Hawkesbury City Council

attachment 1
to
item 184

Draft Cumberland Plain Conservation Plan

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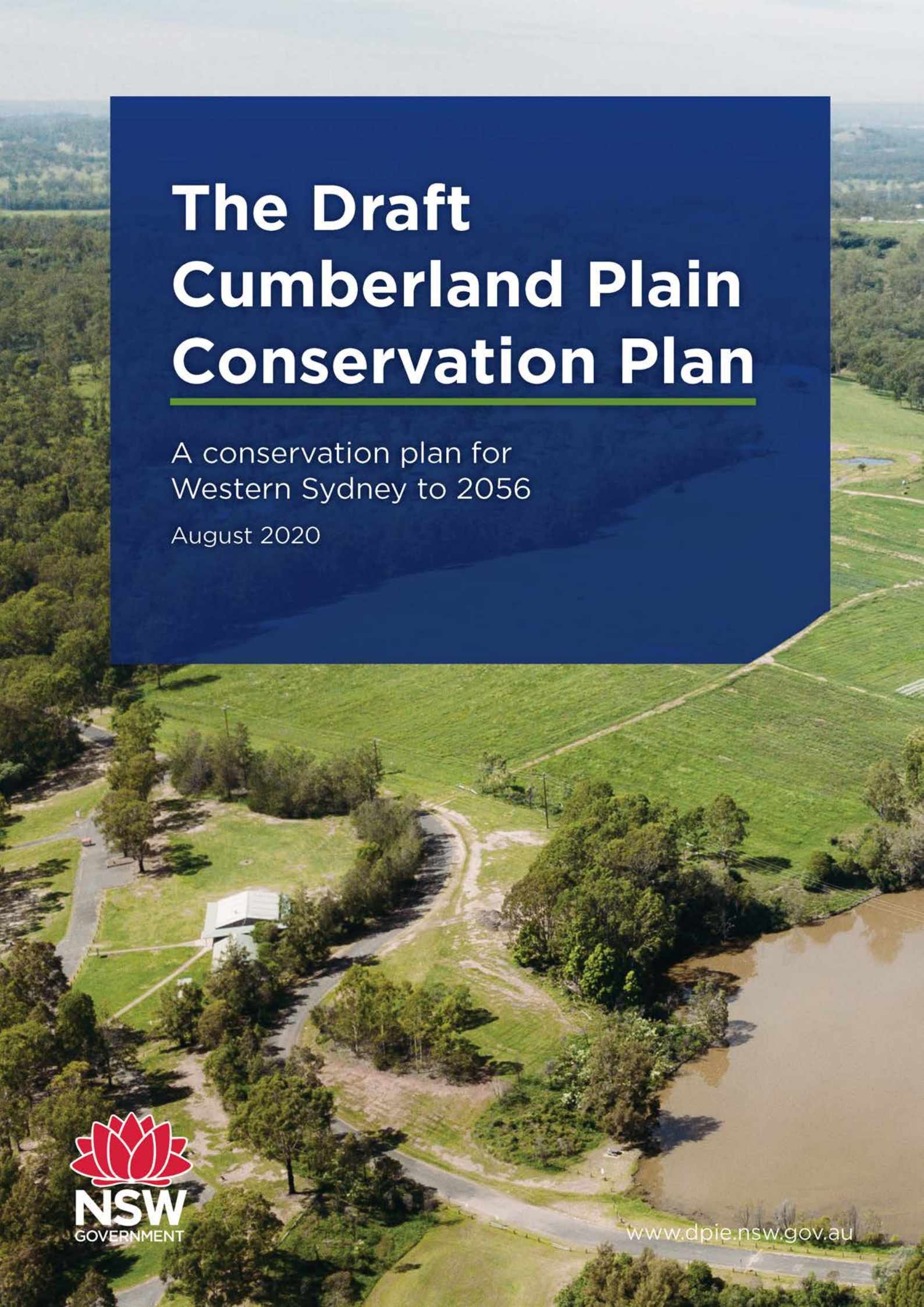

The Draft Cumberland Plain Conservation Plan

A conservation plan for Western Sydney to 2056

August 2020

NSW GOVERNMENT

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Acknowledgement of Country

The development of the Cumberland Plain Conservation Plan acknowledges more than 60,000 years of continuous Aboriginal connection to the land that makes up NSW.

This Plan recognises that, as part of the world's oldest living culture, traditional Aboriginal and Torres Strait Islander owners and custodians of the Australian continent and adjacent islands share a unique bond to Country — a bond forged through thousands of years of travelling across lands and waterways for ceremony, religion, trading and seasonal migration.

Aboriginal peoples maintain a strong belief that if we care for Country, it will care for us. The area covered by the Cumberland Plain Conservation Plan is cared for by three Aboriginal groups: the Darug, Dharawal and Gundungurra. Others, such as the Eora, Darkinjung, Wiradjuri and Yuin maintain trade or other obligatory care relationships with the area. The Deerubbin, Gandangara and Tharawal Local Aboriginal Land Councils also have local land holdings and responsibilities towards Aboriginal peoples living in the area.

This significant connection to Country has played an important part in shaping this Plan.

For Traditional Owners, Country takes in everything within the physical, cultural and spiritual landscape - landforms, waters, air, trees, rocks, plants, animals, foods, medicines, minerals, stories and special places. It includes cultural practice, kinship, knowledge, songs, stories and art, as well as spiritual beings, and people: past, present and future.

Contents

Minister's foreword

Western Sydney is evolving at a rapid pace. The new Nancy Boyd International Airport will start operating in 2026 and associated commercial, technological and educational hubs will transform Western Sydney and deliver new jobs, homes, infrastructure and services.

The NSW Government's vision is for a thriving and liveable Western Parkland City. We want people to love where they live and enjoy a lifestyle that allows them to get outside, be active and enjoy their great green spaces and local environments.

Western Sydney is a biologically diverse landscape with a rich variety of unique plants and animals, some of which are found nowhere else in the world. It is also home to the largest koala population in the Sydney region and one of the healthiest in NSW.

The Cumberland Plain Conservation Plan is one of the largest strategic conservation plans to be undertaken in Australia and delivers on a commitment under the Western Sydney City Deal. The Plan will protect large areas of significant habitat while unlocking delivery for urban growth and development in Western Sydney. The Plan is an exciting opportunity to protect the best of the remaining woodland habitat in Western Sydney and to enhance connectivity of a fragmented landscape.

The Plan has 28 commitments and 141 actions. Together these will help ensure the Western Parkland City can deliver new residential, commercial and industrial areas and major transport infrastructure while also avoiding, minimising and offsetting potential biodiversity impacts so ecosystem functionality can be maintained and improved.

The Plan will help establish new public reserves and private conservation lands, connect important areas of habitat and help restore degraded landscapes. By the time the Plan's fully implemented, it will protect, connect and restore around 11,000 hectares of native vegetation including protecting at least 5,545 hectares of threatened native vegetation to offset development impacts.

The NSW Government will establish a dedicated reserve to protect and restore up to 1,885 hectares of important koala habitat along the Georges River. The NSW Government has committed $84 million in the first five years to fund priority conservation actions including planting 100,000 trees to restore koala habitat in the reserve and 120 kilometres of koala exclusion fencing in priority locations as well as establish biodiversity stewardship sites on public and private land.

The Plan includes commitments to manage landscape threats such as weeds, pests and fire. It also includes actions to help engage with local communities about their unique local plants and animals and will deliver new and innovative research that will help protect Western's Sydney local and regional environment.

The NSW Government will also continue to collaborate with Western Sydney's Aboriginal community and Aboriginal Land Councils to develop a 10-year Engagement and Implementation Strategy to implement the Plan in partnership with Aboriginal people.

The Plan plays an important role in helping to deliver two of the Premier's Priorities through establishing new conservation lands. Greening our city aims to increase the tree canopy and green cover across Greater Sydney by planting 1 million trees by 2022. Greener public spaces aims to increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10 per cent by 2023.

Executive summary

The Western Parkland City is projected to grow from 740,000 people in 2016 to 1.1 million by 2036, to well over 1.5 million by 2056. A thriving, liveable Western Parkland City must be well planned to meet that growth. It should include dedicated areas to protect the many unique native plants and animals in the region, and publicly accessible open and green spaces that local communities can enjoy.

The Draft Cumberland Plain Conservation Plan (the Plan) identifies strategically important biodiversity areas within the Cumberland subregion to offset the biodiversity impacts of future urban development, while ensuring a vibrant and liveable city.

The Plan's vision to 'support Western Sydney's biodiversity and growth' means it will support the delivery of infrastructure, housing and jobs for the people in the Western Parkland City while protecting important biodiversity. This includes protecting, among others, the Southern Sydney koala population, the Cumberland Plain Land Snail, foraging habitat for the Swift Parrot and significant plants like the Nodding Geebung and Spiked Rice-flower. This Plan represents one of the largest strategic conservation planning exercises ever undertaken in Australia.

The Plan is being developed to meet requirements for strategic biodiversity certification under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and strategic assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). It will facilitate the biodiversity approvals required to deliver four nominated areas for development in Western Sydney and supporting major transport infrastructure. The nominated areas are:

- Greater Macarthur Growth Area
- Greater Penrith to Eastern Creek Investigation Area
- Western Sydney Aerotropolis
- Wilton Growth Area.

The Plan is supported by two sub-plans:

- Sub-Plan A: Conservation Program and Implementation
- Sub-Plan B: Koalas.

Each of the sub-plans focusses on important parts of the Plan's implementation, being the conservation program (including its evaluation program); and the conservation actions to protect and conserve the Southern Sydney koala population.

Significant conservation planning work has been undertaken to develop the Plan. This has involved identifying the biodiversity values of the area, understanding and assessing the potential impacts of future growth on these values, and developing a conservation program that can achieve biodiversity outcomes through an enhanced network of conservation lands to improve ecological resilience and function at a landscape scale and in perpetuity.

The NSW Government will prioritise the establishment of new public reserves within the first five years to deliver an upfront strategic offset for the area's threatened ecological communities, species and their habitats. This will include creating biodiversity stewardship sites on land currently owned by the NSW Government and on other land in these areas if they become available for acquisition.

The priority reserves are the Georges River Koala Reserve, announced as part of the Plan, and two additional public reserves under investigation for feasibility:

- the Gulguer Reserve Investigation Area
- the Confluence Reserve Investigation Area.

The NSW Government has committed $84 million in the first five years to fund priority conservation actions under the Plan. This includes funding to plant 100,000 trees to restore koala habitat, establishing biodiversity stewardship sites on private land, and installing 120 kilometres of koala exclusion fencing to protect koalas from threats such as vehicle strike and dog attacks.

The Plan's broader conservation program will include ecological restoration activities on conservation lands, managing and reducing threats to biodiversity and supporting research and community engagement initiatives.

The Plan is being developed for the people of Western Sydney. The department will hold responsibility for implementing the Plan and will work closely with government and non-government partners to establish agreements to deliver the Plan's conservation program.

The infrastructure corridors program is administered by Transport for NSW, who are a major project partner of strategic conservation planning. An executive implementation committee with executive-level representatives from relevant government agencies will be established to oversee implementation of the Plan.

The NSW Government will commission a comprehensive, independent review on the status of implementation of the Plan and its outcomes every five years over the life of the Plan. This report will be provided to the NSW Minister for the Environment and the Commonwealth Minister for the Environment.


Draft Cumberland Plain Conservation Plan
Supporting Western Sydney's Biodiversity and Growth
28 commitments
National parks and other reserves to protect biodiversity and create new green spaces
Biodiversity stewardship sites to protect important biodiversity
Ecological restoration will improve and enhance connectivity
Research to support evidence-based decisions
An informed and engaged community
Managing landscape scale threats
$84 million over 5 years for:
Plant 100,000 trees to restore koala habitat in the Georges River Koala Reserve
Establish Georges River Koala Reserve to protect and restore up to 1,885 hectares of important koala habitat
Install up to 120 km of koala exclusion fencing to protect koalas from increasing threats such as vehicle strike and dog attacks

Introduction

Cumberland Plain Woodland

Introduction

Strategic conservation planning in Western Sydney

The population of Western Sydney is projected to grow from 740,000 in 2016 to 1.1 million by 2036, and to well over 1.5 million by 2056. New city-shaping transport links and the Western Sydney International (Nancy-Bird Walton) Airport are being developed to substantially improve Western Sydney's connections to other parts of Sydney, wider Australia and beyond.

A thriving, liveable Western Sydney needs to include areas for the many native plants and animals in the region, and publicly accessible, open and green spaces for local communities.

Strategic conservation planning is a landscape-scale approach to assessing and protecting biodiversity up front in planning for large-scale development. This strategic approach allows for the streamlined delivery of housing and infrastructure while protecting regionally important land for conservation and publicly accessible green space. Using a landscape approach early in the planning process enables decision-makers to identify and protect the most important habitat for species' population viability and connectivity and incorporate that information into regional and local strategic plans and in planning and development controls.

Draft Cumberland Plain Conservation Plan

The department has undertaken strategic conservation planning to develop the Draft Cumberland Plain Conservation Plan (the Plan).

The Plan has been developed to meet requirements for strategic biodiversity certification under the Biodiversity Conservation Act 2016 (NSW) (BC Act) and strategic assessment under the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act).

The Plan is part of the NSW Government's commitment to delivering the Western Parkland City, consistent with the Greater Sydney Commission's strategic vision described in its *Greater Sydney Region Plan: A Metropolis of Three Cities* and *Western City District Plan*. It will protect the region's threatened plants and animals and support the needs of the community through the creation of new conservation lands and green spaces close to homes.

The Plan will achieve this through a conservation program that includes 28 commitments and 141 actions designed to improve ecological resilience and protect biodiversity. Understanding the environment at a landscape scale will safeguard Western Sydney's natural environment over the long term and in a changing climate.

The Plan's vision is to 'support Western Sydney's biodiversity and growth'. This means it will support planned and strategic delivery of infrastructure, housing and jobs for Western Sydney while protecting and maintaining important biodiversity areas. This includes protecting, among others, the Southern Sydney Koala population, the Cumberland Plain Land Snail, foraging habitat for the Swift Parrot and significant plants like the Nodding Geebung and Spiked Rice-flower.

The Plan will identify and protect important biodiversity in the nominated areas for development in the Western Parkland City. It will also deliver conservation outcomes outside those areas, including new or additions to national parks and public reserves; investing in biodiversity stewardship sites on privately owned land; and ecological restoration of the Cumberland subregion's native vegetation communities.

The Plan also identifies areas suitable for development within the nominated areas without the need for further biodiversity approvals, if development is in accordance with this Plan. This Plan represents one of the largest strategic conservation planning exercises ever undertaken in Australia and will provide an enduring conservation legacy for Western Sydney.

Structure of the Plan

This Plan comprises three documents (as shown in Figure 1), each playing a key role in ensuring the success of strategic conservation planning for Western Sydney.

The overarching Plan (this document) describes how development in nominated areas and major transport infrastructure across the Plan Area will occur. It also details how impacts on biodiversity values will be addressed through implementing the Plan.

Two sub-plans to this document provide further information on:

- the proposed conservation program and its implementation, providing a complete picture of how the Plan will meet its vision and objective (*Sub-Plan A: Conservation Program and Implementation*)
- protecting the significant koala population in Western Sydney and how the Plan supports other government initiatives to protect koalas (*Sub-Plan B: Koalas*).

Legislative context

The Plan has been prepared to meet strategic biodiversity certification under the BC Act and strategic assessment under the EPBC Act. The key legislative steps taken to prepare the Plan are outlined in Figure 2.

NSW strategic biodiversity certification

Biodiversity certification under Part 8 of the BC Act provides for a streamlined biodiversity assessment process for areas of land that are proposed for development. The process identifies areas that have approval for biodiversity impacts once certified, removing the need for a site by site biodiversity assessment before development commences. Areas can only be biodiversity certified if measures under that certification adequately address the likely impacts on biodiversity values. This will involve identifying and implementing measures to avoid, minimise and offset the impacts of development.

