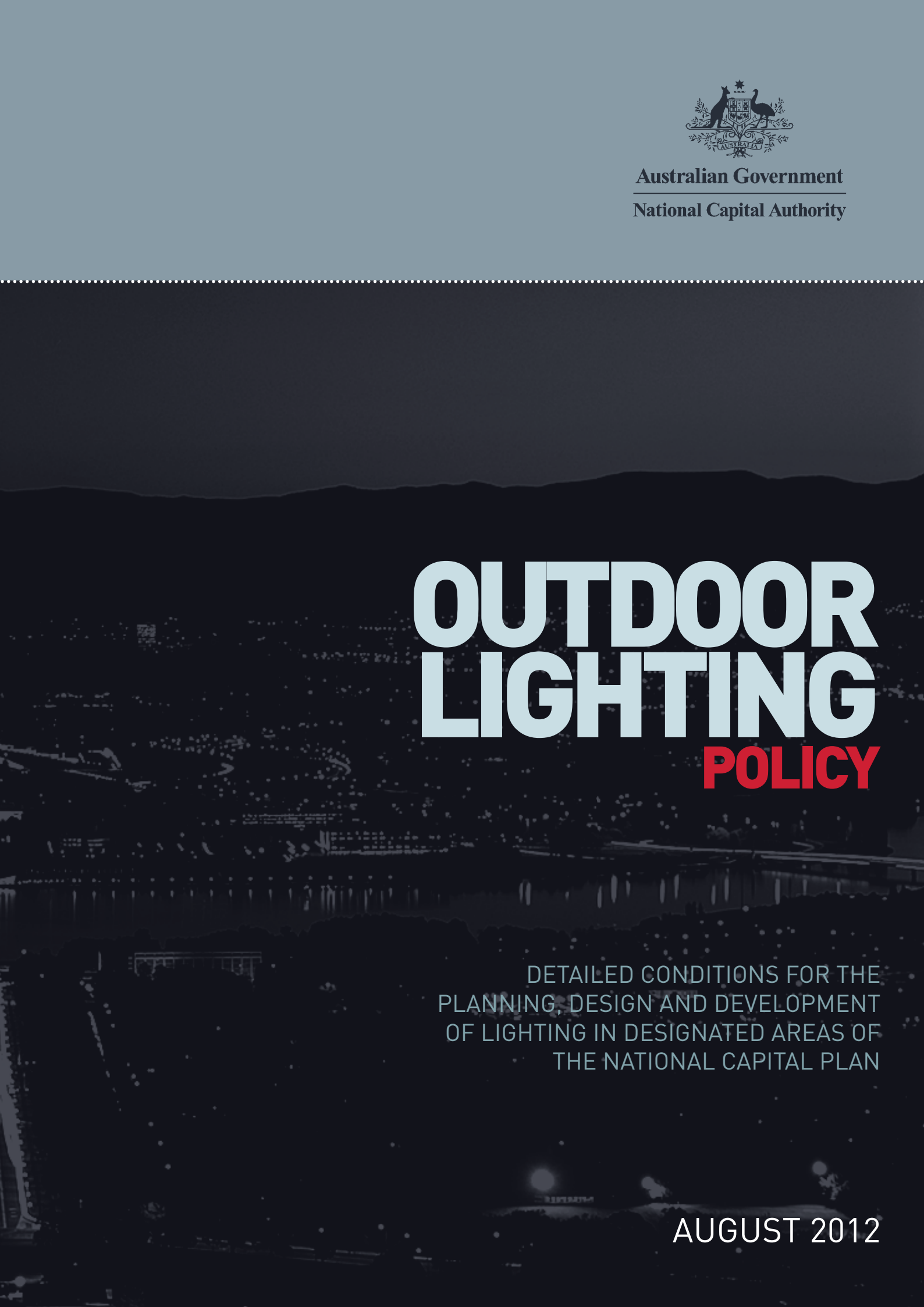

Australian Government

National Capital Authority

OUTDOOR LIGHTING POLICY

DETAILED CONDITIONS FOR THE PLANNING, DESIGN AND DEVELOPMENT OF LIGHTING IN DESIGNATED AREAS OF THE NATIONAL CAPITAL PLAN

AUGUST 2012

The National Carillon on Aspen Island

National Capital Authority
August 2012

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CONTENTS

INTRODUCTION

THE NATIONAL CAPITAL AUTHORITY

The National Capital Authority (NCA) is established under the *Australian Capital Territory (Planning and Land Management) Act 1988*. The statutory functions of the NCA establish the Australian Government's continuing interest in the strategic planning, promotion, development and enhancement of Canberra as the National Capital.

The functions of the NCA provide an enduring framework to secure the planning and development of Canberra as the capital; to accommodate the Seat of Government and associated national and cultural requirements; to provide national public places for all Australians to visit and enjoy; to enhance the unique character and symbolic meaning of the capital; and to develop appreciation of the capital as a reflection of our democracy and national life.

PURPOSE

This policy has been prepared to guide the range of considerations necessary when installing or renewing outdoor lighting in the nationally significant areas of the Australian Capital Territory. It seeks to ensure that the planning, design and operation of lighting balances the needs of people and the environment. Importantly, the policy strengthens the role that lighting plays in our understanding and appreciation of the National Capital and Canberra's urban landscape.

IMPLEMENTATION

This policy provides a planning and design framework that can be implemented over time by parties responsible for lighting installation, operation and management. It intentionally allows flexibility in lamp and fitting selection, to encourage design innovation and advances in technology. Land managers, developers, property owners, asset owners, independent lighting designers, or any other person involved in the design or operation of lighting will be expected to address this policy within proposals involving lighting works. The policy will form a framework for the creation of lighting plans where required by heritage management plans.

