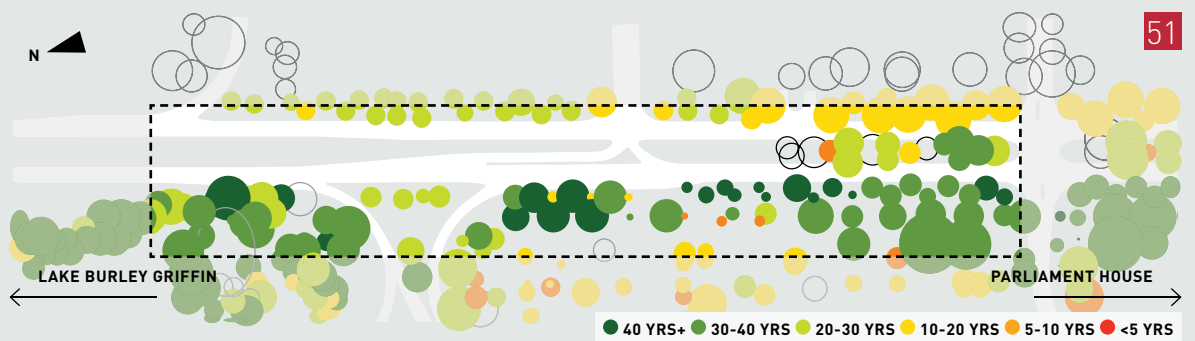


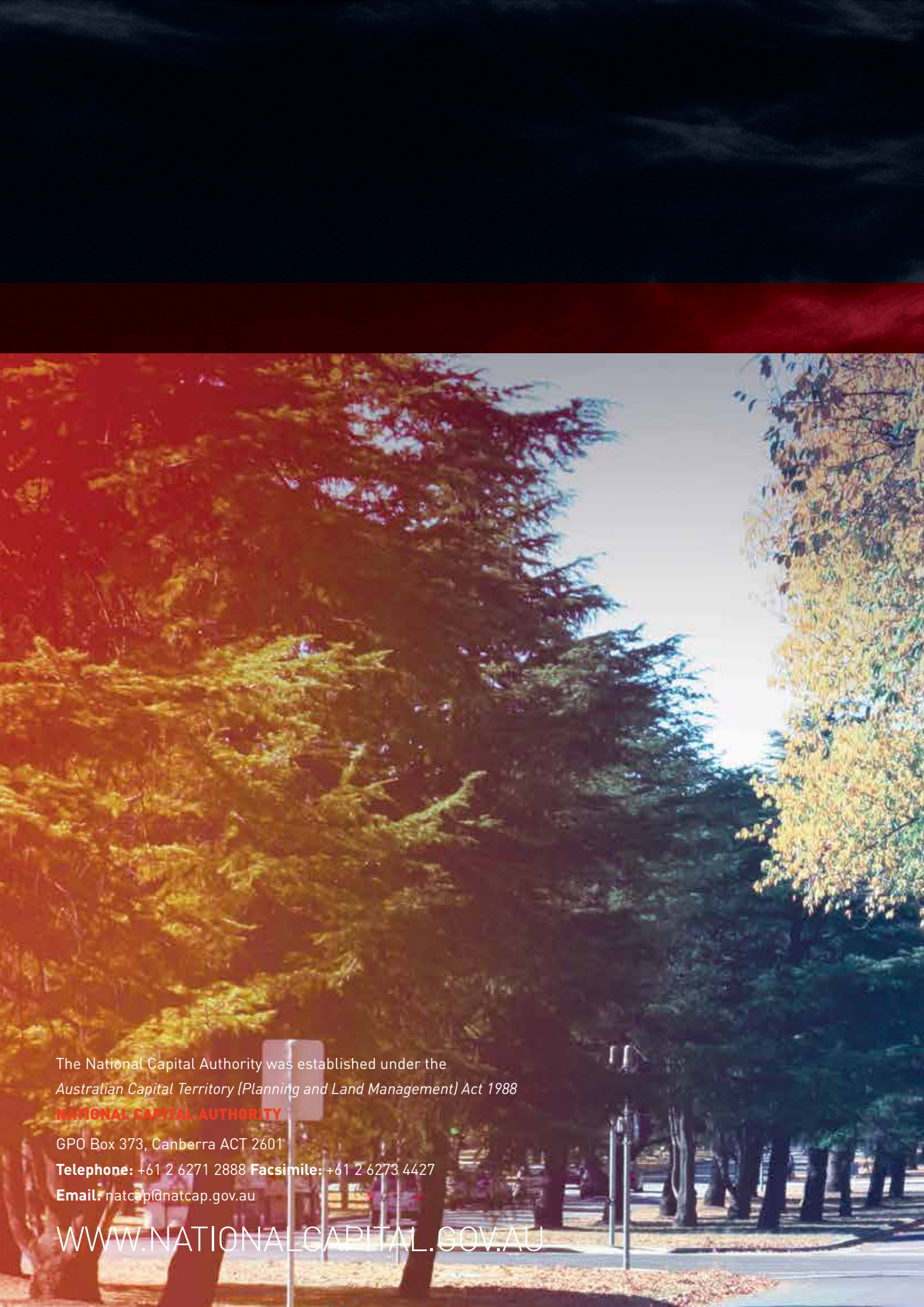
Figure 51: Kings Avenue Area 'B' - Useful Life

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WEB RESOURCES

- » The Walter Burley Griffin Society: www.griffinsociety.org.
- » The National Archives of Australia, the National Capital Authority and the National Library of Australia collaborated on the development of this site. The content for the site is based on the 1995 exhibition An Ideal City? The 1912 Competition to Design Canberra: www.idealcity.org.au
- » Centenary of Canberra: www.canberra100.com.au
- » National Archives of Australia: www.naa.gov.au
- » National Library of Australia: www.nla.gov.au and <http://trove.nla.gov.au/general/australian-pictures-in-trove>
- » www.images.act.gov.au



The National Capital Authority was established under the
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