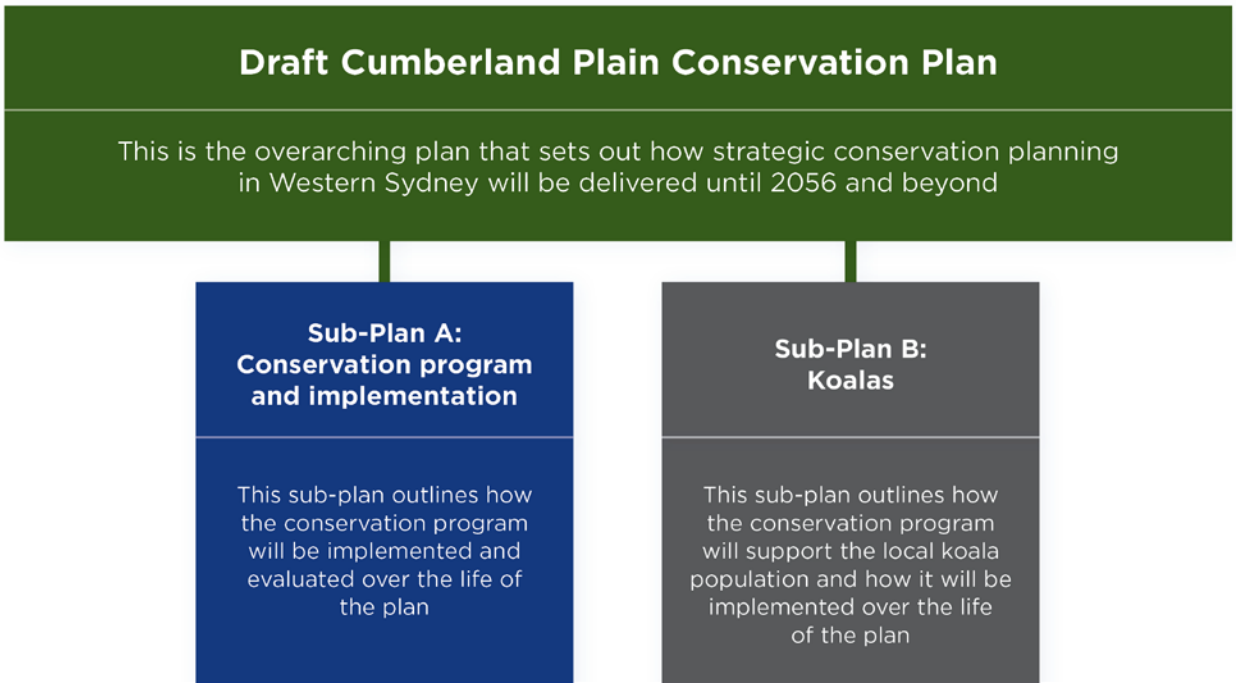


Figure 1: Draft Cumberland Plain Conservation Plan and sub-plans

Strategic biodiversity certification, as defined in Part 8.1 of the BC Act, is only available to planning authorities such as the Minister for Planning and Public Spaces, the Secretary of the Department of Planning, Industry and Environment or a local council.

It supports significant regional development and planning processes and provides a mechanism to address the potential impacts on biodiversity during strategic land use planning. It encourages planning authorities to design their urban capable land in a way that avoids and minimises impacts on biodiversity values through an approved conservation program.

Strategic assessments under the EPBC Act

Strategic assessments are established under Part 10 of the EPBC Act. They are landscape-scale assessments that consider impacts on matters protected by national environmental law, associated with the implementation of a policy, plan or program. Strategic assessments are undertaken at a broader scale than project by project assessments. Like strategic biodiversity certification, they are designed to streamline the assessment of impacts of actions and address cumulative impacts at the landscape scale early in the planning process.

Strategic assessments ensure that the impacts of development are avoided, mitigated and/or offset through the implementation of a policy, plan or program.

The matters for protection include nine Matters of National Environmental Significance (MNES):

- nationally threatened species and ecological communities
- migratory species
- World Heritage properties
- National Heritage places
- wetlands of international importance
- Commonwealth marine areas
- the Great Barrier Reef Marine Park

- nuclear actions (including uranium mining)
- water resources, in relation to coal seam gas development and large coal mine development.

In addition, the EPBC Act also regulates actions that occur on or impacting upon, Commonwealth land where there may be a significant impact on the environment (even if that significant impact is not on one of the nine MNES).

Draft Cumberland Plain Assessment Report

A single assessment report, the *Draft Cumberland Plain Assessment Report*, assesses the direct, indirect, prescribed and cumulative impacts of development proposed in the nominated areas and major infrastructure corridors facilitated by the Plan. The assessment report meets statutory requirements under both the BC Act and EPBC Act. It is the central source of information used to develop the Plan's conservation program. As per the EPBC Act, the assessment report also determines the adequacy of the Plan to avoid, mitigate and offset impacts from urban development and major infrastructure corridors to EPBC matters.

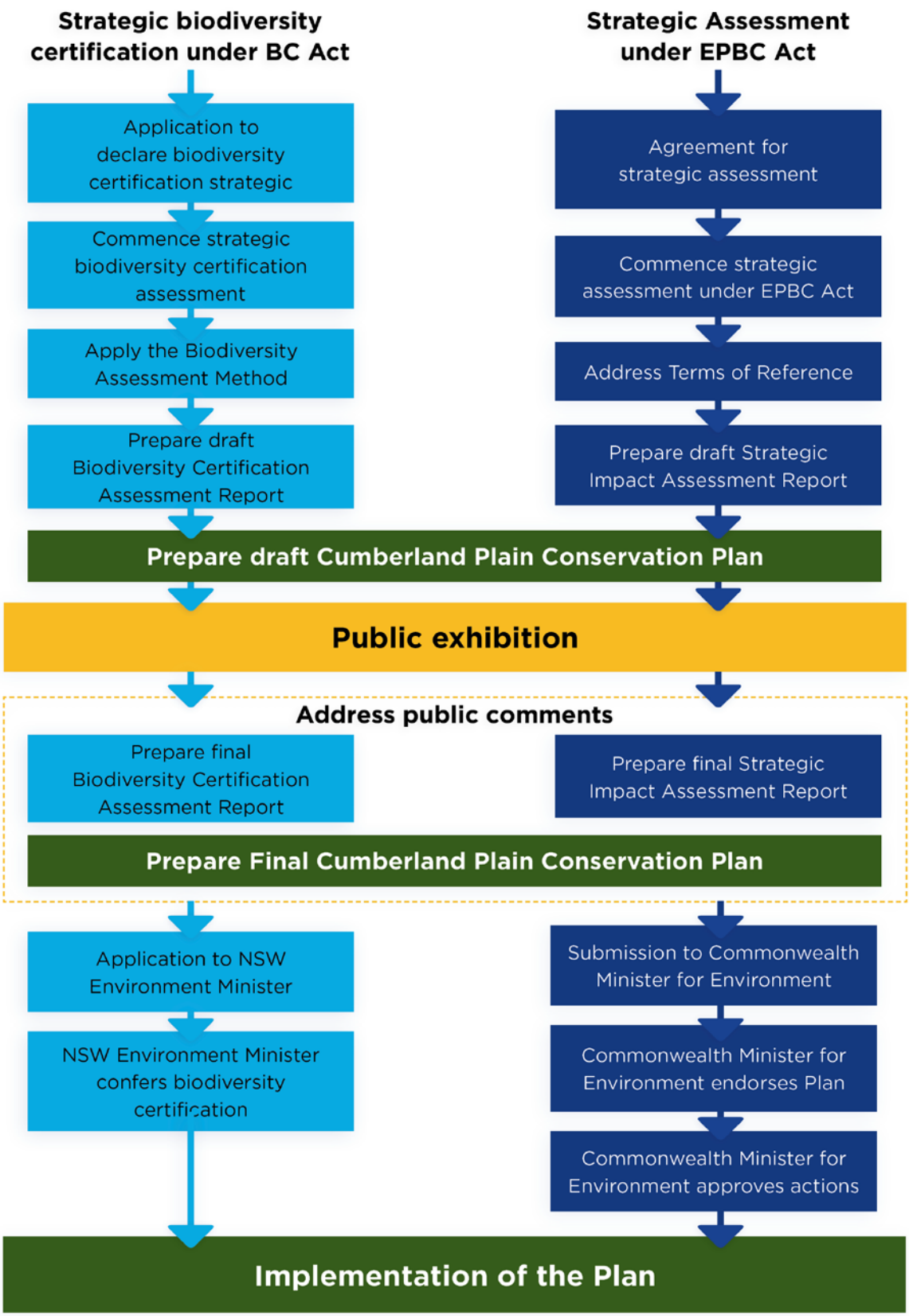
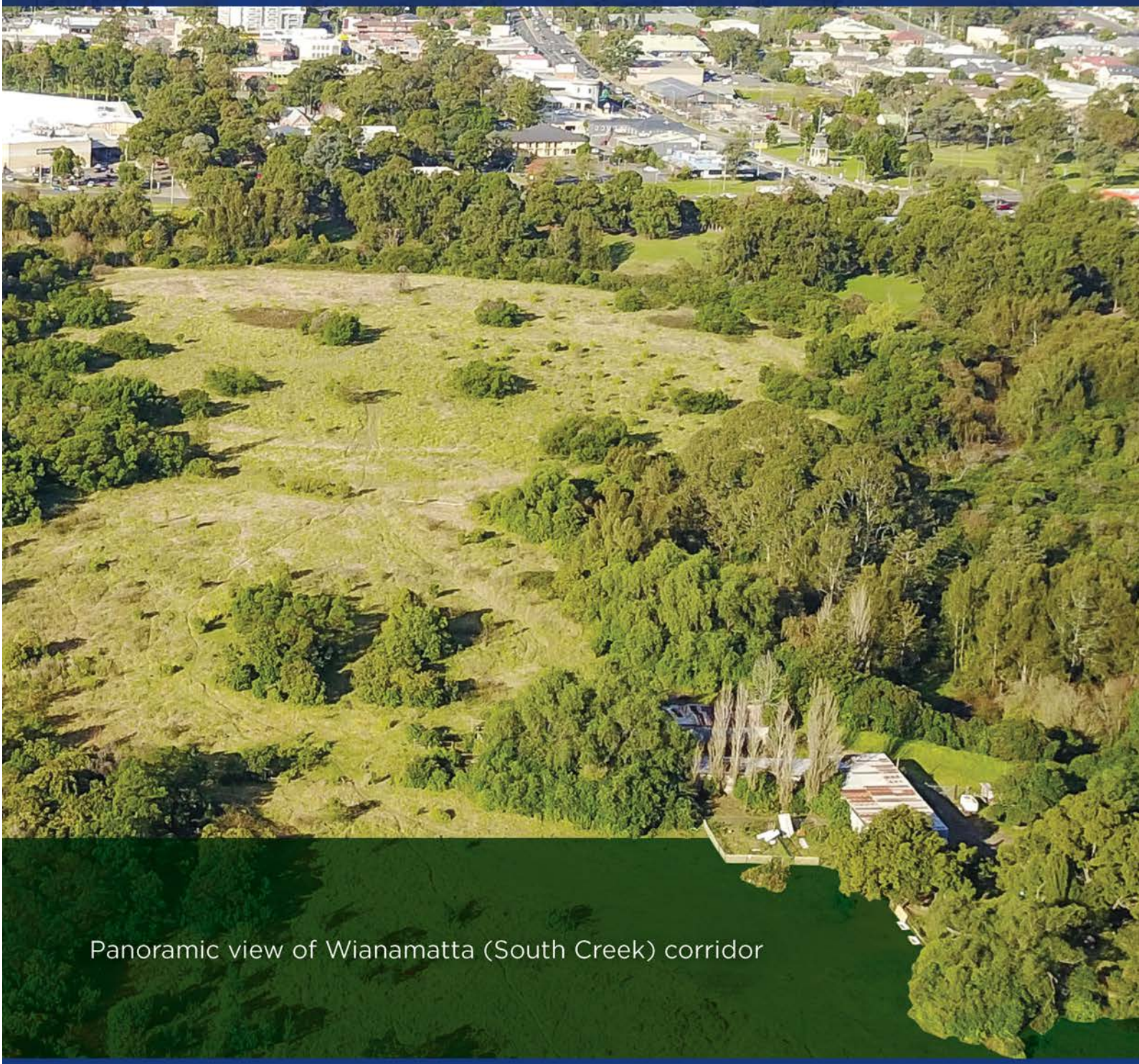


Figure 2: Legislative process to deliver the Plan's vision

Scope of Plan



Panoramic view of Wianamatta (South Creek) corridor

Plan Area and timeframe

The Plan Area (see Figure 3) covers approximately 200,000 hectares and sits primarily within the Interim Biogeographic Regionalisation of Australia (IBRA) Cumberland subregion[1] as well as some minor areas of the Sydney Cataract and Wollemi IBRA subregions. The area includes parts of eight local government areas—Wollondilly, Camden, Campbelltown, Liverpool, Fairfield, Penrith, Blacktown and Hawkesbury.

Existing land uses comprise mainly freehold land zoned rural and residential, with more than 75% of the remaining native vegetation in the Cumberland subregion in private ownership (Department of Environment, Climate Change and Water (DECCW 2010).

The Plan's conservation program will be delivered over the decades to 2056. This timing aligns with implementation of the *Greater Sydney Region Plan: A Metropolis of Three Cities* (GSC 2018) and the *Future Transport Strategy 2056* (Transport for NSW 2018).

Activities covered by the Plan

This Plan facilitates the delivery of areas nominated for urban development and major transport infrastructure (see Table 1). These nominated areas will be the key focus for development to 2056 and the centres of economic activity in Western Sydney. The nominated areas seeking approval through this Plan under the BC Act and EPBC Act are:

- Greater Macarthur Growth Area
- Greater Penrith to Eastern Creek Investigation Area
- Western Sydney Aerotropolis
- Wilton Growth Area.

This Plan excludes parts of Western Sydney Aerotropolis that overlap with the South West Growth Area, the Western Sydney International Airport and the eastern part of Mamre Road Precinct.

Major transport infrastructure is planned to respond to the needs of Western Sydney over the next 40 years. The Plan will facilitate implementation of some of the key major infrastructure corridors identified in Future Transport Strategy 2056, including:

- potential future extension of Sydney Metro Greater West, south from Western Sydney Aerotropolis to Macarthur (except for those areas in the South West Growth Area)
- Western Sydney Freight Line
- Outer Sydney Orbital, between Box Hill and the Hume Motorway near Menangle
- M7/Ropes Crossing Link Road.

Not all major corridor projects identified in Future Transport 2056 for Western Sydney will obtain their biodiversity approvals through this Plan. This includes, among others, Sydney Metro Greater West between St Marys and the Aerotropolis, and major infrastructure corridors identified in the existing North West and South West growth areas These projects are subject to separate biodiversity approval processes.

More details on the activities covered by this Plan are provided in the 'Description of actions' section (page 27).

[1] The Interim Biogeographic Regionalisation for Australia (IBRA) was developed by the Australian Government as a key planning tool to identify land for conservation. It has since become an improved spatial mapping and information source on vegetation communities and ecosystems across Australia.

Table 1: Biodiversity approvals being sought through the Plan

Development	Strategic biodiversity certification (BC Act)	Strategic assessment (EPBC Act)
Urban development in nominated areas	Certified land in nominated areas	Development in nominated areas subject to class of action approval
Major infrastructure corridors included in the Plan	Major infrastructure corridors within nominated areas (identified in Figure 3)	Major infrastructure corridors within the Plan Area (identified in Figure 3)

Conservation values

The Plan Area extends from north of Windsor to Picton in the south, and from the Hawkesbury-Nepean River in the west to the Georges River near Liverpool in the east.

Three main water catchments drain the Plan Area -Georges River catchment, Hawkesbury-Nepean catchment and Wianamatta (South Creek) sub-catchment. These form a broad branch-shaped pattern with an extensive network of tributaries extending from large floodplains and across the region.