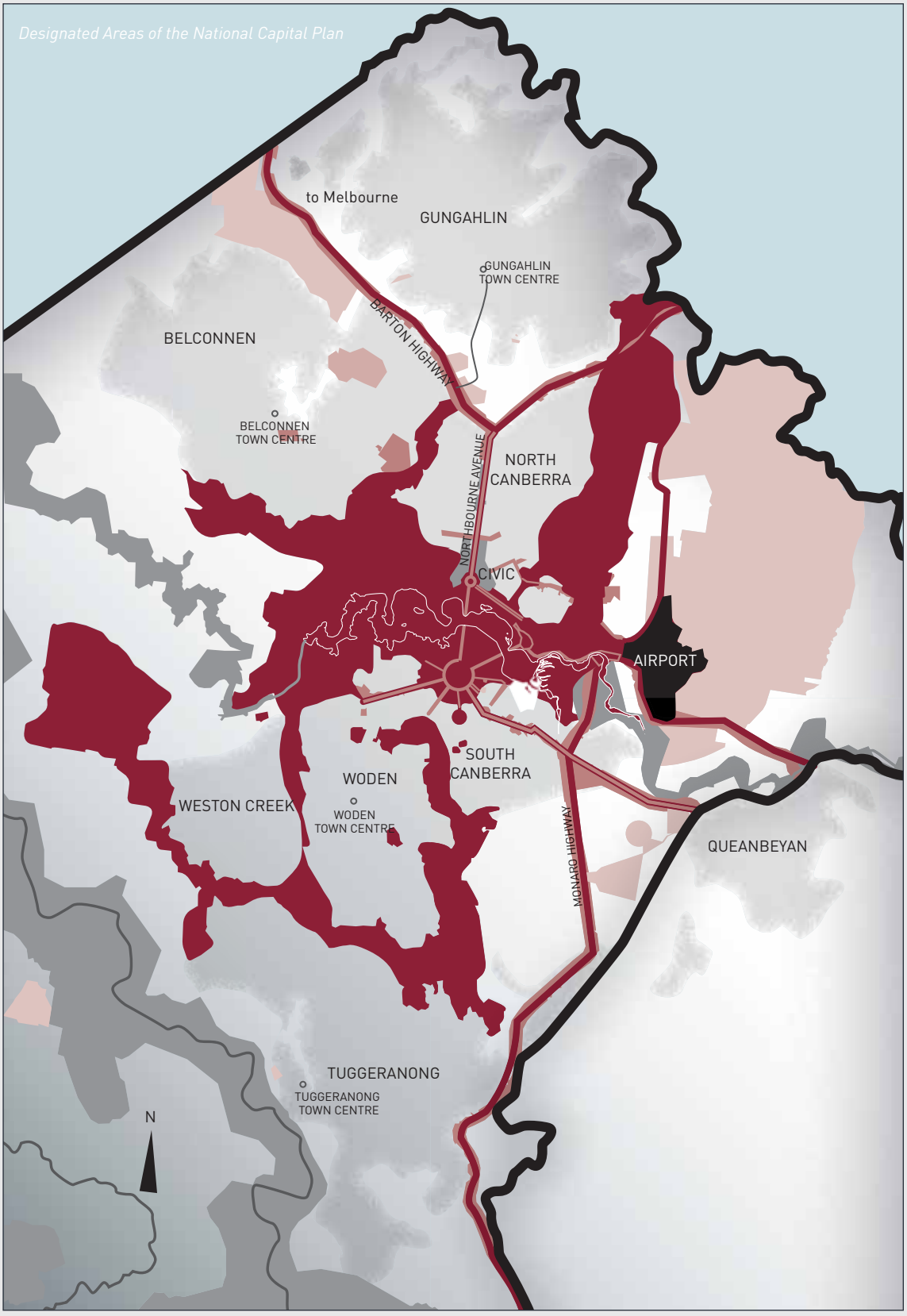
LEGISLATION AND STANDARDS

This policy has been developed to supplement the provisions of the National Capital Plan (the Plan). This policy should be read in conjunction with the Plan and any other legislation and/or standards relevant to the design, development or operation of outdoor lighting installations, including but not limited to those outlined below.

- Australian Standards applicable to the design, installation and wiring of outdoor lighting systems. The identification of all relevant standards and their interpretation, is required to be demonstrated in any design proposal.
- The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is applicable to any environmental impacts caused by lighting installation works or operation.
- Civil Aviation Safety Authority (CASA) requirements. CASA has the power to control the operation of outdoor lighting where it may affect aircraft safety or navigation.

APPLICATION

This policy applies to any proposed lighting works within the Designated Areas of the National Capital Plan. The policy will form part of the formal assessment process undertaken by the NCA, when considering works approval applications that include outdoor lighting.



EXECUTIVE SUMMARY

Lighting in the National Capital enhances the experience and understanding of the city's unique urban landscape through night time illumination. The objectives and strategies set out in this policy are to be addressed in any design proposal for outdoor lighting, within Designated Areas of the Plan.

POLICY OBJECTIVE 1

Lighting must reinforce the planned urban geometry of the National Capital, its heritage and its relationship with the landscape.

Strategies:

a] Express the key geometric elements of the Griffins' formally adopted plan for the city through lighting design and distribution.

b] Create a clear hierarchy of built environment illumination in Central Canberra.

c] Maintain subtle illumination of the topography of the city.

d] Conserve significant heritage lighting fabric and design elements.

POLICY OBJECTIVE 2

Lighting must contribute to the creation of a high quality public realm.

Strategies:

a] Ensure the scale and character of lighting is appropriate to the location.

b] Ensure the form, material and finish of lighting hardware is appropriate to the location and co-ordinated with other street and park furniture so as to form an integrated, cohesive palette of materials and fittings.

c] Ensure the colour and form of the physical environment is accurately rendered.

POLICY OBJECTIVE 3

Lighting must provide a safe night time environment for residents of, and visitors to the National Capital.

Strategies:

a] Maintain a well-connected movement network of public paths, roads and spaces.

b] Ensure Australian Standards for illumination are met.

c] Effectively manage glare.

d] Create integrated lighting designs that enable the human eye to adapt to changes in light levels.

POLICY OBJECTIVE 4

Minimise the obtrusive effects of artificial lighting on the natural environment.

Strategies:

a] Manage light pollution through the selection and placement of lighting hardware.

b] Minimise energy use.

c] Ensure the installation and maintenance of lighting infrastructure does not have a detrimental effect on landscape.

d] Minimise the impact of lighting operation on wildlife health.