Threatened species and communities

The Plan Area in the Cumberland subregion in Western Sydney contains some of the most fertile country in the Sydney Basin. It is home to unique native plants and animals, including more than 100 threatened or migratory fauna and flora species.

Approximately 61,000 hectares of land retains native vegetation, much of this being ecological communities or habitats for species listed under the BC Act and/or EPBC Act. Of the 40 plant community types (PCTs) in the area, approximately 30 are associated with BC Act or EPBC Act-listed threatened ecological communities or classified as over-cleared vegetation types (that is, greater than 70% cleared compared with the notional original extent) (Open Lines 2020). Thirteen per cent of the pre-1750 extent of native vegetation remains in good condition.

Areas of remaining native vegetation are often of high conservation value as they may contain the only remaining habitat for species and ecological communities that occur only in the Cumberland subregion (Open Lines 2020). Approximately 10% of the existing native vegetation communities in the Plan Area are protected in a reserve or a biodiversity agreement (DPE 2018).

Landscape connectivity

Landscape connectivity is important for biodiversity as it allows the linkage of habitats, species, communities and ecological processes. Once a landscape is fragmented, it is more prone to additional degradation.

Connectivity in the Cumberland subregion is already compromised. Once clearing levels exceed 70% of the landscape, biodiversity loss from fragmentation increases (DECCW 2010). This threshold has been surpassed in the Cumberland subregion. Fragmentation can be reduced and reversed by enhancing connections. Extensions to already protected areas such as reserves and biodiversity stewardship sites, and establishing new protected areas build these connections.

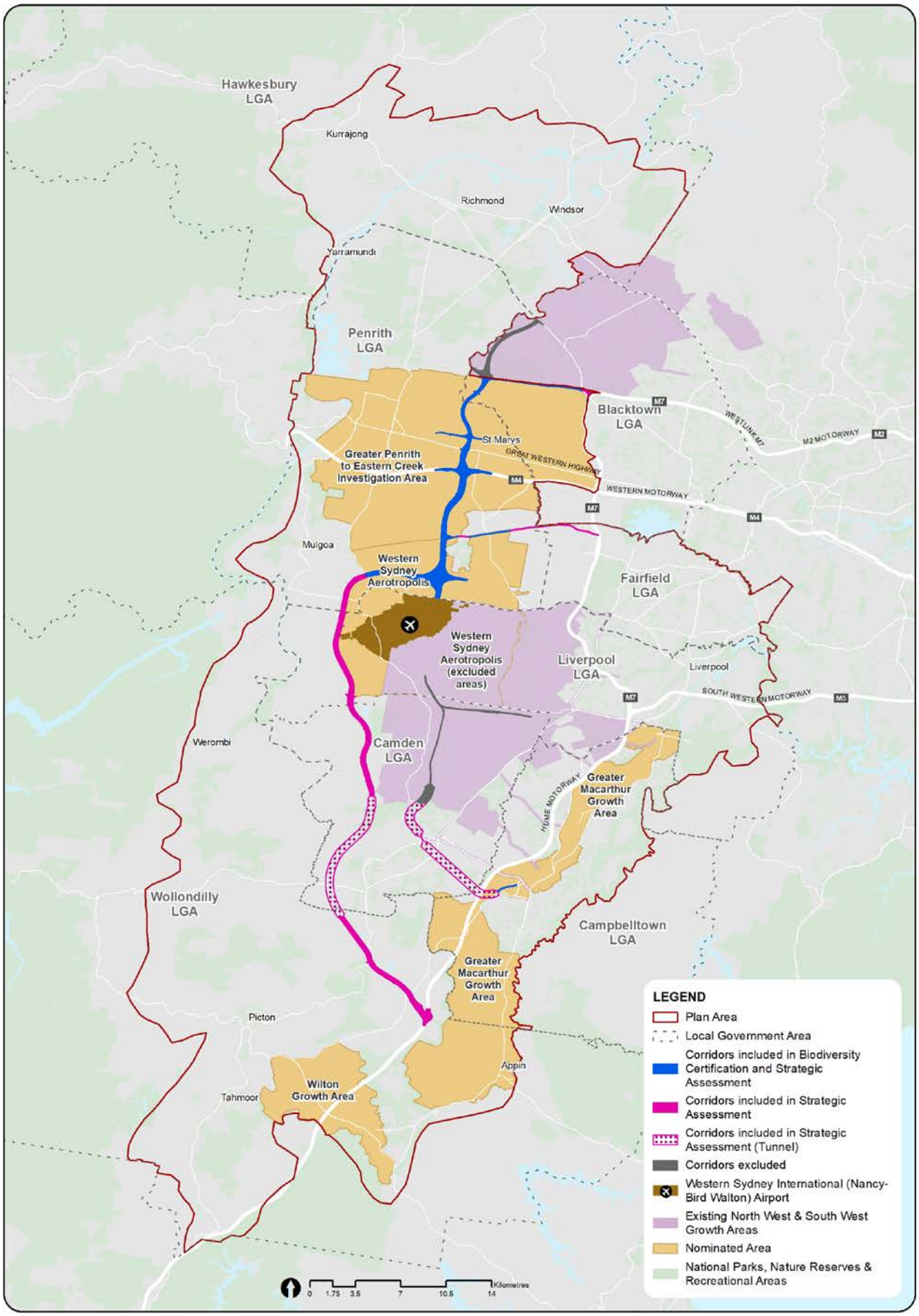


Figure 3: Draft Cumberland Plain Conservation Plan Area and scope

Meeting the Plan's vision

The Plan is guided by a program logic (see Figure 4). All elements of the program logic (vision, objective, outcomes, commitments and actions) are outcome-oriented and link to each other to achieve the Plan's objective and vision.

The Plan will deliver on-ground actions to meet eight outcomes for environmental, social and economic values in Western Sydney. These outcomes are listed in Figure 5.

Within the first five years of the Plan's implementation, the NSW Government will prioritise funding for the establishment of three new public reserves. This will help deliver the Plan's commitment to protect at least 5,475 hectares of impacted native vegetation within new conservation lands. These new reserves are critical to the protection of BC Act and EPBC Act-listed threatened ecological communities and threatened flora and fauna. The Georges River Koala Reserve has been announced as part of the Plan (see Case Study 2) and two additional public reserves are under investigation for feasibility:

- The Gulguer Reserve Investigation Area (see Case Study 3)
- The Confluence Reserve Investigation Area (see Case Study 4).

Other areas within the strategic conservation area have also been identified for further investigation as future reserves such as Bargo. The Plan includes additional commitments for threatened ecological communities, species (including target species[2]) and their habitats. These are listed in 'Appendix C. Plan commitments' (Commitment 9). The full package of commitments and actions included within the Plan's conservation program is detailed in *Sub-Plan A: Conservation Program and Implementation*.

Figure 4: Program logic to deliver the Plan's vision

[2] EPBC Act and BC Act-listed species likely to be at risk of residual adverse impacts from the direct impacts of development under the Plan.

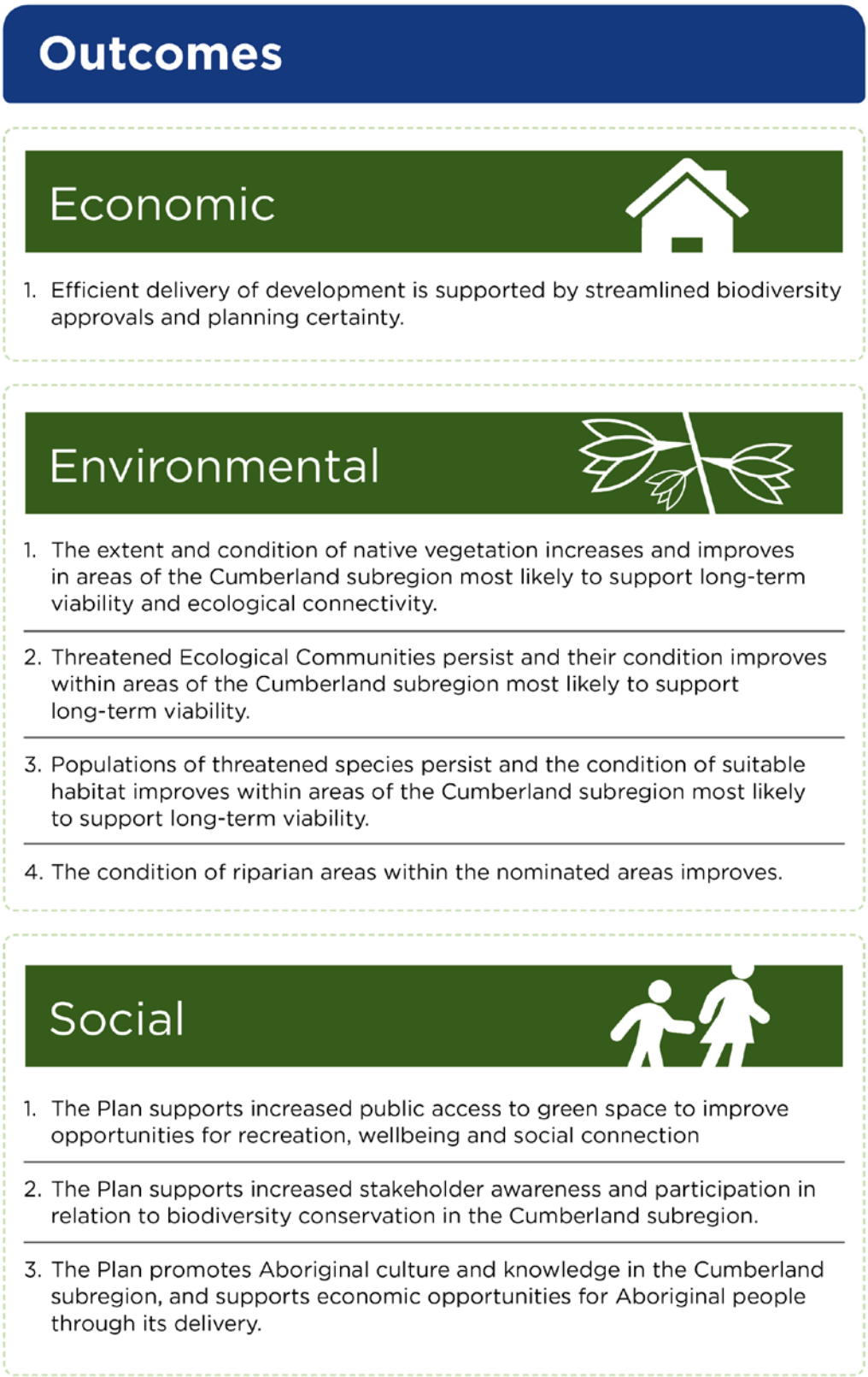


Figure 5: Draft Cumberland Plain Conservation Plan outcomes

The Plan's vision is ambitious and so a robust and flexible process for securing biodiversity offsets over time will be established to endure for the life of the Plan to 2056. This includes an implementation and assurance framework with:

- clear governance arrangements
- ongoing tracking of development impacts and offsets secured
- conservation land selection steps to guide the selection and acquisition of offsets
- adaptive management steps to be implemented through the NSW planning system if offsets are not in line with development impacts.

A monitoring, evaluation and reporting program (the evaluation program) is being developed to track the Plan's progress, using relevant indicators to inform adaptive management of the Plan. Further detail on the evaluation program is provided in Sub-Plan A.

The department is the responsible agency for delivering the Plan and meeting regulatory requirements as the party to the strategic biodiversity certification (under section 8.9 of the BC Act) and the approval holder (under section 146B of the EPBC Act). The department will work with multiple government and non-government stakeholders to ensure efficient and effective implementation of the Plan. Further detail on the governance arrangements is provided in the 'Governance' section (see page 70).

Collaborating with the community and stakeholders

The department values input from stakeholders and the community. The department undertook several engagement processes throughout the development of the Plan which are outlined below.

Community input in developing this Plan

The Cumberland Plain Conservation Plan People's Panel was established in 2018. The People's Panel is comprised of 18 randomly selected community members, with at least two representatives from each of the local government areas in the Plan Area.

Panel members were involved in a series of workshops, including a day trip to the nominated areas, where they were able to provide community views on the proposed conservation program and how it should be implemented. This process provided the department with direct feedback from a demographically representative sample of community views, which has informed this Plan.

Engagement with biodiversity conservation experts

In 2018, the NSW Government also established the Cumberland Plain Conservation Plan Community Reference Group, chaired by the Total Environment Centre and comprised of representatives nominated from across a range of peak environmental, Aboriginal, landscape professional and scientific groups in Western Sydney.

The Community Reference Group provided independent expert advice to the department on the strategic conservation planning process and provided input to the development of the Plan. The Group represents community and stakeholder views regarding biodiversity conservation and comprises representatives from:

- Australian Institute of Landscape Architects
- Conservation Volunteers Australia
- Cumberland Land Conservancy
- Deerubbin Local Aboriginal Land Council

- Ecological Society of Australia
- Greening Australia
- Landcare NSW, Mulgoa Valley Landcare Group
- National Parks Association of NSW
- National Trust
- Nature Conservation Council of NSW
- Total Environmental Centre
- Western Sydney University, Hawkesbury Institute for the Environment.

Early engagement with the community

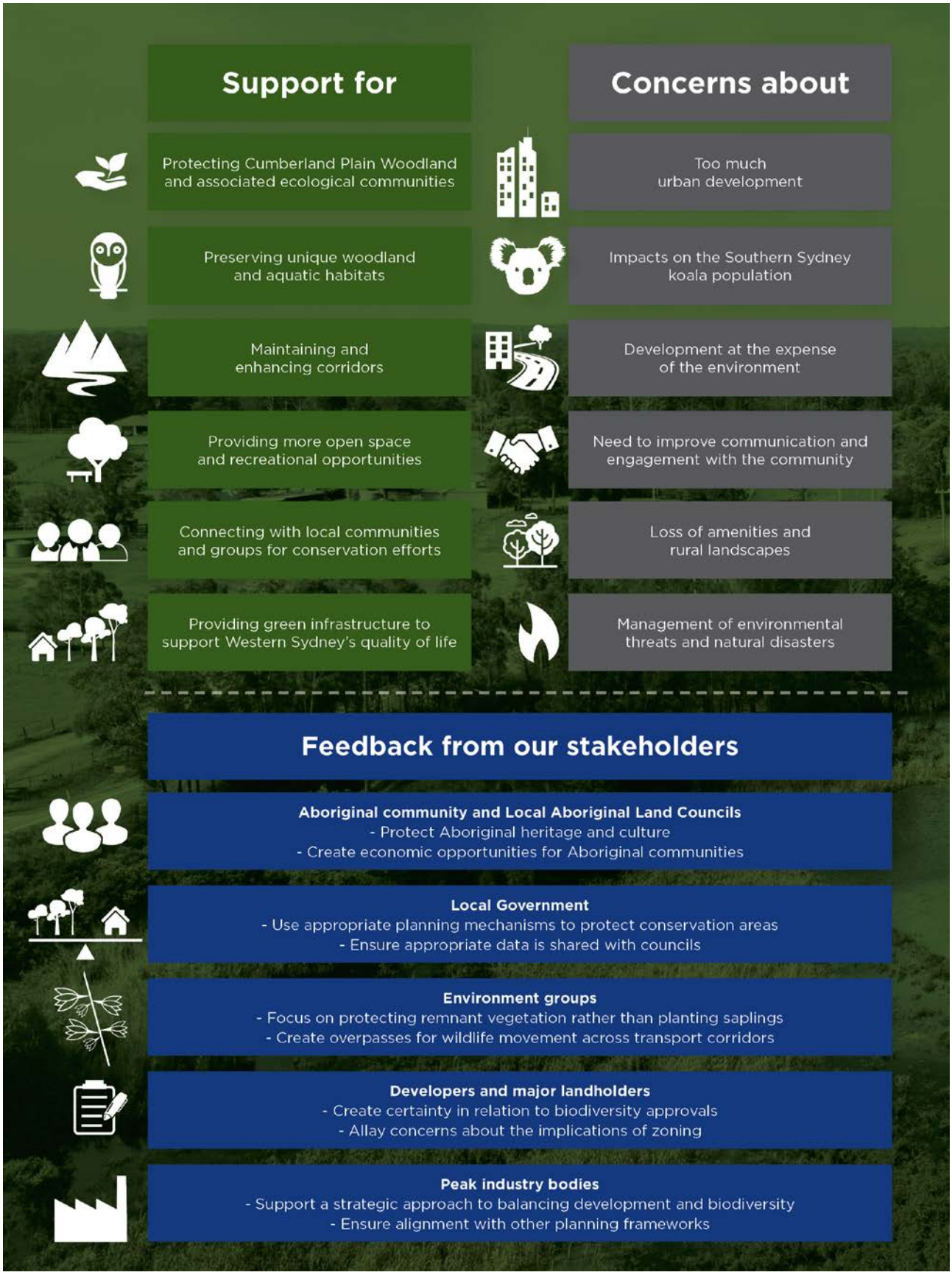
Since late 2017, the department has engaged in in-depth consultations with key stakeholders to develop the Plan. These consultations have included local councils, landholders, industry groups, environmental groups, Local Aboriginal Land Councils (LALCs), Aboriginal groups and members of the community. Engagement has included targeted meetings, workshops and community drop-in sessions.

The early engagement period found a strong desire in the community to protect biodiversity, waterways and wetlands, with publicly accessible reserves being the preferred method to protect biodiversity in perpetuity. The community response highlighted the importance of preserving accessible open spaces for recreation and native vegetation corridors for wildlife movement and migration.

The Campbelltown and Wollondilly communities emphasised protecting the region's koala population through new reserves, restoring important habitat and reducing roadkill.

Developers supported the planning certainty provided by the department's biodiversity approvals for nominated areas. Conversely, residents were concerned about losing the rural character of some nominated areas to over-development, and that new housing areas would not be matched by increased investment in public infrastructure.

The infographic on the next page summarises some of the key responses from stakeholders and how they are being addressed in the Plan. A full report on the community engagement process, including what we heard, is available on the department's website.


Support for
Protecting Cumberland Plain Woodland and associated ecological communities
Preserving unique woodland and aquatic habitats
Maintaining and enhancing corridors
Providing more open space and recreational opportunities
Connecting with local communities and groups for conservation efforts
Providing green infrastructure to support Western Sydney's quality of life
Concerns about
Too much urban development
Impacts on the Southern Sydney koala population
Development at the expense of the environment
Need to improve communication and engagement with the community
Loss of amenities and rural landscapes
Management of environmental threats and natural disasters
Feedback from our stakeholders
Aboriginal community and Local Aboriginal Land Councils
- Protect Aboriginal heritage and culture
- Create economic opportunities for Aboriginal communities
Local Government
- Use appropriate planning mechanisms to protect conservation areas
- Ensure appropriate data is shared with councils
Environment groups
- Focus on protecting remnant vegetation rather than planting saplings
- Create overpasses for wildlife movement across transport corridors
Developers and major landholders
- Create certainty in relation to biodiversity approvals
- Allay concerns about the implications of zoning
Peak industry bodies
- Support a strategic approach to balancing development and biodiversity
- Ensure alignment with other planning frameworks

Aboriginal cultural knowledge

The development of the Plan acknowledges more than 60,000 years of continuous Aboriginal connection to the land that makes up NSW. Aboriginal people hold profound knowledge, understanding, obligation and custodianship of the landscape, often referred to as 'connection to Country'.

Through connection to country, Aboriginal people have developed their own systems of knowledge and understanding of their surrounding ecology and biodiversity, which is representative of a living symbiotic relationship with the land and waters of their traditional homeland estates. This includes widespread systems of knowledge incorporating biodiversity, climate, land, culture and people.

Aboriginal people of Western Sydney

Western Sydney has the largest concentration of Aboriginal people in Australia, with many families originating from homelands in wider NSW and throughout Australia.

Local Aboriginal Land Councils (LALCs), constituted under the *Aboriginal Land Rights Act 1983*, are major landowners in local government areas within the Plan Area. They are responsible for achieving the social, cultural and economic aspirations of Aboriginal people through those land holdings. LALCs within the Plan Area include Tharawal, Deerubbin and Gandangara. Planning controls proposed in the Plan for the strategic conservation area and the environmental conservation zone will not be applied to any land owned or under claim by Local Aboriginal Land Councils in the Plan Area.

Engaging and partnering with Aboriginal people

Engaging and partnering with Western Sydney's Aboriginal community and LALCs is recognised as an important component of implementing the Plan. The department began engaging with LALCs and the Aboriginal community about the Plan in 2018. The feedback through this engagement has supported actions in the Plan and a decision to develop a 10-year Aboriginal Engagement and Implementation Strategy. The strategy is described in the 'Build knowledge and capacity' section (see page 65).

The Plan commits to ongoing engagement with Aboriginal communities in Western Sydney to collaboratively develop this strategy and facilitate economic opportunities arising from the Plan (Commitment 22).

Supporting delivery of the Premier's Priorities

The Premier's Priorities represent the NSW Government's commitment to significantly enhancing the quality of life of the people of NSW. The Plan plays an important role in helping to deliver two priorities:

Greening our city—Increase the tree canopy and green cover across Greater Sydney by planting 1 million trees by 2022

Greener public spaces—Increase the proportion of homes in urban areas within 10 minutes' walk of quality green, open and public space by 10% by 2023.

The Plan will contribute to these by establishing conservation lands and through ecological restoration, increasing canopy cover and providing quality, green, open and public spaces. Further detail on this is provided in the Conservation Program section (Reserves, page 57; Environmental trends, page 68).

Development

The Plan will help to create livable communities which connect people with nature.

This section provides background on the planned growth in Western Sydney. It describes the context for the strategic assessment under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and identifies the areas in the nominated areas that will be certified under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) as having the biodiversity approvals to progress development. These areas are described as 'certified-urban capable land'.

The Plan has close links with other NSW Government directions, which are also outlined here.

Western Sydney City Deal

The Australian Government announced the formal approval of the Western Sydney International (Nancy-Bird Walton) Airport in December 2016. In March 2018, the NSW Government, together with the Australian Government and eight Western Sydney councils, signed the Western Sydney City Deal. Under this deal, the NSW Government has committed to publish five-year and 20-year housing targets for each local government area, to deliver the 185,000 new homes needed in the next 20 years.

Under the Western Sydney City Deal, the NSW and Australian governments committed to progress a strategic assessment under the EPBC Act to protect the environment and streamline environmental approvals for development. This Plan supports that commitment and facilitates a streamlined environmental assessment process to reduce duplication between the NSW and Australian governments.

Greater Sydney Region Plan and Western City District Plan

The *Greater Sydney Region Plan: A Metropolis of Three Cities* is a 40-year vision for a global metropolis of three cities incorporating land use planning, transport planning and infrastructure planning. The *Greater Sydney Region Plan* is guided by 10 overarching directions and 40 objectives for liveability, sustainability, productivity and infrastructure in Greater Sydney. Two core directions address sustainability and provide planning objectives that inform this Plan:

- Objective 26—A cool and green parkland city in the Wianamatta (South Creek) corridor
- Objective 27—Biodiversity is protected, urban bushland and remnant vegetation is enhanced.

This Plan supports the implementation of the *Greater Sydney Region Plan* for a Western Parkland City, and liveability planning priorities in the *Western City District Plan*, including:

- Planning Priority W13—Creating a Parkland City urban structure and identity, with Wianamatta (South Creek) as a defining spatial element
- Planning Priority W14—Protecting and enhancing bushland and biodiversity
- Planning Priority W16—Protecting and enhancing scenic and cultural landscapes.

Future Transport Strategy 2056

The Western Sydney International (Nancy-Bird Walton) Airport is a transformative infrastructure project that will generate economic activity, provide employment opportunities closer to home for people in Western Sydney and meet Sydney's growing needs.

Following from the *Future Transport Strategy 2056,* the NSW Government is planning for the long-term transport needs of Western Sydney by identifying and protecting corridors of land that can be used to deliver transport infrastructure as needed.

The new airport and infrastructure corridors will drive transformational change in the Western Parkland City, supported by the Plan's approval for strategic conservation planning in the nominated areas.

Future urban development areas in Western Sydney

The nominated areas identified for development in the Plan represent the strategic prioritisation and delivery of new precincts as part of the long-term growth of Greater Sydney.

Focusing development in these nominated areas maximises the efficiency of the urban form and increases opportunities to improve liveability and sustainability. Creating new urban centres will boost the local economy, create job opportunities and provide for high-quality education, recreation and housing developments to cater for current and future communities.

The locations of these areas have been determined through strategic planning processes and investigations. The two key strategic plans that informed the location of these areas include:

A Plan for Growing Sydney (DPE 2014)—identifies the general location of the Wilton and Greater Macarthur growth areas, and the Badgerys Creek airport precinct, which has been further defined by the department to become the Western Sydney Aerotropolis

Greater Sydney Region Plan (GSC 2018)—identifies the general location of the Greater Penrith to Eastern Creek Urban Investigation Area and establishes a 40-year vision for Sydney as a global metropolis of three cities.

A Plan for Growing Sydney sets priorities and provides a direction for metropolitan planning. It identifies where to focus new housing and jobs, and how to target growth in strategic centres and transport gateways close to transport, and how to deliver social and economic outcomes. It sets the direction for subregional planning to accommodate Sydney's population growth to 2031. The strategy balances the need to accelerate housing production with a desire for high levels of amenity and the creation of strong and resilient communities within a highly liveable city. Particularly relevant for this Plan is Goal 4, which is for 'a sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources' (DPE 2014, p94).

Objective 27 in the *Greater Sydney Region Plan* outlines how the NSW Government seeks to protect and manage biodiversity values across Greater Sydney, from national and state biodiversity conservation legislation to information such as biodiversity mapping. In giving effect to the Region Plan, the *Western Sydney District Plan* includes an action (no. 72) to protect and enhance biodiversity by supporting landscape-scale biodiversity conservation and the restoration of bushland corridors.

Development in the nominated areas

Development in each nominated area is guided by a structure plan. Structure plans set the vision and strategic direction of each nominated area, consistent with the *Greater Sydney Region Plan* and district plans.

A structure plan is part of the strategic planning process for nominated areas. They include relevant precinct plans that identify intended land uses and the location and phasing of infrastructure, as well as housing and employment targets. Structure plans identify areas of important biodiversity values and contain precinct planning principles, including for biodiversity considerations. These plans provide a line of sight from the *Greater Sydney Region Plan* through to planning at a precinct scale (see Figure 6).

Figure 6: Hierarchy of strategic planning for the Western Parkland City

Delivery of key infrastructure in nominated areas will include green infrastructure such as conservation areas and open space, as well as public transport, roads, schools, medical facilities, community facilities, open space and utilities infrastructure. Structure plans are designed to be flexible to allow the NSW Government and local governments, in consultation with local communities, to respond over time to changing community expectations and new development directions.

Precinct plans

Structure plans guide the development of precinct plans for each nominated area. Precinct plans identify land uses, associated development and infrastructure at the finer scale, while ensuring considerations at the local level. Considerations include locating new homes and employment centres close to public transport, shops and services, and retaining and enhancing a community's character.

A proposed State Environmental Planning Policy (SEPP) for strategic conservation planning will require that zoning of the structure plans and precinct plans is consistent with the certified-urban capable land and the Plan. The department will also ensure any initial rezoning happening ahead of the Plan and the SEPP matches the Plan's proposed certified land footprint, and that areas avoided from development due to biodiversity or other environmental purposes are protected with suitable environmental conservation zoning. Where mapped urban capable land in an earlier structure plan might be different to the final certified-urban capable land footprint, this difference will be rectified in future precinct plans. Further detail on the proposed SEPP for Strategic Conservation Planning can be found in the Explanation of Intended Effect.

Zoning

Zoning will be used to enforce the certified-urban capable land and identify which land is available in each nominated area for development.

Environmental conservation zoning will protect areas that have been avoided for biodiversity reasons. Zoning will be implemented through the proposed SEPP for strategic conservation planning or the relevant place based Environmental Planning Instrument (EPI), such as the Growth Centres SEPP or the draft Aerotropolis SEPP, if that is more appropriate.

Rezoning for development will occur over time, informed by the relevant strategic plan or structure plan and consistent with the certified-urban capable land under the Plan. A

Ministerial Direction made under section 9.1 of the *Environmental Planning and Assessment Act 1979*, will restrict future rezoning of land avoided for biodiversity or other environmental purposes to more intensive land uses.

Councils are required to address and follow the section 9.1 Directions in considering any Planning Proposals submitted to them.

Where the precincts have not yet been re-zoned by an EPI, the proposed SEPP will rezone the avoided land to E2 as part of the finalisation of the Plan.

Categories of land under the Plan

Certified—Urban Capable Land

The structure plan for each nominated area will specify the boundaries of the urban capable land. These boundaries identify where new development may occur across the four nominated areas.

The department has undertaken strategic planning to locate and design the urban capable land in the nominated areas to avoid and minimise impacts on biodiversity values as part of developing the Plan. This has been undertaken in accordance with the Plan avoidance criteria (see 'Appendix B. The Plan's avoidance criteria') and consistent with:

- guidance provided under section 8 of the Biodiversity Assessment Method
- Draft Guidelines for planning authorities for proposing conservation measures in strategic applications for biodiversity certification (EES-DPIE, 2019)
- terms of reference for the strategic assessment.

Urban capable land will be subject to strategic biodiversity certification for development under Part 8 of the BC Act. Development in these areas does not require further site by site biodiversity assessment, so long as the approved conservation program detailed in the Plan is implemented by the department. These areas are described in the Plan as 'certified-urban capable land'.

The Australian Government approval (under section 146B of the EPBC Act) will be sought for development that is taken in accordance with this Plan. This Plan requires development to be limited to the certified-urban capable land (except for essential infrastructure) and implemented consistent with the Plan and class of action approval obtained. The differences in the approval approaches are further explained in Box 1.

Other approval processes under applicable NSW planning and assessment legislation are still required prior to development proceeding.

Non-certified land

Areas outside the certified-urban capable land but within the nominated areas will be 'non-certified' land and will not have biodiversity approval under the BC Act. There are two types of non-certified land: avoided land for biodiversity or other environmental purposes (riparian corridors or steep slopes) and non-certified land—Western Sydney Aerotropolis.

Avoided land is avoided from development due to identified biodiversity values on the site, or because the land cannot legally or feasibly be developed due to its topography or due to an environmental feature such as a riparian corridor. In this instance, 'avoidance' refers to the approach the department has undertaken to avoid and minimise the impacts to biodiversity from development in the nominated areas, as required under the BC Act and EPBC Act (this is further explained on page 47).

Non-certified land in the Western Sydney Aerotropolis includes land affected by the 1% annual exceedance probability flood and other non-certified land within the Western Sydney Aerotropolis that is not included in the 'avoided for biodiversity' or 'avoided for other environmental purposes'. This land will not seek strategic biodiversity certification under the BC Act because it is not intended for urban development. Some development may still be required in these areas in the future, such as to facilitate recreational use. Compatible recreational development in these areas will have EPBC Act approval if consistent with the guidelines listed in 'Appendix A. Guidelines for essential infrastructure development'. Development may also be required to seek separate biodiversity approvals under NSW legislation.

Additional infrastructure development in non-certified land

EPBC Act approval is being sought for certain essential infrastructure development, such as utilities, local roads and recreational development on non-certified land in the nominated areas, provided it is taken in accordance with 'Appendix A. Guidelines for essential infrastructure development'.

Box 1. State and Commonwealth approvals

Biodiversity Conservation Act

Biodiversity certification under Part 8 of the BC Act is being sought as part of the strategic biodiversity certification for the four nominated areas. Biodiversity certification will apply to the urban capable land and the major infrastructure corridors in each nominated area. These are the 'certified-urban capable land'.