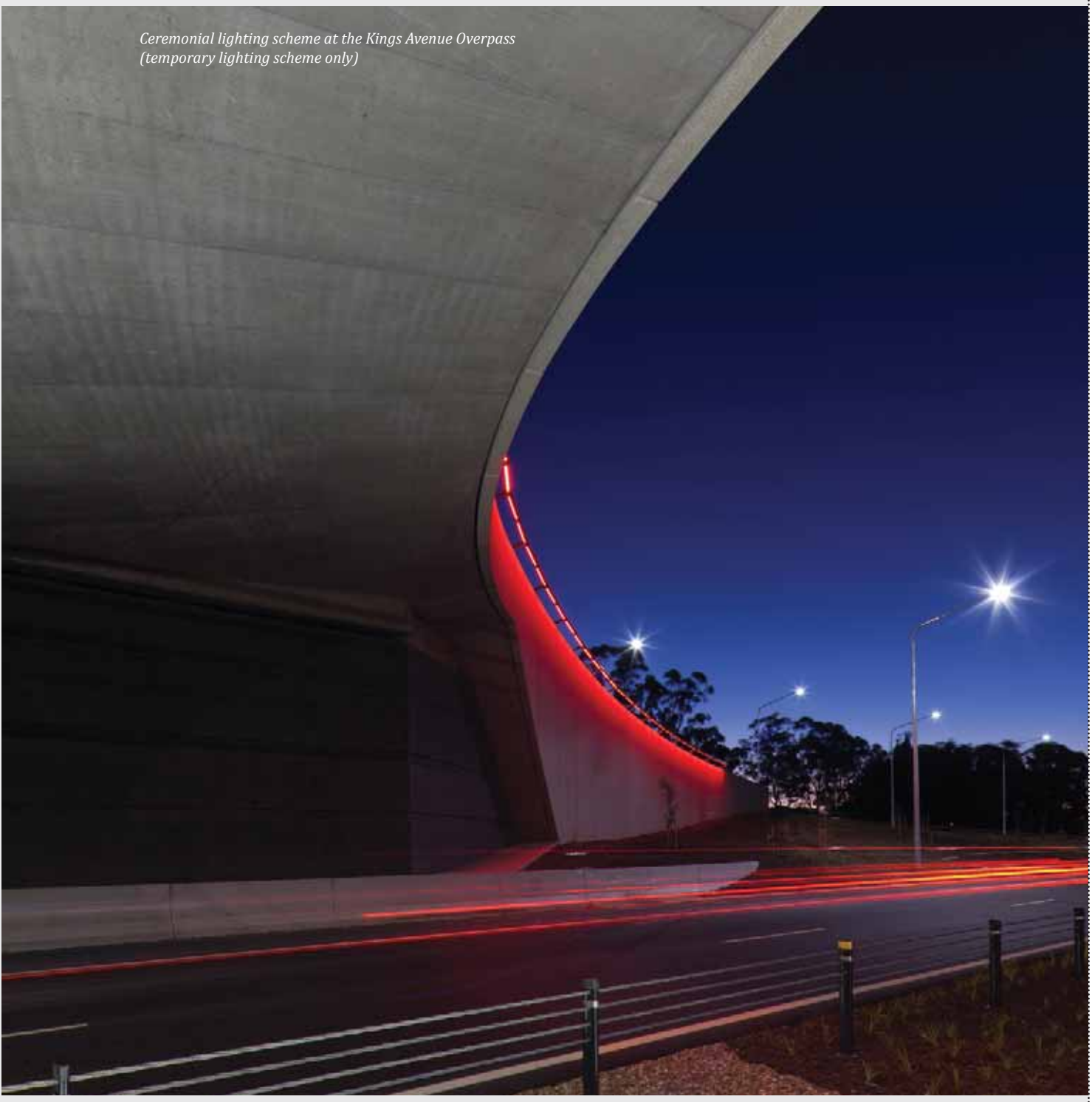
POLICY OBJECTIVE 5

Provide opportunities for celebration and commemoration through lighting.

Strategies:

a] Ensure that temporary lighting contributes to an awareness of the National Capital through appropriate celebratory or commemorative subjects.

b] Integrate lighting with commemorative works.



Ceremonial lighting scheme at the Kings Avenue Overpass (temporary lighting scheme only)

STRUCTURE

This policy sets a framework for the effective management of the key issues in outdoor lighting, guided by a set of policy objectives. These objectives are in turn supported by a series of strategies and design requirements. Any lighting proposal within Designated Areas of the Plan will be assessed against this policy. The framework of this policy is detailed below.

Key Issues
The key issues present in outdoor lighting design and operation, which must be addressed in all future lighting proposals.

Objectives
Five key objectives for the effective management of key issues in outdoor lighting in accordance with the future development of outdoor lighting in the National Capital.

Strategies and requirements
The mandatory strategies and design requirements that support the achievement of the policy objectives.

KEY ISSUES

Artificial lighting is installed to provide illumination at night that supports night time human activity. The provision of artificial light provides enormous community benefit. Poorly-considered lighting can however result in unintended adverse impacts. The design and operation of lighting must address the key issues:

1) **Urban context** – the historic and symbolic context of the National Capital, its plan and its setting
2) **Place-making** – the role of lighting in place-making and the built environment
3) **Safety** – the fundamental importance of safety in lighting
4) **Environment and sustainability** – consideration of the environmental impacts of lighting
5) **Celebration and commemoration** – events and commemoration in the National Capital.

Unique promenade lighting in the Parliamentary Zone contributes to heritage values

PART 1: URBAN CONTEXT

GRIFFINS' PLAN

The Griffins' formally adopted plan for Australia's National Capital has produced a unique planned city form. Today, the main elements of this plan are recognised as:

- the use of topography as an integral design feature and as a setting
- a symbolic hierarchy of land uses designed to reflect the order and functions of democratic government
- a geometric plan with the central triangle formed by grand avenues terminating at Capital Hill, the symbolic centre of the nation
- a system of urban centres.

As the city develops, it is important that the integrity of these planned elements are preserved and enhanced. The design and effect of outdoor lighting installations are a vital consideration in fostering the experience of the city and its plan for all who visit.

URBAN DESIGN

Lighting affects the integrity and quality of the city's urban design at many scales and perspectives. At night, lighting reinforces the unique design of the city and hierarchy of its symbolic elements. The differentiation and expression of key elements through night time illumination, is an important aspect of how people connect to and understand the city at night. The brightness, colour, height and type of lighting can all reinforce the meaning and character of these elements.