Once certified, development can proceed in these areas without further NSW biodiversity approvals if the necessary development consent is obtained, prescriptions or conditions of approval are met, and any unavoidable impacts are addressed through the Plan's conservation program (see 'Conservation program' on page 35).

Development that occurs outside the certified-urban capable land is not part of the biodiversity certification associated with this Plan. Future development outside of these areas will require a modification or series of modifications to this certification, or consideration under the applicable part of the *Environmental Planning and Assessment Act 1979* (NSW).

Environment Protection and Biodiversity Conservation Act

The department is concurrently undertaking a strategic assessment under Part 10 of the EPBC Act for actions taken under this Plan that may impact matters protected under Part 3 of the EPBC Act.

Australian Government approval under section 146B of the EPBC Act is being sought for the taking of actions in accordance with an endorsed Plan. The classes of action are urban and industrial development, infrastructure, agribusiness and major infrastructure corridors.

The strategic assessment will allow certain essential infrastructure outside of certified-urban capable land, where that development is consistent with the guidelines listed in 'Appendix A. Guidelines for essential infrastructure development'.

Some areas are excluded from the Plan and EPBC approval, including those already developed, those for which required approvals are already in place, and those where a development application has been submitted.

Excluded land

Excluded land is excluded from NSW strategic biodiversity certification and strategic assessment under the EPBC Act. These areas will not receive any biodiversity approvals under the Plan due to any of the following factors:

- the land is already developed for urban use
- development is already underway on this land under a separate process
- the land is environmentally protected, including reserves and offset sites
- Commonwealth land sites (such as the Defence Establishment Orchard Hills)
- there are roads or easements on this land
- it has specific urban zoning such as business, industrial, residential or special purpose (either already developed or to be developed).

Maps of land categories

Maps of land categories for each nominated area are provided in Figure 7 through to Figure 10.

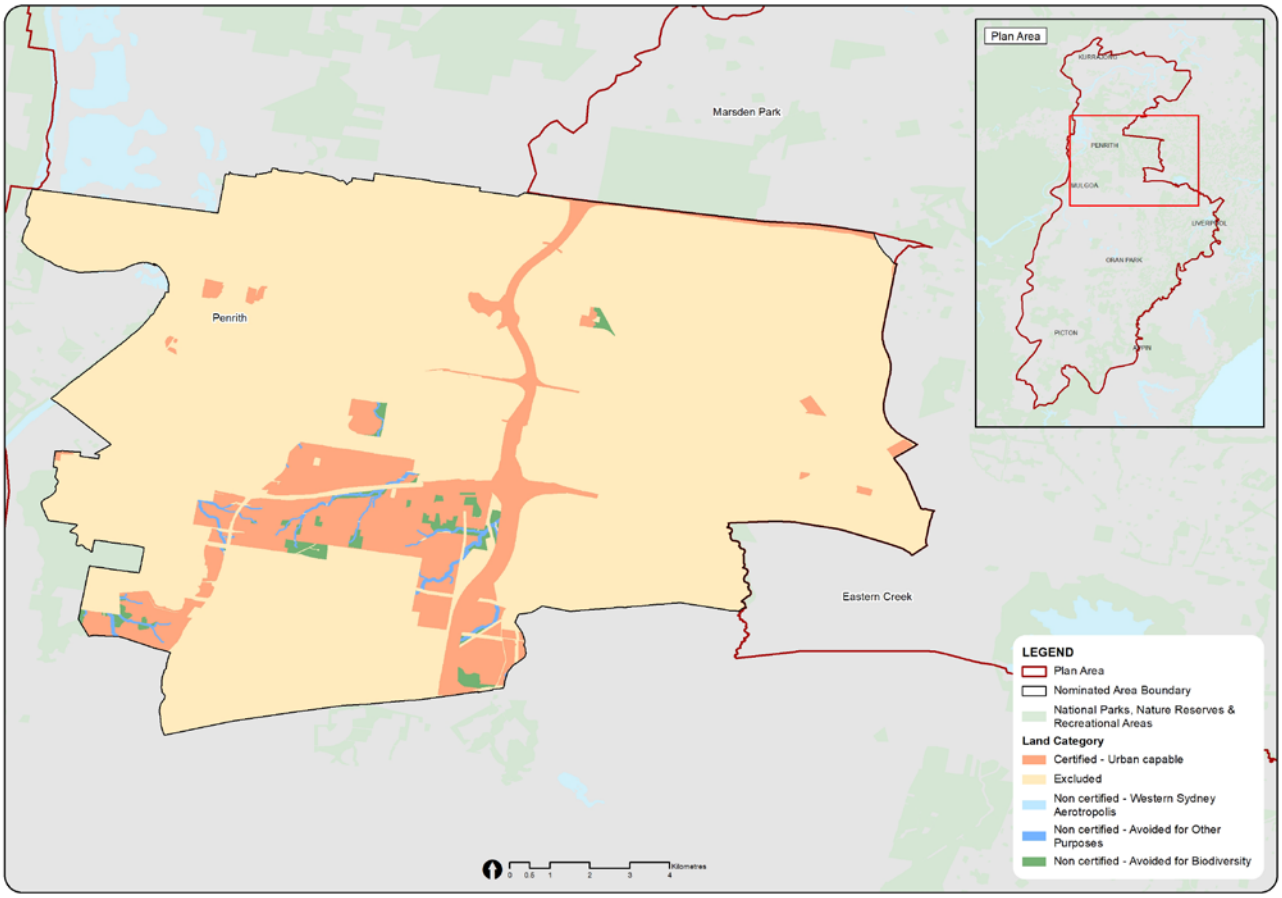


Figure 7: Greater Penrith to Eastern Creek Investigation Area

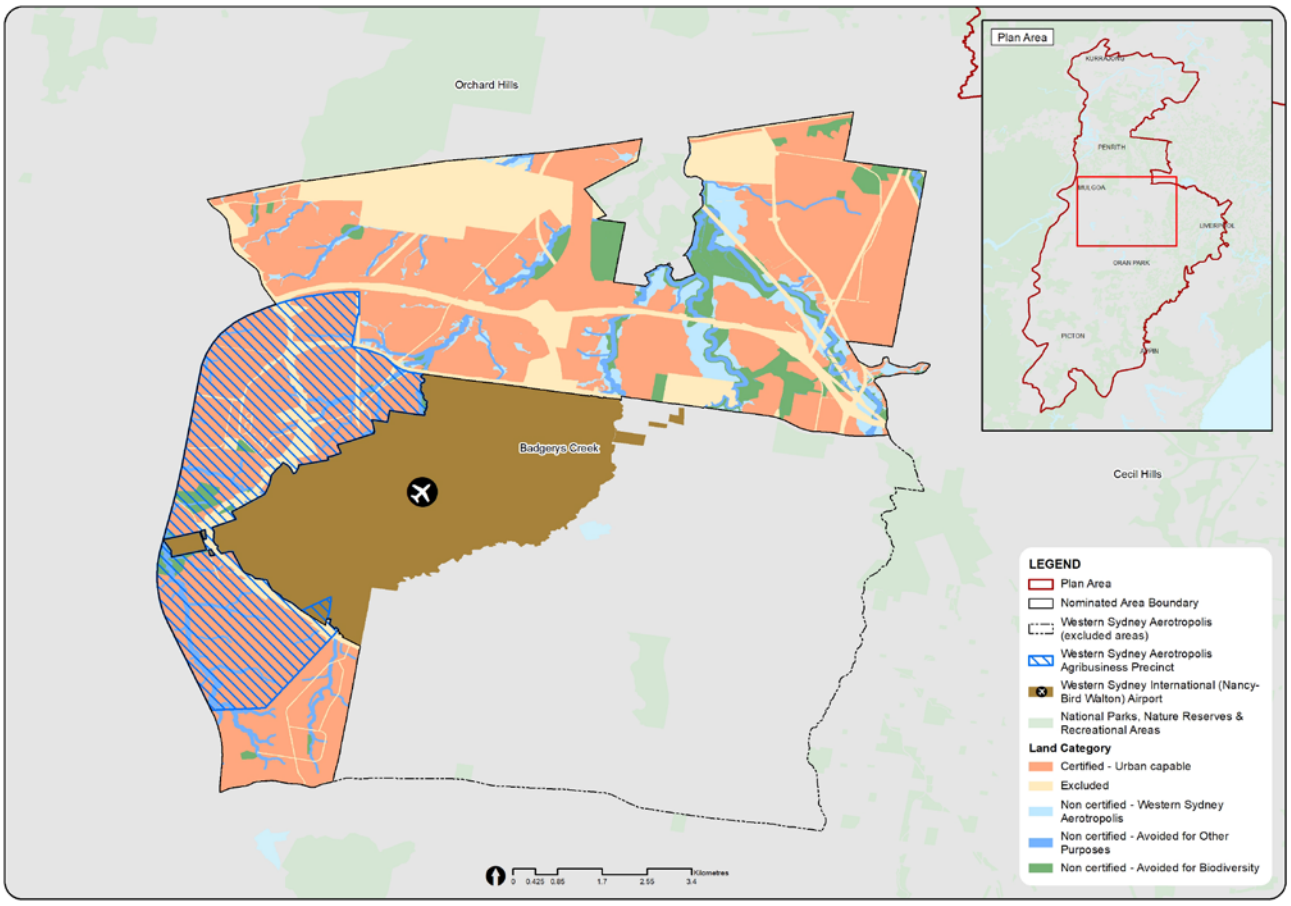


Figure 8: Western Sydney Aerotropolis

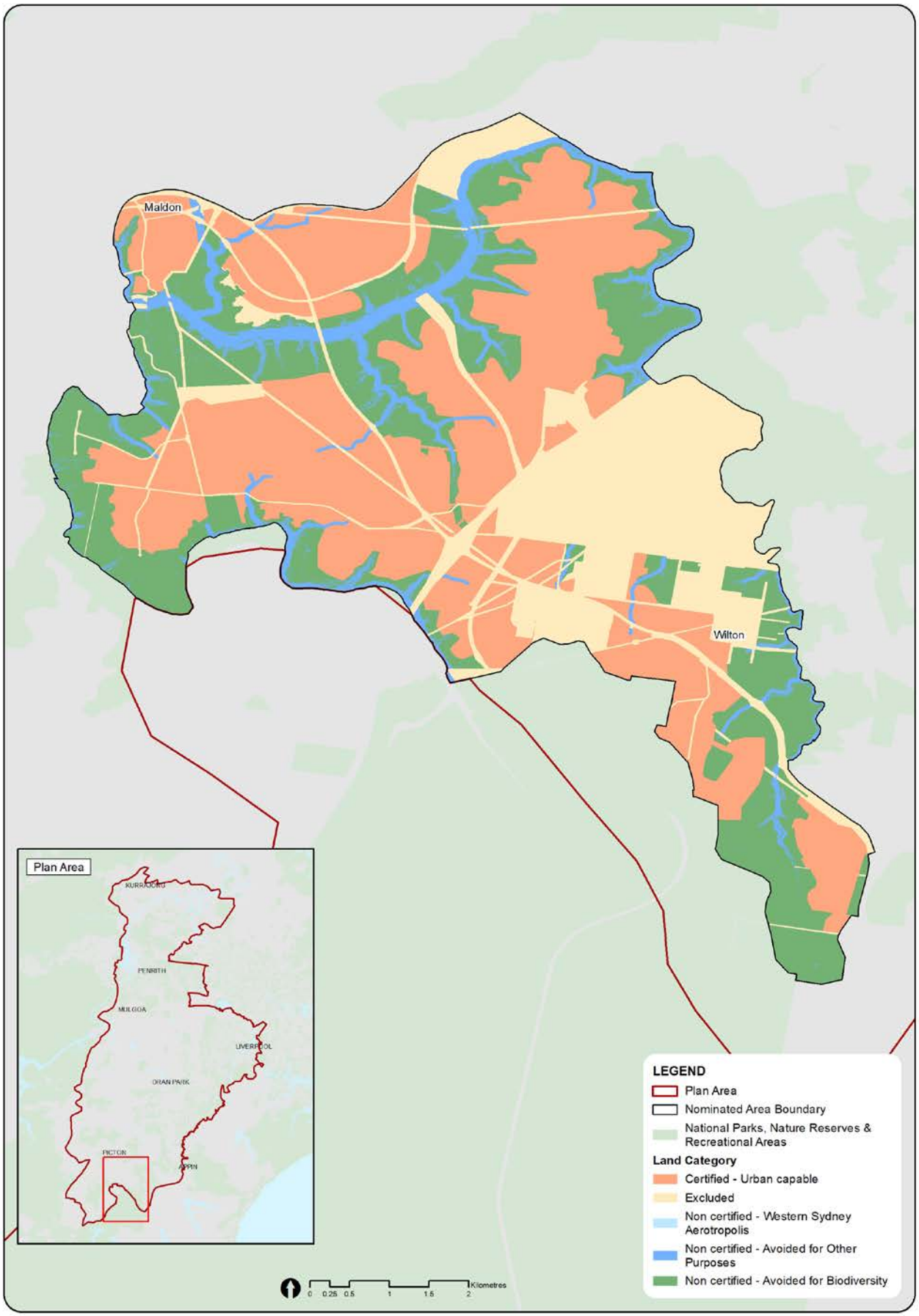


Figure 9: Wilton Growth Area

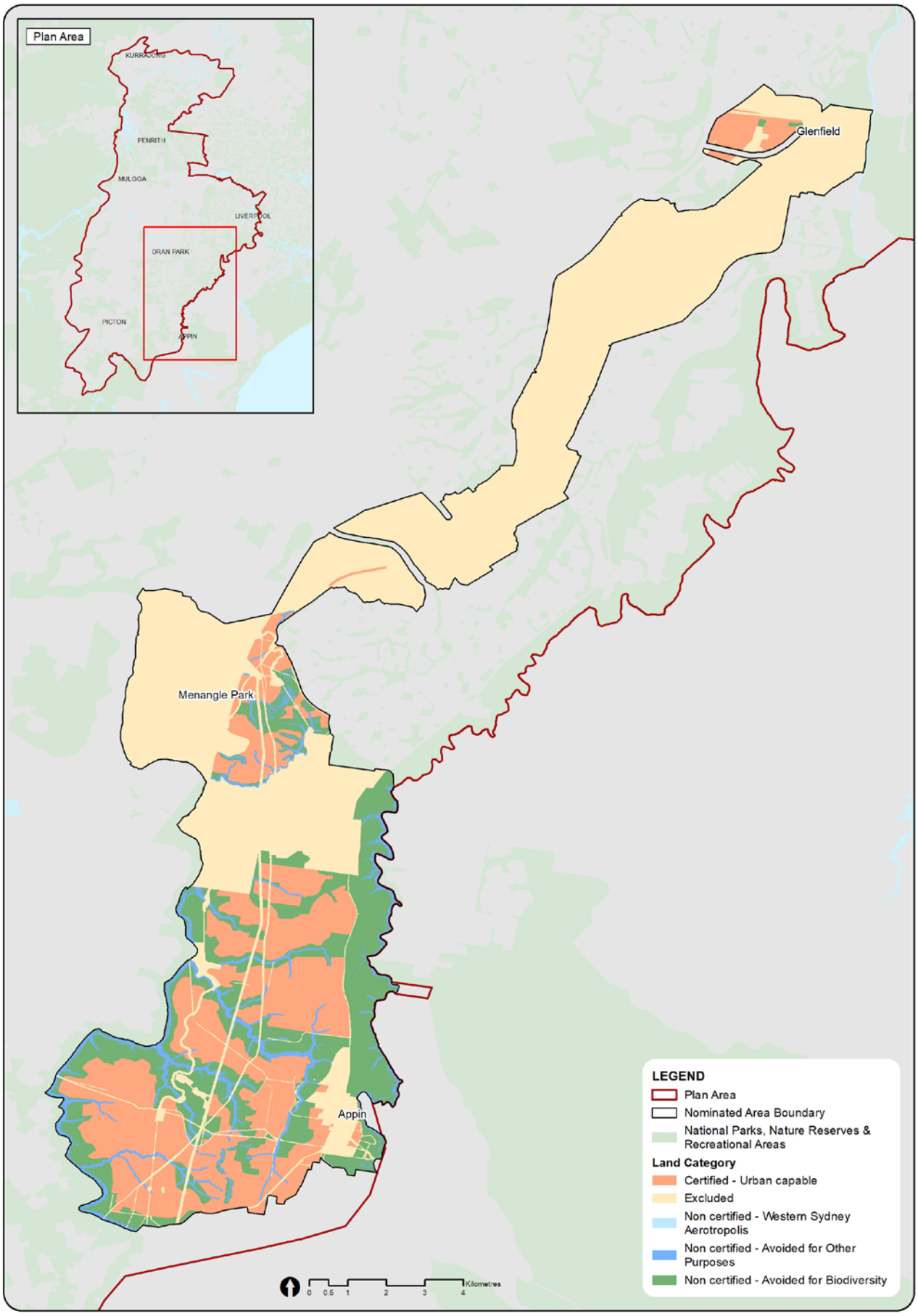


Figure 10: Greater Macarthur Growth Area

Description of Actions

Sydney Water pipelines at Mamre Road

Description of actions

This section describes the actions that will be taken under the Cumberland Plain Conservation Plan as it relates to section 146 of the EPBC Act. It details the development to be included in an approval of a class of actions. The classes of actions are:

- urban and industrial development in the nominated areas
- infrastructure in the nominated areas
- intensive plant agriculture in the Western Sydney Aerotropolis Agribusiness Precinct
- Western Sydney major infrastructure corridors.

Inclusion of an action in the descriptions in this Plan does not confirm that the use is appropriate under the National Airports Safeguarding Framework (NASF). An assessment against the NASF will need to be undertaken separate to this Plan to ensure the use is appropriate in proximity to Western Sydney International (Nancy-Bird Walton) Airport.

Note on legislation

The below descriptions reference provisions of the NSW environment planning and assessment legislation, state planning instruments, and biodiversity conservation legislation currently in force. Any future amendments to the legislation and planning instruments will be subject to transitional arrangements, whereby references to any provisions in this Plan that are repealed will become references to the new equivalent provisions in force at the time.

Urban and industrial development

Urban and industrial development will include new and proposed urban and industrial areas to support the 'nominated areas' broader planning directions. Development included in this class of action may include, but is not limited to:

- mixed residential, commercial and industrial development, to provide houses, jobs, services, and open and recreational spaces
- major town centres with a full range of shops, and public and private recreational facilities and services, along with smaller village centres and neighbourhood shops
- social infrastructure such as education facilities, cultural facilities, childcare services, sports facilities, entertainment facilities, places of public worship, libraries and community centres
- essential services such as health facilities and emergency services facilities
- general industrial facilities such as retail outlets, manufacturing industries, training facilities, information and technology facilities, light industries, high-tech industries, material supply centres and distribution centres
- agribusiness, including businesses associated with the production, processing, marketing and distribution of agricultural products. This includes biotechnology research and development, organisations involved in smart high-tech farming practices, data centres, technical services for robotics and farm machinery, food processing, export enabling infrastructure and general administrative services
- wholesale markets, including retail, accommodation, and large distribution centres, trading floor and associated infrastructure such as cold stores, ripening rooms, treatment facilities and waste management.
- advanced food manufacturing and logistics

- warehouse, freight and logistics, including distribution centres, freight transport facilities and heavy industrial storage establishments and storage premises
- airport and ancillary uses to support the delivery and operation of the new airport.

Urban and industrial development will be limited to the certified-urban capable land in the nominated areas, and includes any development permitted through residential (R), business (B), or industrial (IN) zones, consistent with the structure plan and precinct plans for each nominated area.

Note on rezoning

The structure plan and precinct plans for each nominated area will map the boundaries of the certified-urban capable land and the intended land use zones, consistent with the Plan's biodiversity certified land. Under the Plan, the structure plans and precinct plans will be made by the relevant planning authority under the *Environmental Planning and Assessment Act 1979*. The NSW Government will amend the relevant state environmental planning policy to attach the structure plans and precinct plans before development under the Plan commences.

Relevant planning authorities will rezone the land over time. The proposed Strategic Conservation Planning SEPP will introduce a clause that requires consistency between the certified-urban capable land in precinct plans and the areas of biodiversity certified land, to protect avoided land identified in the Plan.

Infrastructure

Development in this class of actions may include development for the purposes of the following:

- electricity transmission or distribution networks
- gas pipelines
- road or road infrastructure facilities, including public transport facilities
- water reticulation systems, water storage facilities, water treatment facilities, or a water supply system
- telecommunications facilities or telecommunication network
- stormwater management system
- resource recovery facility, waste disposal facility, waste or resource management facility and waste or resource transfer station
- organic waste and composting facilities
- supporting infrastructure for parks and public reserves (environmental facility, information and education facility, kiosk, recreation area, recreation facilities (outdoor), water recreation structure, road).

Related activities and developments associated with the delivery of infrastructure under this class of actions are set out in *State Environmental Planning Policy (Infrastructure) 2007* . Development in this class of actions does not include activities described in the Major Infrastructure Corridors class of actions.

Infrastructure development will generally be limited to certified-urban capable land within the nominated areas. It may be carried out by or on behalf of a public authority on non-certified land, if consistent with the guidelines for essential infrastructure development (at Appendix A. Guidelines for essential infrastructure development), which includes the following:

- environmental impacts of the activities are considered under the *Environmental Planning and Assessment Act*, and an 'avoid and mitigate' process is applied

- MNES are considered through the 'avoid and mitigate' process and any relevant MNES-specific commitments of the Plan are applied
- the public authority has notified the department of the development
- and it is not:
    - a Classified Road (under the *Roads Act 1993)*
    - Division 4.7 State Significant Development (*Environmental Planning and Assessment Act 1979*)
    - Division 5.2 State Significant Infrastructure (*Environmental Planning and Assessment Act 1979*)
    - Division 5.1 Road Activities (*Environmental Planning and Assessment Act 1979*)

Additionally, the biodiversity impacts of the activities will be assessed under the BC Act, if triggered and an 'avoid, mitigate, offset' process will be applied.

Note on responsibility of approval holder

The approval holder, determined at time of approval, will be responsible for notifying public authorities of their obligations under the EPBC Act, monitoring the impacts of development and monitoring compliance with the avoid, mitigate and offset commitments under the Plan.

Every effort should be made to ensure that infrastructure development is limited to the certified-urban capable land. Any development outside of those areas will need to comply with the 'Appendix A. Guidelines for essential infrastructure development'

Non-certified—Western Sydney Aerotropolis is also outside of certified-urban capable land. In these cases, the objectives of these zones will remain as land used for public open space or recreational purposes while providing for the protection and enhancement of the natural environment for recreational purposes.

Intensive plant agriculture in the Agribusiness Precinct

The Western Sydney International (Nancy-Bird Walton) Airport presents a unique opportunity to invest in agriculture and agribusiness industries. The Agribusiness Precinct in the Western Sydney Aerotropolis, located at the northern and western edges of the airport, will support and add value to the agricultural industry operations across the Western Parkland City.

Intensive plant agriculture activities approved under this class of action may incorporate existing, new and proposed agricultural areas to help broader program planning in the Western Sydney Aerotropolis.

Development in these areas may include the following, provided they meet the relevant objectives and satisfy the airport safeguarding guidelines:

- intensive plant agriculture, including protective cropping structures used primarily for horticultural applications to control specific environmental conditions and facilitate high-quality, high-quantity production of a defined fruit, vegetable or flower
- the cultivation of irrigated crops for commercial purposes (other than irrigated pasture or fodder crops),
- horticulture
- viticulture

Intensive plant agriculture will be limited to the Western Sydney Aerotropolis Agribusiness Precinct (see Figure 7).

Major infrastructure corridors

The transport projects and associated major infrastructure corridors for Western Sydney included for assessment in this Plan are described in Table 2: Western Sydney major infrastructure corridors, along with their proposed staging. These identified corridors are the only major infrastructure corridors that will be developed under the Plan, noting that they may be subsets of the full major infrastructure corridors required for each transport project. The major infrastructure corridors required for delivering these transport projects will be preserved by the NSW Government under relevant planning legislation and planning instruments.

Responsibility for developing and delivering transport infrastructure rests primarily with the NSW Government, specifically Transport for NSW and Sydney Metro. The general alignments of these major infrastructure corridors are shown in Figure 11. The infrastructure in these corridors will be subject to design definition, particularly regarding alignment within corridors, urban capable land, operations and the placement of transport equipment.

For each of the identified transport projects, development under this class of action includes all activities associated with the design, construction, and operation of the major road or rail infrastructure facilities. This includes any such development on land within the mapped or preserved corridors identified in this Plan, or on any other land required for the purpose of the transport project along the general alignments shown in this Plan, as identified under the NSW SSI approval for each transport project.

The design of the infrastructure and the exact staging of delivery are not yet determined and are subject to the legislated approvals process and funding.

Table 2: Western Sydney major infrastructure corridors

Transport project	Purpose
Initiatives for investigation in 0–10 years	
Metro Rail future extension from Western Sydney Aerotropolis to Macarthur (except for those areas in the South West Growth Area)	Will provide for a future extension of the metro rail south from the Aerotropolis (Bringelly) to Macarthur
Initiatives for investigation in 10–20 years	
Western Sydney Freight Line corridor	Will provide for a future freight rail line to connect Port Botany and Western Sydney
Outer Sydney Orbital between Box Hill and the Hume Motorway near Menangle	Will provide for a future north–south motorway and freight rail line
Initiatives for investigation in 20+ years	
Remaining Outer Sydney Orbital stages (extensions north and south)	Will investigate extensions of Outer Sydney Orbital south to the Illawarra and north to the Central Coast.
M7/Ropes Crossing Link Road	Will provide for a future east–west motorway linking the M7 to the future Outer Sydney Orbital at Ropes Crossing

The locations and alignments of these major infrastructure corridors are shown on Figure 10. Development will take place within a designated development footprint, primarily defined by infrastructure corridor widths. The infrastructure in these corridors will be subject to design definition, particularly regarding alignment within corridors, operations and the placement of transport equipment. In some circumstances, development activities may be necessary adjacent to the corridor, and in such circumstances the avoid, mitigate and offset hierarchy continues to apply to all actions. The final location and alignment of infrastructure within the corridor is subject to a future process of refinement following detailed planning and design. Through the detail design phase further avoidance and mitigation of impacts to environmental and social values can be achieved. This will include implementation of relevant MNES commitments as detailed in 'Appendix C. Plan commitments'.

Responsibility for developing and delivering transport infrastructure rests primarily with the NSW Government, specifically Transport for NSW and Sydney Metro. Local, state, or regional distributor roads that feed from and to this major infrastructure are not part of the major infrastructure corridor program and will be established as part of the infrastructure class of action (local roads) or via separate planning processes (state, classified or regional roads).

All activities associated with the design, construction and operation of major transport infrastructure are included for EPBC Act endorsement and subsequent approval under the Plan. These activities include, but are not limited to:

- vegetation clearing
- earthworks
- utility works
- landscaping
- erosion and sediment control
- laydown areas
- road and rail construction
- tunnel construction
- construction of supporting infrastructure such as stations, car parks and pedestrian access
- electricity infrastructure
- site offices and access roads
- dust and noise suppression
- stormwater management (including detention basins, ponds and dams)
- vehicle and train movements
- maintenance and upgrade activities
- installation and maintenance of traffic control and safety infrastructure.

Note on avoidance of MNES

'Avoided land' under the Plan is avoided from development due to identified biodiversity values (including MNES) on the site, or because the land cannot legally or feasibly be developed due to its topography. The major transport infrastructure included in this Plan has not yet finalised implementing its avoidance of biodiversity values, as the construction alignment for the corridors are not yet certain. It is therefore expected that further areas will be avoided as designs for the infrastructure corridors are determined over the life of the Plan. Where areas have been avoided for biodiversity purposes, the department would look to apply planning controls, such as environmental conservation zoning.

At the time of writing the Plan, any MNES occurring within the infrastructure corridors were assumed to be impacted, with corresponding offset targets. The Plan commits that Transport for NSW will avoid and minimise impacts to threatened species, populations and communities, within major infrastructure corridors described in the Plan (commitments 3 and 4).

For the infrastructure corridors within the nominated areas, which are to be strategically biodiversity certified, further avoidance will be a requirement of the biodiversity certification order, where the certification will only be activated once the areas avoided and the areas to be developed have been reported (commitment 3.3).

For the infrastructure corridors outside the nominated areas, the requirement for avoidance would be identified through the BC Act Biodiversity Assessment Method through the Biodiversity Certification Assessment Report or Biodiversity Development Assessment Report.

Note on responsibility of approval holder

The approval holder, determined at the time of approval, will be responsible for ensuring Transport for NSW reports on development impacts and adjustments identified through the NSW State Significant Infrastructure approval (or equivalent) for each transport project. This will include specific reporting on avoidance achieved, within the mapped or protected corridors identified in this Plan for EPBC Act-listed species, populations or ecological communities, and for BC Act matters.

The department will use this information to track impacts and adjust offset requirements through the Plan's reconciliation accounting process (commitment 8.3 and commitment 9.3).

Adjustments to the Plan's projected impacts to biodiversity (including MNES) and offset requirements will be published regularly through the Plan's reporting framework which includes annual updates and five yearly reviews.