LANDSCAPE

Since the selection of the site for the National Capital, the city's identity has been inextricably tied to its landscape. At night, our understanding and appreciation of the role that landscape plays in establishing Canberra's setting and character, is conveyed by the distribution of artificial light over the various landscape forms, features and elements.

HERITAGE

A significant proportion of the land within the Designated Areas of the Plan has heritage values. These values include natural, Indigenous, historic and cultural heritage and are embodied within the city's urban structure, its built form and its landscape. Lighting has the potential to impact these heritage values through its design and/or performance.

Policy Objective 1

Lighting must reinforce the planned urban geometry of the National Capital, its heritage and its relationship with the landscape.

STRATEGIES AND REQUIREMENTS

STRATEGY 1A EXPRESS THE KEY GEOMETRIC ELEMENTS OF THE GRIFFINS' FORMALLY ADOPTED PLAN FOR THE CITY THROUGH LIGHTING DESIGN AND DISTRIBUTION.

DESIGN REQUIREMENTS:

i] Emphasise the three node points of the Griffins' National Triangle by creating and maintaining strong visual 'anchors' at Parliament House, City Hill and Russell.

ii] Create a unique identity for the roads that form the Griffins' National Triangle, being Commonwealth, Kings and Constitution Avenues, through careful selection and installation of an integrated suite of street furniture and lighting. Achieve a high degree of uniformity in lighting performance on these three main avenues.

iii] Illuminate the Griffins' Land Axis by retaining the existing Anzac Parade street lighting and illumination of Federation Mall.

iv] Reinforce the Griffins' Water Axis by illuminating the promenade along the southern foreshore, Commonwealth Place and the International Flag Display.

v] Use full cutoff light fittings in all landscape areas, roads, paths and car parks within the Central National Area (except where noted in this policy).

vi] Use full cutoff street and pedestrian lighting on all main avenues that contributes to their development as high quality landscape boulevards.

vii] Align lighting hardware to strengthen the framing of the National Triangle, main avenues and formally landscaped open spaces.

STRATEGY 1B CREATE A CLEAR HIERARCHY OF BUILT ENVIRONMENT ILLUMINATION IN CENTRAL CANBERRA.

DESIGN REQUIREMENTS:

i] Illuminate the exterior of key built elements to reflect their relationship to Griffin's National Triangle and their symbolic function, according to the following comparative luminance values in candela per square metre (cd/m^2):

Level One (20 cd/m2)	**Parliament House**
Level Two (15cd/m2)	**Old Parliament House** **Australian War Memorial** **National Carillon** **Captain Cook Memorial Jet** **City Hill Flag Pole** **Australian-American Memorial**
Level Three (10cd/m2)	**City Hill Precinct landmark buildings (RL617)** **Russell Offices** **National Library of Australia** **National Science and Technology Centre** **High Court of Australia** **National Gallery of Australia** **National Portrait Gallery** **Anzac Park East and West portal buildings** **Commonwealth Place**
Level Four (5cd/m2)	**East and West Block Offices** **John Gorton Building** **Treasury Building** **Commonwealth and Kings Avenue bridge parapets** **Canadian Flag Pole** **All other buildings adjacent to Constitution Avenue, Parkes Way or Lake Burley Griffin West Basin.**

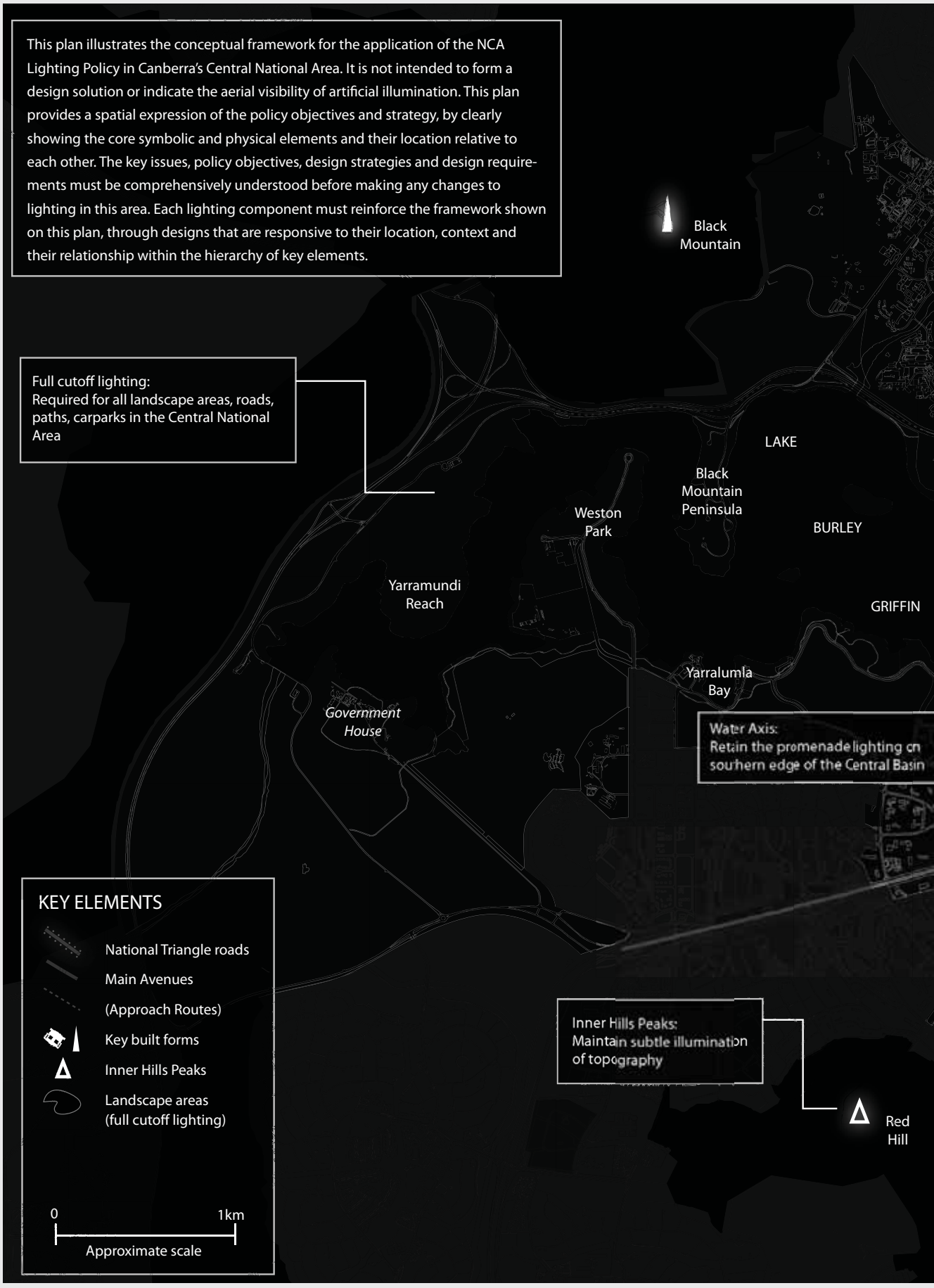
ii] Create a dramatic backdrop by restricting the use of external lighting for other buildings within City Hill Precinct, Parkes, Reid, Campbell and Russell to entrances, window displays and signage. Consideration will be given to additional building lighting where it contributes to identity, legibility, silhouette, architectural expression, façade articulation and Canberra's unique skyline at night.