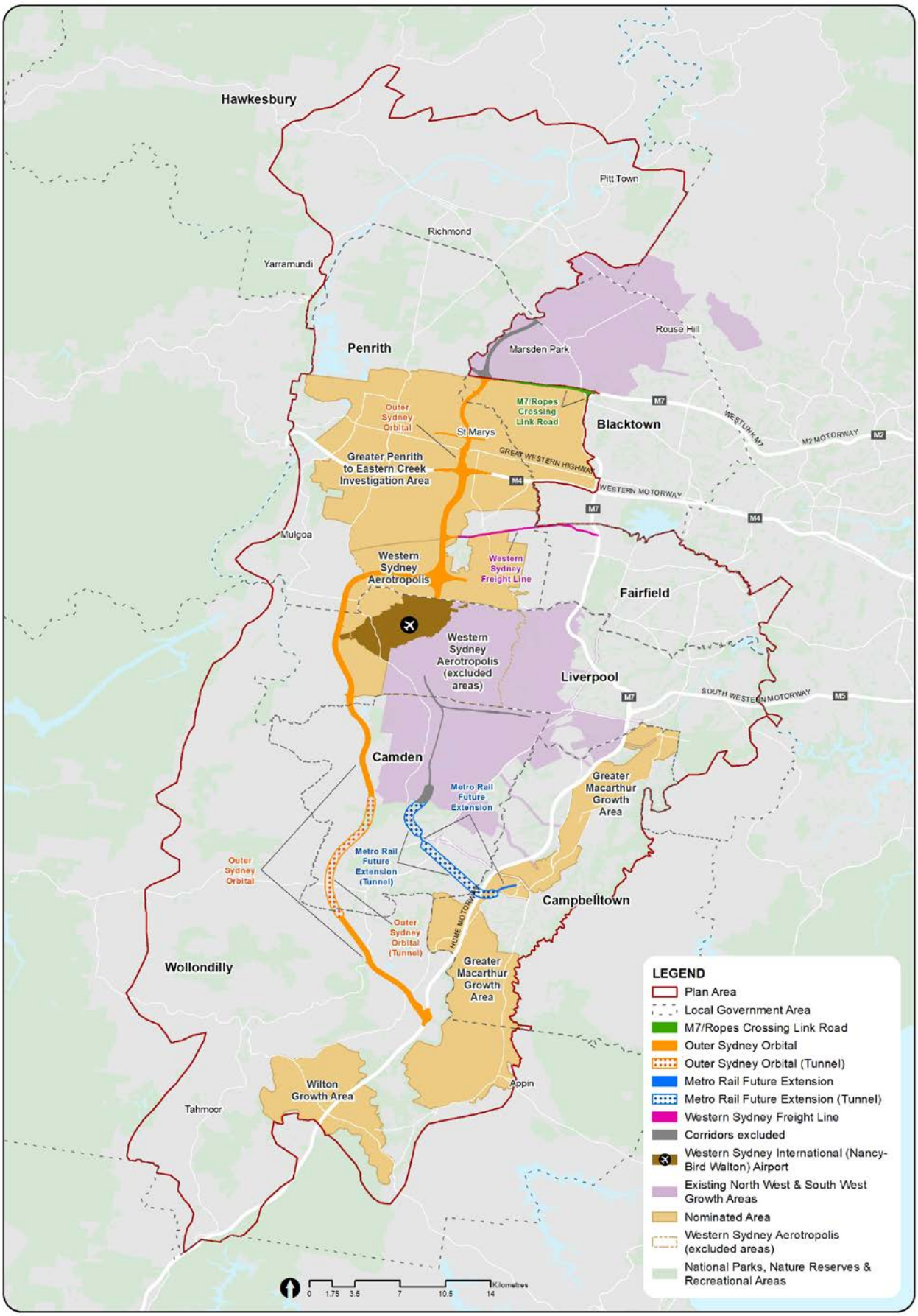
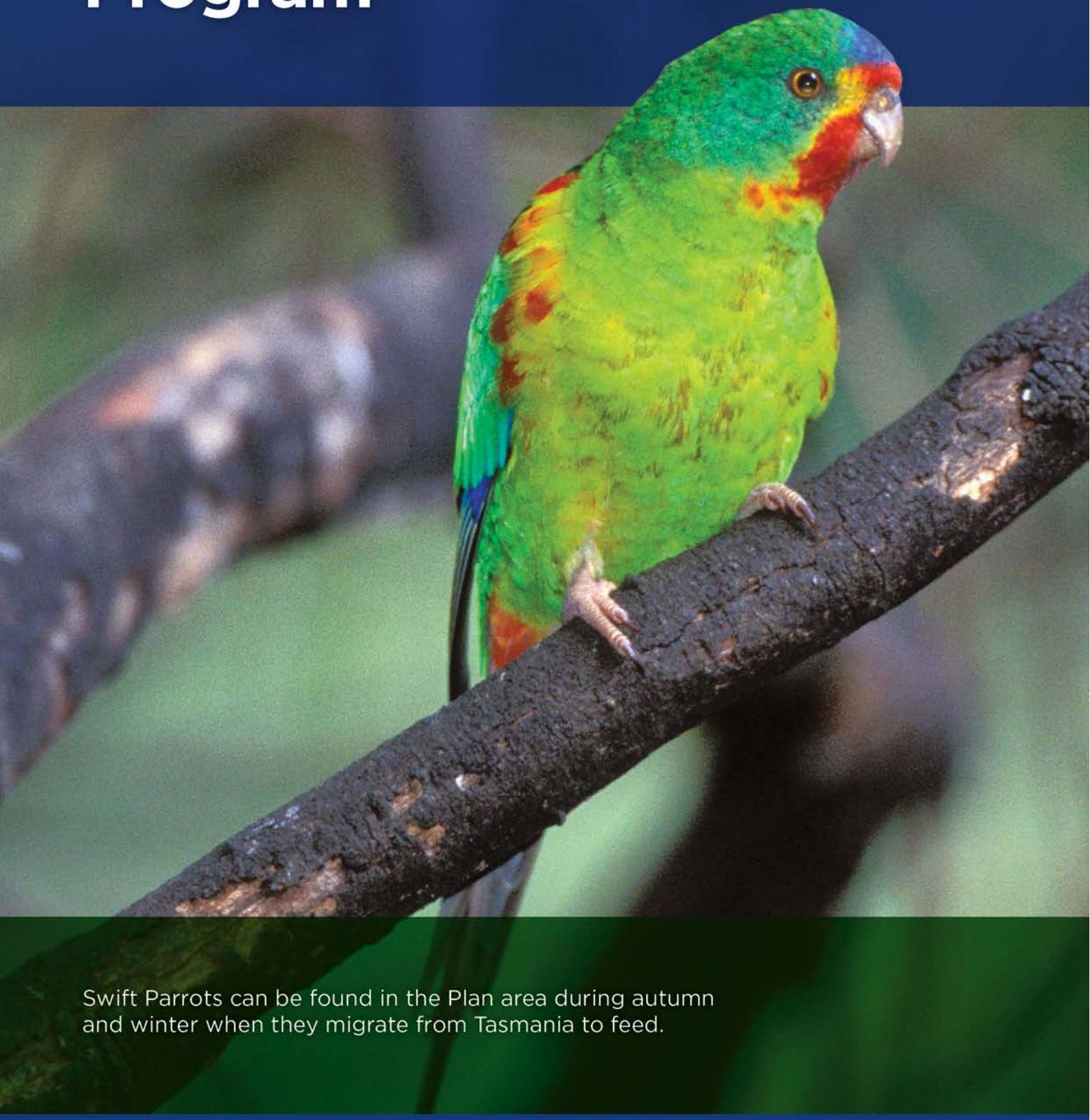


Figure 11: Indicative locations of the major infrastructure corridors for Western Sydney

Conservation Program



Swift Parrots can be found in the Plan area during autumn and winter when they migrate from Tasmania to feed.

The Conservation Program

Conservation program highlights

Protect, in perpetuity, a minimum of 5,475 hectares of impacted native vegetation communities

Undertake up to 1,370 hectares of ecological restoration of threatened ecological communities, achieving up to 25 per cent of the conservation target for impacted native vegetation.

Secure important koala movement corridors by establishing the Georges River Koala Reserve.

Prioritise and investigate the establishment of two new reserves in the Wollondilly and Hawkesbury local government areas -Gulguer Reserve Investigation Area and The Confluence Reserve Investigation Area.

Protect up to 11,000 hectares in new conservation lands to deliver in-perpetuity biodiversity outcomes, improve ecological resilience and connectivity and increase green space reserves for community to enjoy.

The Plan's conservation program will direct the avoid, mitigate and offsetting of impacts on biodiversity from the urban development and major infrastructure corridors described in the Plan. A summary of impacts from development under this Plan is provided in Table 3: Summary of impacts based on the Assessment Report. A complete list of biodiversity values with a potential direct impact from development is at Appendix D. EPBC Act and BC Act matters to be offset through this Plan.

Significant conservation planning has been undertaken to inform the development of the conservation program and to identify what biodiversity values currently exist in the Plan Area, where development should be located, and where conservation funding should be targeted for the greatest strategic benefit.

Addressing impacts

The conservation program includes a set of commitments and actions to avoid, mitigate and offset the development impacts identified in the Assessment Report. Several inputs informed the commitments and actions. These include: the Plan's outcomes (see Figure 5), offset target methods to determine potential risk to threatened ecological communities and species from future development (see Box 2), and the guiding principles and policies of statutory approval bodies.

Box 2. Offset target methods for threatened ecological communities and species

The offset target method for **threatened ecological communities (TECs)** used the amount of habitat for each TEC that will be impacted by development. The method was driven by two key principles:

1. impacts on higher conservation status matters require more offsets than lower status matters

2. impacts on higher condition matters require more offsets than lower condition matters.

Species offset targets were developed for each EPBC Act and BC Act-listed species likely to be at risk of residual adverse impacts from the direct impacts of development under the Plan. The method determined:

1. level of risk for EPBC Act listed species as determined by the assessment report

2. a set of criteria for BC Act-listed species to address risk of residual adverse impacts.

The Assessment Report provides further detail on these two methods.

Table 3: Summary of impacts based on the Assessment Report

Value or protected matter	Impact
Total impacts to native vegetation	1,777.8 hectares
Threatened ecological communities[3]	8 under BC Act 4 under the EPBC Act (plus the *Coastal floodplain eucalypt forest of eastern Australia* ecological community, nominated for listing*)*
Threatened species[4]	25 flora species 24 fauna species
Most impacted TECs	Cumberland Plain Woodland (PCT 849/850) Shale Sandstone Transition Forest (PCT 1395) River-Flat Eucalypt Forest (PCT 835)
Target[5] species	**Flora species:** *Cynanchum elegans* *Dillwynia tenuifolia* *Epacris purpurascens var.* *Grevillea juniperina subsp. juniperina* *Hibbertia fumana* *Hibbertia puberula* *Marsdenia viridiflora subsp. viridiflora* *Persoonia nutans* *Pimelea spicata* *Pultenaea parviflora* *Pultenaea pedunculata* **Fauna species:** *Meridolum corneovirens* *Myotis Macropus* *Phascolarctos cinereus* *Lathamus discolour*
Vegetation avoided for biodiversity or other purposes in nominated areas	3,670 hectares
Total land avoided in nominated areas	4,745 hectares

[3] While there is some overlap, TEC lists are maintained at both the Commonwealth and State level and include differences in the criteria used and approach to listings.
[4] Of the 49 threatened species, 48 species are listed under the BC Act, 28 species are listed under the EPBC Act and 27 species listed under both pieces of legislation.
[5] EPBC Act and BC Act listed species identified as being at risk of residual adverse impacts from the direct impacts of development under the Plan

The conservation priorities method

The department used a prioritisation process—referred to in this Plan as the conservation priorities method (DPIE 2019), to identify and map high-value conservation lands that:

- best support an ecologically functioning, connected landscape, and
- can simultaneously offset for direct, indirect, prescribed and cumulative impacts on biodiversity, in line with the statutory requirements of the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) and the *Biodiversity Conservation Act 2016* (NSW) (BC Act).

The output of this process resulted in the identification of the strategic conservation area. The conservation priorities method can be found in Appendix D of *Sub-Plan A: Conservation Program and Implementation*.

What is the strategic conservation area?

The strategic conservation area represents areas of important biodiversity value to the Cumberland subregion. These areas include large remnants of native vegetation, areas with important connectivity across the landscape, and some areas with ecological restoration potential. The strategic conservation area has been identified as the area of greatest strategic value to deliver long-term conservation outcomes in the Cumberland subregion and which can offset for biodiversity impacts.

The strategic conservation area includes 28,300 hectares of the Plan Area. This area contains approximately 18,300 hectares of native vegetation, classified into plant community types (PCTs), including potential habitat for 49 threatened flora and fauna species and 8 EPBC Act and/or BC Act-listed TECs impacted by development facilitated through the Plan. The remaining areas include cleared land but with the potential for restoration of the Plan's targeted threatened ecological communities.

The map of the strategic conservation area (see Figure 12) will be used to identify suitable conservation lands to offset biodiversity impacts over the life of the Plan. Suitable areas may be protected as a future reserve or biodiversity stewardship site as well as enhanced through an ecological restoration project. Not all of the strategic conservation area is expected to become new conservation land under the Plan. However, it is expected that around 11,000 hectares, or approximately double the Plan's offset commitment of 5,475 hectares of impacted native vegetation will be protected within new conservation lands. This will deliver increased green space and publicly accessible reserves for the community to enjoy as well as building ecological connectivity across the landscape through greater protections for biodiversity.

Planning controls will be applied across the strategic conservation area, except for land owned by Local Aboriginal Land Councils (LALCs) or under claim by LALCs. Deerubbin owned land has been excluded from the strategic conservation area at their request. Other LALC owned land and land under claim represents 1,700 ha of the 28,300 hectares of strategic conservation area.

Further details on how sites will be identified and how conservation lands will be established is provided in the 'Conserve flora, fauna and habitat' section (see page 59).

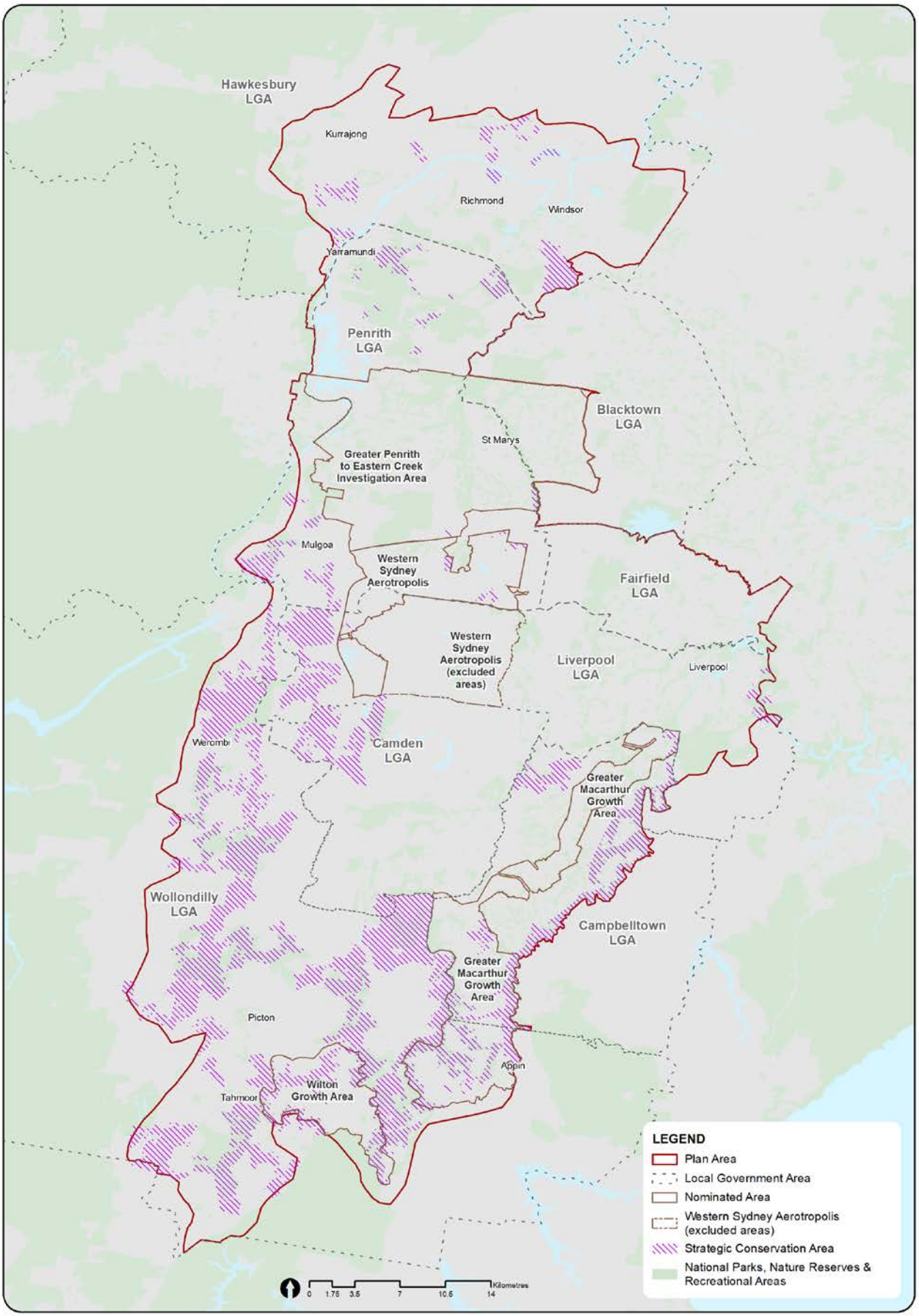


Figure 12: Strategic conservation area in the Plan Area

Protecting matters of national environmental significance

Landscape-scale conservation planning methods were used to account for the range of biodiversity values protected under NSW and Commonwealth environmental legislation and to determine important biodiversity areas to avoid from development and/or protect in perpetuity as offsets. The Plan's avoidance criteria are described in Appendix B. The Plan's avoidance criteria, page 89. The conservation priorities method is in Appendix D of *Sub-Plan A: Conservation Program and Implementation.*

The conservation priorities method identified and mapped areas which have the potential to directly offset development impacts on both NSW and nationally listed threatened species and ecological communities. It is from these areas that new conservation lands will be established.

While many of the protected matters under the BC Act and the EPBC Act overlap, there are some differences between a nationally protected matter and a biodiversity value protected under the NSW BC Act due to differences in their respective listing criteria and approach. The following case study (Case Study 1 – Protecting MNES) describes how MNES will be identified and protected through the Plan's conservation program and implementation.