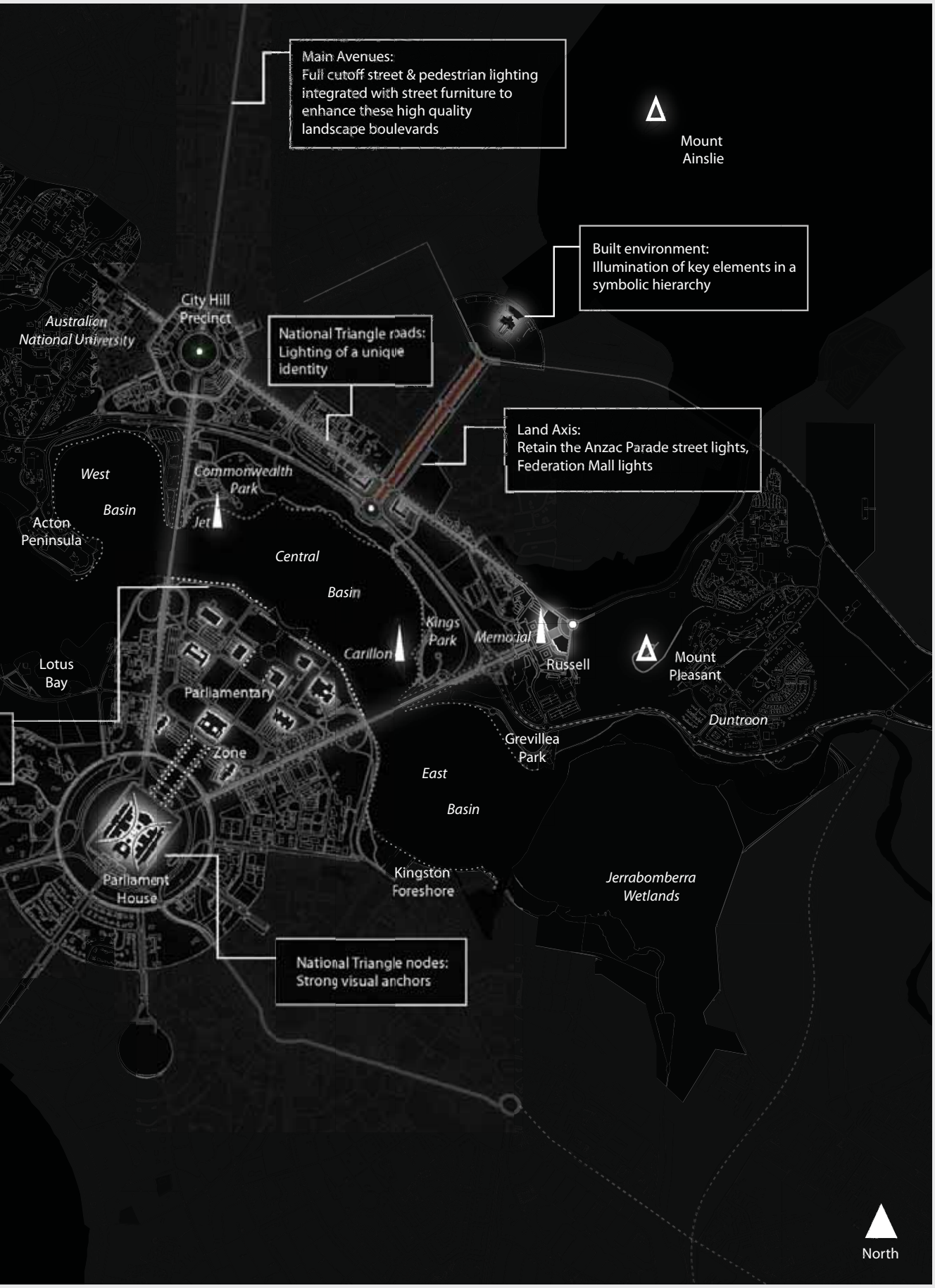
iii] Use full cutoff light fittings for new building façade lighting installations, that are carefully integrated into the building's structure.

iv] Minimise any sources of light spill or glare throughout Commonwealth Park, Kings Park, Rond Terrace, Black Mountain Peninsula, Yarralumla Bay, Weston Park, Grevillea Park, Yarramundi Reach, Acton Peninsula and Kingston Foreshore.

v] Minimise any sources of light spill or glare beyond the intended area to be lit.

INDICATIVE LIGHTING PLAN: URBAN CONTEXT




Main Avenues:
Full cutoff street & pedestrian lighting integrated with street furniture to enhance these high quality landscape boulevards
Mount Ainslie
Built environment:
Illumination of key elements in a symbolic hierarchy
City Hill Precinct
Australian National University
National Triangle roads:
Lighting of a unique identity
Land Axis:
Retain the Anzac Parade street lights, Federation Mall lights
West
Basin
Commonwealth Park
Jet
Acton Peninsula
Central
Basin
Kings Park
Memorial
Carillon
Russell
Mount Pleasant
Lotus Bay
Parliamentary
Zone
Duntroon
Grevillea Park
East
Basin
Parliament House
Kingston Foreshore
Jerrabomberra Wetlands
National Triangle nodes:
Strong visual anchors
North

STRATEGY 1C MAINTAIN SUBTLE ILLUMINATION OF THE CITY'S TOPOGRAPHY.

DESIGN REQUIREMENTS:

i] Consider identification of Red Hill and Mount Pleasant through the installation of a single light source, such as a navigational lighting beacon.

ii] Use full cutoff lighting of pedestrian pathways and landscape areas in proximity to the edge of Lake Burley Griffin around West, Central and East Basin, that effectively manages the unwanted effects of light spill on the lake ecosystem (unless otherwise noted in this policy).

iii] Use full cutoff lighting in all areas of the Inner Hills to control the effects of light spill.

STRATEGY 1D CONSERVE SIGNIFICANT HERITAGE LIGHTING FABRIC AND DESIGN ELEMENTS.

DESIGN REQUIREMENTS:

i] Consider all relevant Heritage Management Plans in developing lighting designs.

ii] Retain the essential character and lighting performance characteristics of any existing lighting installation with identified heritage value, in any proposed maintenance or replacement activity.

iii] Preserve the appearance, location and layout of lighting installations with heritage value.

iv] Do not replicate or extend poor performing heritage lighting hardware into new areas or in new installations.

v] Preserve the appearance, location and layout of lighting installations with heritage value.

PART 2: PLACE-MAKING

LIGHT QUALITY AND CHARACTER

Canberra's lighting infrastructure is one of the defining elements of the city's unique urban landscape. Projects such as the award-winning integrated lighting design for the Commonwealth Avenue and Kings Avenue bridges, have contributed to the high standard of public space that can be experienced in the National Capital today.

It is important that the quality and character of light produced by artificial sources maintains these high standards and contributes to their enhancement.

LIGHT COLOUR

The colour of light emitted from an artificial source and the apparent colour of objects that the light strikes can affect the ability of people to accurately perceive their surrounding environment. Lighting that has a poor colour rendering ability can distort our perception of our surroundings, affecting our awareness and appreciation of the natural and built environment. The colour temperature of lighting can have impacts on human spatial awareness and health, wildlife health, astronomy and light pollution.

BUILT ENVIRONMENT

The design of lighting installations and their performance has a strong influence on the quality of our built environment. Buildings, streets and public spaces all have a night time character that relies on artificial lighting. As a highly visible urban element, light fittings and poles are also a significant visual and physical element during the day. The physical location, spacing and scale of lighting hardware can impede movement or vision, impacting accessibility and legibility.

AMENITY AND QUALITY OF PUBLIC SPACE

Lighting makes a vital contribution to the way in which we perceive the amenity and quality of a public space. For instance, in public spaces where the level of illumination is too bright or too dim, it can influence how people interact with each other by constraining the level and type of activity that is desirable or possible.

Policy Objective 2:

Lighting must contribute to the creation of a high quality public realm.

Commonwealth Avenue bridge lighting

STRATEGIES AND REQUIREMENTS

STRATEGY 2A ENSURE THE SCALE AND CHARACTER OF LIGHTING IS APPROPRIATE TO THE LOCATION.

DESIGN REQUIREMENTS:

i] Use lighting standards and categories of a lighting type and quality that is appropriate to the application and location.

ii] Light public art installations with individual designs according to the intentions of the artist, where it is not contrary to the objectives or strategy of this policy.

iii] Manage the inter-relationship of lighting intensity and character between all structures, landscape elements and buildings.

iv] Ensure that the colour and finish of light poles and fittings in landscape areas integrates with and visually complements their surroundings. Lighting installations in proximity to the edge of Lake Burley Griffin must mitigate the visual impact of poles or fittings on the landscape during the day.

v] Add visual interest to public spaces through engaging, interactive lighting designs where appropriate.

vi] Locate light sources and poles to highlight the repetition and rhythm of their form, spacing and pattern, giving consideration to the definition of space and their role as sculptural elements in the urban landscape.

STRATEGY 2B ENSURE THE FORM, MATERIAL AND FINISH OF LIGHTING HARDWARE IS APPROPRIATE TO THE LOCATION AND CO-ORDINATED WITH OTHER STREET AND PARK FURNITURE SO AS TO FORM AN INTEGRATED, COHESIVE PALETTE OF MATERIALS AND FITTINGS.

DESIGN REQUIREMENTS:

i] Use high quality light fittings and hardware with a high standard of detail and finish.

ii] Locate lighting hardware outside key desire or movement lines, to optimise accessibility and safety.

iii] Locate lighting hardware around trees, signs, and street furniture to achieve a spacing, pattern and alignment that complements these and other urban elements.

iv] Consider opportunities for integration of lighting into street furniture, built form or road/bridge structures.

v] Co-ordinate the colour and finish of light poles and fittings and with other lighting hardware and street furniture.

vi] Develop lighting plans in advance of any wide-scale installation or replacement of poles or fittings within the Parliament House Vista and Lake Burley Griffin and adjacent parklands. Address the context and the character of the landscape setting and its elements including street furniture in the lighting plans.

STRATEGY 2C ENSURE THE COLOUR AND FORM OF THE PHYSICAL ENVIRONMENT IS ACCURATELY RENDERED.

DESIGN REQUIREMENTS:

i] Use lamps that offer a colour temperature close to the appearance of daylight (approximately 4500-6500 degrees Kelvin).

ii] Select lamps that offer good colour rendering ability, of 80 or greater on the Colour Rendering Index.

iii] Select lamps and fittings that provide the most accurate colour rendition of landscape possible throughout the parklands surrounding Lake Burley Griffin, along the main avenues, and in the Parliamentary Zone.

PART 3: SAFETY

HUMAN VISION

The human eye responds to different light levels by adjusting the iris to regulate the amount of light transferred to the retina through the pupil. This process and the time it takes for our eyes to adjust, affects our ability to perceive the detail of our environment. At night, the level of light, the contrast between various objects or light sources, and the time it takes our to eyes respond to changes (or different levels) in light, affect our ability to see. The impact of artificial light on our ability to see varies between individuals according to differences in age and vision capability. At low light levels, it is difficult to perceive colours accurately.

GLARE

Glare is experienced where a light source creates visual discomfort or reduces human vision. This can be a result of light intensity, contrast or change in light level that is too rapid for the eye to adapt. Discomfort glare is defined as making vision uncomfortable or navigation difficult. Disability glare is when it is difficult for people to perceive their environment accurately or navigate it safely. The threshold between discomfort and disability glare varies according to differences in age and vision capability. Beyond the impacts on human vision, glare is also a form of light pollution that represents wasted energy.

SAFETY AND SECURITY

The safety of people walking, cycling and vehicular road users, is a fundamental concern in the design of all outdoor lighting. However the provision alone of outdoor lighting may not fully meet the community's expectations of safety. The ability of people to see and be seen at night is affected by many factors such as lighting intensity, direction, uniformity, glare, and colour rendition.

The perceived and actual level of security within an area is strongly characterised by lighting. The intensity, angle and distribution of lighting affect our ability to perceive our surroundings which is important in creating secure environments.

Policy Objective 3:

Lighting must provide a safe night time environment for residents of, and visitors to the National Capital.

STRATEGIES AND REQUIREMENTS

STRATEGY 3A MAINTAIN A WELL-CONNECTED MOVEMENT NETWORK OF PUBLIC PATHS, ROADS AND SPACES.

DESIGN REQUIREMENTS:

i] Install and maintain lighting throughout the network of pedestrian and cycling paths and formally-recognised public spaces in the Central National Area.

ii] Install and maintain lighting on all public roads and car parks in accordance with the volumes and patterns of activity and their role within Canberra's transport network.

iii] Select light poles and locations that minimise the risk of injury for people travelling on paths or roads.

STRATEGY 3B ENSURE AUSTRALIAN STANDARDS FOR ILLUMINATION ARE MET AS A MINIMUM.

DESIGN REQUIREMENTS:

i] Demonstrate compliance of lighting design proposals with the Australian Standard AS/NZS 1158 - Lighting for Roads and Public Spaces and the suitability of the proposed lighting category for the intended application.

ii] Demonstrate compliance of lighting design with other relevant Australian Standards relating to the installation and operation of outdoor lighting. Where an inconsistency arises between this policy and any Australian Standard, this policy prevails.

STRATEGY 3C EFFECTIVELY MANAGE GLARE.

DESIGN REQUIREMENTS:

i] Select lamps of the lowest required intensity.

ii] Select light fittings and optical systems that shield light from being directed sideways or upwards.

iii] Locate light sources beyond the typical field of view for people in any given area, through the location and scale of light poles and fittings.

iv] Minimise any sources of light spill or glare beyond the intended area to be lit.

STRATEGY 3D CREATE INTEGRATED LIGHTING DESIGNS THAT ENABLE THE HUMAN EYE TO ADAPT TO CHANGES IN LIGHT LEVELS.

DESIGN REQUIREMENTS:

i] Achieve a high degree of uniformity in illumination levels along pathways and roads.

ii] Install transitionary lighting treatments between areas of contrasting illumination that accommodate the human eye's capacity to adapt to changes in light levels.

PART 4: ENVIRONMENT AND SUSTAINABILITY

LIGHT POLLUTION

Light pollution is the introduction by humans, directly or indirectly, of artificial light into the environment. Some common forms of light pollution are:

- Light trespass or spill is artificial light that is projected into areas where it is not wanted. For instance, light trespass or spill can be observed in residential areas where street or path lighting is directed into houses, affecting peoples' sleep patterns, or in areas where wildlife may be impacted. Light spill can be a nuisance to residents and affect the legibility of the city at night.It can include forms such as traffic lights, vehicle headlights, internal building lights and signs.
- Light clutter is a condition where the concentration of multiple light fittings within a given area is too great, resulting in inconsistent and/or excessive illumination conditions. This can be observed in cases where the number and design of light fittings in an area have gradually been added to over time.
- Over-illumination is the provision of artificial light in excess of the required level for the intended application. The use of light sources that exceed the design requirements in their illuminance or intensity is a cause of over-illumination by not taking account of ambient light levels produced by existing light fittings or internal building illumination.
- Sky glow is upward wasted light caused by excessive illumination, light being directed upwards or light being reflected into the sky from light-coloured or reflective surfaces. This reduces the visibility of the night sky in urban areas, which as a consequence can affect astronomy, aircraft navigation and air quality.

Examples of the Canberra community's response to light pollution (note black coverings on light fittings to prevent light spill into nearby residences also blocks lighting of footpath)

ENERGY USE

The main factors that determine the amount of energy used by lighting systems are the overall design of the system, the lamp type, light fitting, the controller (or driver) and the duration and intensity of its operation. The age and condition of existing light fittings can also contribute to increased energy use and operating costs. The amount of energy that goes into establishing, maintaining and replacing lighting infrastructure is a major factor in the overall energy use and cost of operating lighting systems.

ENERGY WASTE

In cases where artificial light is provided at a time or in a place that is not needed, the energy is wasted. For instance, the operation of outdoor lighting at full intensity for the duration of the night may be unnecessary, given the reduced level of pedestrian and vehicular activity between the hours of midnight and 5:00am. Most forms of light pollution including upward light spill and light trespass are examples of energy waste.

URBAN ECOLOGY

The way that lighting is designed and operated can affect our natural environment in a number of ways. Lighting can affect the navigation, migration, sleep and predatory behaviour of animals, birds and insects.

The installation and maintenance of lighting infrastructure such as poles and cabling can directly impact tree health through limb and root pruning works.

Lighting can affect wildlife health – a Canberra Boobook Owl hunting at night (photo by J. Olsen and S. Trost)

NIGHT SKY VISIBILITY

Our visual connection with the night sky makes an important contribution to our knowledge, heritage and culture. It is important that future generations have the opportunity to see and understand the night sky, which can be impeded by lighting design and operation.

Policy Objective 4:

Minimise the obtrusive effects of artificial lighting on the environment.

STRATEGIES AND REQUIREMENTS

STRATEGY 4A MANAGE LIGHT POLLUTION THROUGH THE SELECTION AND PLACEMENT OF LIGHTING HARDWARE.

DESIGN REQUIREMENTS:

i] Use full cutoff light fittings, lens diffusers, or light sources that provide indirect or reflected light (unless otherwise noted in this policy).

ii] Select optical systems and shielding designs for artificial light sources that effectively manage glare and light distribution behind and above the light source.

iii] Install and operate lighting only where it responds to a demonstrated need or requirement. Consider the removal of lighting where it does not fit this criteria.

iv] Co-ordinate the removal or replacement of existing light fittings in proximity to any proposed lighting works to reduce variances in lighting hardware and effect.

v] Minimise the distribution of artificial light beyond the intended area to be lit.

STRATEGY 4B MINIMISE ENERGY USE.

DESIGN REQUIREMENTS:

i] Select lighting hardware components that offer a long service life, feature an enduring aesthetic appeal, be of a high quality construction and offer reliable, low maintenance performance.

ii] Consider energy use and value for money in any lighting upgrade or new installation.

iii] Install efficient lighting control systems that can adjust illumination to suit activity levels, saving energy whilst maintaining safety when required.

iv] Use co-ordinated lighting management systems to reduce energy and maintenance and improve uniformity and safety.

STRATEGY 4 C ENSURE THE INSTALLATION AND MAINTENANCE OF LIGHTING INFRASTRUCTURE DOES NOT HAVE A DETRIMENTAL EFFECT ON LANDSCAPE.

DESIGN REQUIREMENTS:

i] Design light poles and outreach arms around the long-term form of trees to maintain light performance and minimise tree maintenance.

ii] Locate light poles and power cables around established tree and root locations.

STRATEGY 4D MINIMISE THE IMPACT OF LIGHTING OPERATION ON WILDLIFE HEALTH.

DESIGN REQUIREMENTS:

i] Use full cutoff light fittings within landscape areas to reduce impact on wildlife.

ii] Reduce the intensity or turn off lighting at times it is not needed in landscape areas, to reduce impact on wildlife.

iii] Reduce the intensity and duration of external building lighting operation during migration periods of the Bogong moth in October and between February and April. Shut off lights that are not needed during the second half of the night at times of peak moth migration.

iv] Ensure that the design and operation of lighting does not cause wildlife or avifauna disorientation, injury or death.

Lighting is important in communicating the meaning of commemorative works – the National Police Memorial in Kings Park

PART 5: CELEBRATION AND COMMEMORATION

EVENTS IN THE NATIONAL CAPITAL

Events play an important role in fostering awareness and promotion of the National Capital. The lighting of these events can assist in activating the city's public spaces for the enjoyment of residents and visitors. While the impacts of temporary lighting installations need to be carefully considered on the city's urban form and identity, it also provides an opportunity for further expressing and reinforcing these qualities.

COMMEMORATIVE LIGHTING

Canberra is home to many commemorative works and National Memorials located within its nationally significant areas. Lighting can contribute to our understanding of the character and meaning of these commemorative structures and subjects. The relationship between commemorative works and their surroundings is an important consideration for lighting design.

Lighting is important in communicating the meaning of commemorative works – the National Police Memorial in Kings Park

Policy Objective 5:

Provide opportunities for celebration and commemoration through lighting.

STRATEGIES AND REQUIREMENTS

STRATEGY 5 A ENSURE THAT LIGHTING CONTRIBUTES TO AN AWARENESS OF THE NATIONAL CAPITAL THROUGH APPROPRIATE CELEBRATORY OR COMMEMORATIVE SUBJECTS.

DESIGN REQUIREMENTS:

i] Mark the gateways into the National Capital, the Central National Area and the Parliamentary Zone using innovative road and bridge lighting solutions at key intersections to celebrate these entrances.

ii] Define the nodes of the National Triangle during key national or civic celebrations using vertical 'light jets' at City Hill and Russell.

iii] Light areas of natural and formal landscape in Commonwealth Park, Kings Park, evergreen trees on the edge of Lake Burley Griffin and other areas where modest and judicious lighting can reveal and explain the topography of the 'amphitheatre' within which Canberra sits.

STRATEGY 5B INTEGRATE LIGHTING WITH COMMEMORATIVE WORKS.

DESIGN REQUIREMENTS:

i] Light commemorative works with individual designs suited to the form of the structure, its location and its commemorative purpose.

ii] Minimise the visible impact of lighting hardware in proximity to commemorative works.

iii] Ensure that no road, path or area lighting interferes with the lighting of commemorative works, structures or flagpoles.

iv] Light flagpoles to heighten their impact when viewed at night, using up-lighting designs that minimise upward light wastage and glare. Consider pole-top mounted full cutoff lighting designs where it will not affect known heritage values.

SUBMISSION REQUIREMENTS FOR NCA WORKS APPROVAL

In addition to the NCA's requirements for Works Approval applications, the following information will be required for any lighting proposals:

1] A written statement or report describing how the proposed works address the requirements of the NCA Outdoor Lighting Policy and all other applicable legislation, standards or requirements.

2] A comprehensive lighting plan clearly showing the type and location of all proposed light fittings, including any existing lighting to be retained or removed.

3] Detailed plans describing the proposed construction or installation method for all poles, fittings and associated works and their impact on existing trees, paving or services.

4] Section and elevation drawing(s) to indicate the scale of the proposed lighting hardware in context and the direction and control of lighting distribution.

5] Detailed information on light distribution for each type of light that is being proposed.

In addition to the above, the NCA may request detailed photometric data where it considers that the impact of artificial light is likely to have a significant impact on National Capital values.

GLOSSARY

These explanations are provided for general information and are not intended to form comprehensive or technical definitions.

Colour rendering	The ability of artificial light to display the true colour of an object that it strikes
Colour temperature	The colour of light emitted from an artificial source
Full cutoff	Restriction of light from being directed at or above the horizontal for the installed luminaire
Illuminance	Measure of light distributed by an artificial light source
Illuminate	General expression for the provision of artificial lighting
Illumination	General reference to artificial lighting or its perceived brightness level
Lamp	Artificial light source
Lens	Flat or curved luminaire screen made of transparent or semi-opaque material
Light fitting	See 'Luminaire'
Luminaire	Electrical appliance to distribute artificial light, consisting of a lamp and optical system contained within a shield or housing
Luminance	Measure of light arriving on an object or surface
Optical system	The components of a luminaire used for light distribution, including a lens and reflector

The National Capital Authority was established under the
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