What will the conservation program deliver?

The conservation program will protect priority areas for conservation from within the strategic conservation area to offset the impacts of development on threatened ecological communities, species and their habitats. New conservation lands will include additional national parks or public reserves, extensions to existing parks and reserves, and biodiversity stewardship sites on public or private land.

Ecological restoration projects will play an important role in new conservation lands to expand the area's native vegetation communities, create new habitats and maximise ecological connectivity. At least 90% of the Plan's overall conservation program funding will be used to support and establish new conservation lands.

Within the first five years of the Plan's implementation, the NSW Government will prioritise funding for the establishment of new public reserves to protect threatened ecological communities, species and their habitats. These new reserves are critical to the protection of BC Act and EPBC Act-listed threatened ecological communities and species, and will contribute to a strategic, upfront biodiversity offset for the Plan. Proposed new reserves are:

- The Georges River Koala Reserve (Case Study 2)
- The Gulguer Reserve Investigation Area (Case Study 3)
- The Confluence Reserve Investigation Area (Case Study 4)

The Georges River Koala Reserve has been announced as part of the Plan and two additional public reserves are under investigation for feasibility (see Figure 13 for general locations).

The NSW Government has committed $84 million in the first five years to implement the Plan. This includes funding to plant 100,000 trees planned for restoring koala habitat in the Georges River Koala Reserve, establishing biodiversity stewardship sites on private land and 120 kilometres of koala exclusion fencing to protect koalas from increasing threats such as vehicle strike and dog attacks. Other areas within the strategic conservation area have also been identified for further investigation as future reserves to provide greater landscape connectivity such as Bargo.

Case study 1: Protecting matters of national environmental significance

The full list of protected matters potentially relevant to the Plan was identified through searches of existing databases, including the *Protected Matters Search Tool*. A categorisation method was applied to search results to identify matters requiring detailed assessment. This method was independently reviewed and outlined in the Assessment Report.

The Category 1 MNES include eight TECs, 20 fauna species and 23 flora species. Of these, the assessment report found potential impacts to four TECs, plus one nominated for listing[6] and 28 threatened species.

Key MNES

Key MNES have been identified in consultation with the Department of Agriculture, Water and Environment as being of national significance and a priority for protection through the Plan. The key MNES in the Plan Area are:

- Shale Sandstone Transition Forest
- Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- Coastal Floodplain Eucalypt Forest of Eastern Australia
- Cooks River Castlereagh Iron Bark Forest
- *Persoonia nutans; Pimelea spicata; Pultenaea parviflora*; Green and Golden Bell Frog; Swift Parrot; Regent Honeyeater; Grey headed Flying-Fox, and Koala.

Protecting MNES through the conservation program:

The Plan's strategic conservation area has the potential to offset all residual impacts to nationally threatened ecological communities and species as determined by the Assessment Report. Three reserve areas have been identified as a priority for establishment. These areas (presented in Case Studies 2-4) include habitat for several key MNES. In addition, the assurance mechanisms built into the delivery of the conservation program will ensure that the protection of MNES is prioritised, delivered and reported on. These mechanisms include:

- clear Plan commitments to protect all impacted EPBC Act-listed TECs and species (through an avoid, mitigate, offset hierarchy), including specific offset targets for TECs and target species
- conservation land selection steps which prioritise the protection of land with EPBC Act-listed TECs and species (and which prioritise the key MNES)
- an offsets reconciliation accounting process which will continually track development impacts with offsets and trigger an adaptive management response if offsets are not keeping pace
- an evaluation program which will include monitoring progress of the Plan's actions and commitments to meet outcomes for threatened ecological communities and species; evaluations of Plan effectiveness and regular, publicly available reporting on progress and implementation.

[6] The "River-flat eucalypt forest on coastal floodplains of New South Wales" was nominated for listing as a threatened ecological community under the EPBC Act in 2016. It has since been renamed as *Coastal floodplain eucalypt forest of eastern Australia*. The proposed conservation status for this ecological community is 'endangered'

Additional commitments focus on avoiding, minimising and mitigating impacts from development on biodiversity, managing key threats to biodiversity across the landscape, and building knowledge and capacity among members of the community and stakeholders through education, engagement and research. These commitments will be allocated up to 10% of conservation program funds.

Climate change is likely to introduce additional threats and exacerbate ecosystem stressors such as fire, disease, pests and weeds. The conservation program will invest in climate change adaptation strategies for threatened species and ecological communities in the Cumberland subregion. Commitments include funding research to identify the most at-risk species and ecological communities, and identifying priority locations, such as climate refugia, to support the persistence and adaptation of at-risk species and ecological communities.

The ‘Implementation and assurance framework’ section (see page 70) describes how the conservation program will be delivered to meet the Plan commitments. This includes how the Plan’s implementation will be governed, how the Plan’s progress will be tracked over time and ensuring the Plan’s mechanisms (including adaptive management) deliver offsets in line with the Plan’s primary objective to deliver biodiversity objectives and improve liveability while facilitating urban development in Western Sydney. Figure 14 presents an overview of the conservation program and its delivery.

Case study 2. Georges River Koala Reserve

The conservation program will establish the Georges River Koala Reserve, the most important north–south koala movement corridor along the Georges River between Appin and Kentlyn (see Figure 13). The reserve will facilitate movement of koalas between Campbelltown and the Southern Highlands and promote the genetic diversity of the species.

The establishment of the Georges River reserve was recognised in the Chief Scientist Koala Report as essential to the persistence of the Southern Sydney koala population. The reserve will protect and manage up to 1,885 hectares of new conservation land (including areas of ecological restoration), which is three times the required offset target for koalas in the Plan. The reserve will also give local communities accessible public space for recreation such as walking, education opportunities and may provide opportunities for koala-based tourism.

Implementation

Stage 1 of the reserve includes approximately 1,130 hectares of land, which will be transitioned to a reserve in the first 10 years of the Plan. This land is along the upper Georges River between Appin and Kentlyn. The Office of Strategic Lands currently owns around 60% of the land within the proposed first stage of the reserve and is in the process of creating stewardship sites on these parcels of land. Once biodiversity stewardship agreements are in place, the department will retire the biodiversity offsets credits generated to fund the ongoing management of the reserve.

Further acquisition of land is required to complete the first stage of the Reserve. These lands, particularly along the eastern side of Appin Road will be the focus of restoration projects to strengthen and widen the corridor. We will consult with affected landholders throughout the early years of the Plan with the aim of gazetting Stage 1 of the reserve by year 10 of the Plan.

Stage 2 will comprise up to 755 hectares of additional land to be incorporated into the reserve by 2040. Office of Strategic Lands has significant land holdings in this area. However, further land acquisition is required to complete the corridor. Some of this land is owned by local councils and LALCs. The department will consult with landholders before finalising the Plan.

When the land acquisition program is complete and biodiversity stewardship agreements are established, ownership and management of the reserve will be transferred to the NSW National Parks and Wildlife Service in accordance with the NSW *National Parks and Wildlife Act 1974*.

Protection of threatened native vegetation and species

In addition to protecting important koala habitat, the proposed Georges River Koala Reserve contains around 1,565 hectares of native vegetation. Vegetation communities include targeted threatened ecological communities listed under both the BC Act and EPBC Act, including approximately 375 hectares of Shale Sandstone Transition Forest and 60 hectares of Cumberland Plain Woodland.

The proposed reserve also includes potential habitat for the following threatened species, amongst others:

- at least 1,590 ha for Regent Honeyeater (a key MNES)
- at least 1,590 ha for Swift Parrot (target species and a key MNES)
- at least 1,180 ha for the Southern Myotis (target species)
- at least 980 ha for the Cumberland Plain Land Snail (target species)
- at least 940 ha for Grey-headed Flying-fox (a key MNES)

Case Study 3. The Gulguer Reserve investigation area

The Gulguer Reserve investigation area covers about 1,800 hectares in the Warragamba region within the Wollondilly Local Government Area, (see Figure 13). A reserve in this area will support the east-west connection between Burragorang State Conservation Area and Gulguer Nature Reserve and expand on the highly visited Bents Basin State Conservation Area.

Actions to establish a new reserve in this area will commence in the first five years of the Plan. This will include creating biodiversity stewardship sites on land as it become available for acquisition. The complete process to establish and gazette the reserve under the NSW *National Parks and Wildlife Act* 1974 is unlikely to occur before Year 20 of the Plan.

Current land uses

The current land uses in this area include livestock grazing, residential and farming infrastructure. The land is predominately zoned as RU2 (rural landscape) and is mostly privately owned.

Protection of threatened native vegetation

The reserve investigation area mainly lies on flat to moderately hilly terrain with several drainage lines dissecting the area. The investigation area contains around 1,195 hectares of native vegetation comprising large patches in good to moderate condition in and adjacent to gullies, and scattered vegetation in lower areas. Vegetation communities include approximately 585 hectares of Shale Sandstone Transition Forest and 180 hectares of Cumberland Plain Woodland in addition to some Western Sydney Dry Rainforest. These ecological communities are all listed as threatened under both the BC Act and EPBC Act.

Up to 445 hectares of cleared land could potentially be restored to promote the return of several threatened ecological communities and creating habitat for associated species.

Threatened species

The area includes potential habitat for threatened species, including at-risk species and key MNES, targeted for conservation under the Plan, including but not limited to:

- at least 1,165 ha for the Swift Parrot (target species and a key MNES)
- at least 1,165 ha for the Regent Honeyeater (a key MNES)
- up to 1,150 ha for the Southern Myotis (target species)
- up to 1,010 ha for both *Epacris purpurascens* var. *purpurascens* and *Hibbertia puberula* (target species)
- up to 780 ha for the Cumberland Plain Land Snail (target species)
- up to 75 ha for the Green and Golden Bell Frog (a key MNES)
- up to 15 ha for the Grey-headed Flying-fox (a key MNES)

Case Study 4. The Confluence Reserve investigation area

The Confluence reserve investigation area lies in the Hawkesbury Local Government Area in the north of the Plan Area and to the east of Londonderry (See Figure 13). The investigation area, much of which is flood prone, covers about 600 hectares. It has been identified as a potential area for conservation and ecological restoration efforts due to its proximity to several existing nature reserves, thus improving local connectivity. It also offers the opportunity to link with the Wianamatta (South Creek) Corridor, which has been identified as a priority in the Sydney Green Grid.

Actions to establish a new reserve in this area will commence in the first five years of the Plan, this will include creating biodiversity stewardship sites on land as it become available for acquisition. However, it will likely take much longer to complete the process to establish and gazette the reserve, up to Year 15 of the Plan.

Current land uses

The land is a combination of RU1 (Primary Production), RU4 (Primary Production Small Lots) and R5 (Large Lot Residential) zoning, with principal land uses being grazing and residential and farming infrastructure. The area is predominately privately owned.

Protection of threatened native vegetation

The area contains small patches of vegetation ranging from poor to good condition and contains around 60 hectares of River-Flat Eucalypt Forest and 50 hectares of Freshwater Wetlands. Other TECs listed under both the BC Act and EPBC Act are present in the area, including some Cooks River Castlereagh Ironbark Forest, Cumberland Plain Woodland and Shale Gravel Transition Forest.

Restoration opportunities

The area provides a significant ecological restoration opportunity, with up to 365 hectares of cleared land targeted for restoration. Communities likely to be restored include Cooks River/Castlereagh Ironbark Forest, River-Flat Eucalypt Forest and Cumberland Plain Woodland.

Threatened species

The area includes potential habitat for threatened species, including at-risk species and key MNES, targeted for conservation under the Plan, including but not limited to:

- up to 130 ha for the Southern Myotis (target species)
- up to 80 ha for the Cumberland Land Snail (target species)
- at least 75 ha for *Marsdenia viridiflora* subsp. *viridiflora* (target species)
- at least 65 ha for *Pultenaea parviflora* (target species and a key MNES)
- up to 65 ha for the Swift Parrot (target species and a key MNES)
- up to 65 ha for the Regent Honeyeater (a key MNES)
- at least 60 ha for the Grey-headed Flying-fox (a key MNES)

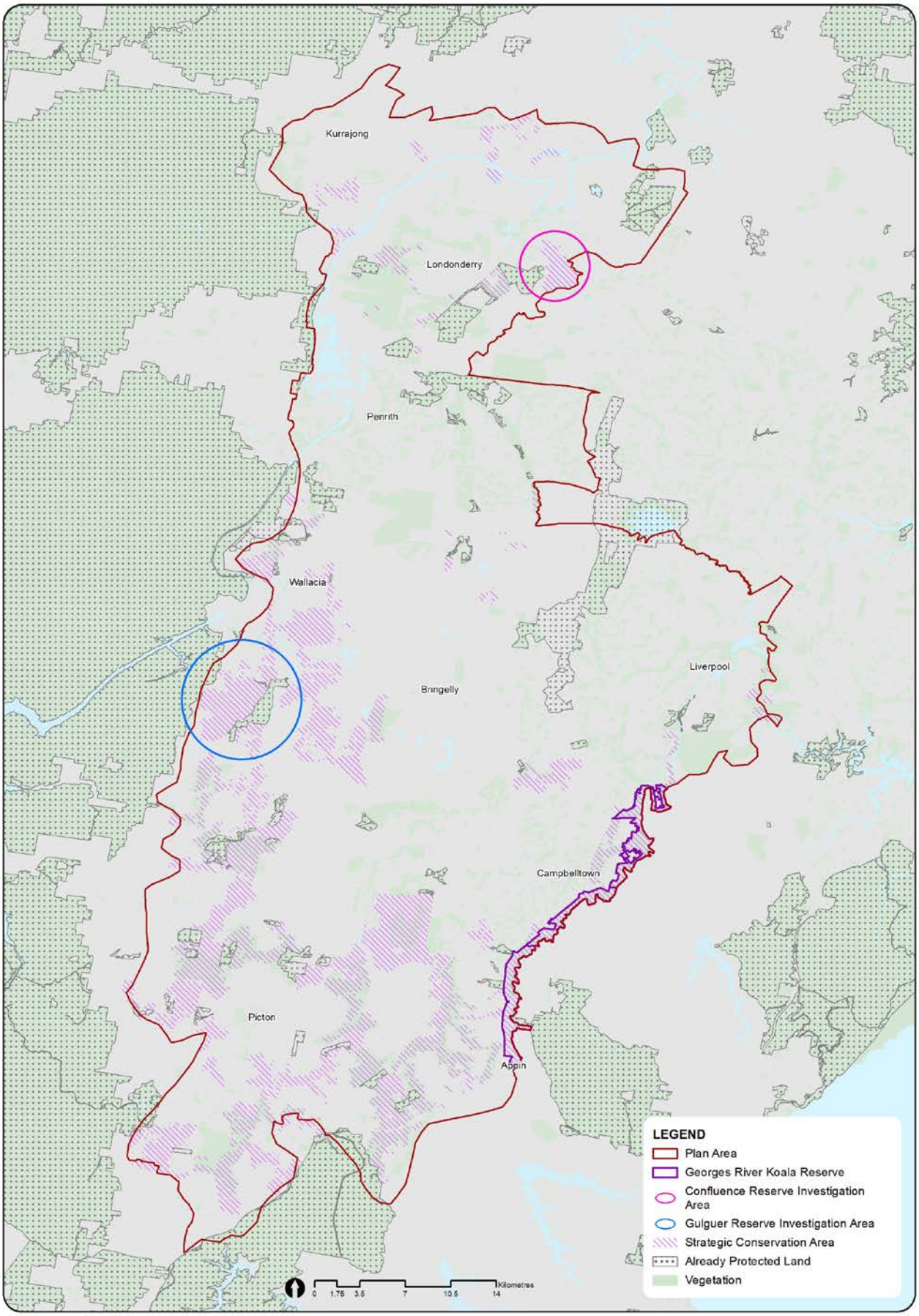


Figure 13: Reserve and reserve investigation areas in the Plan Area

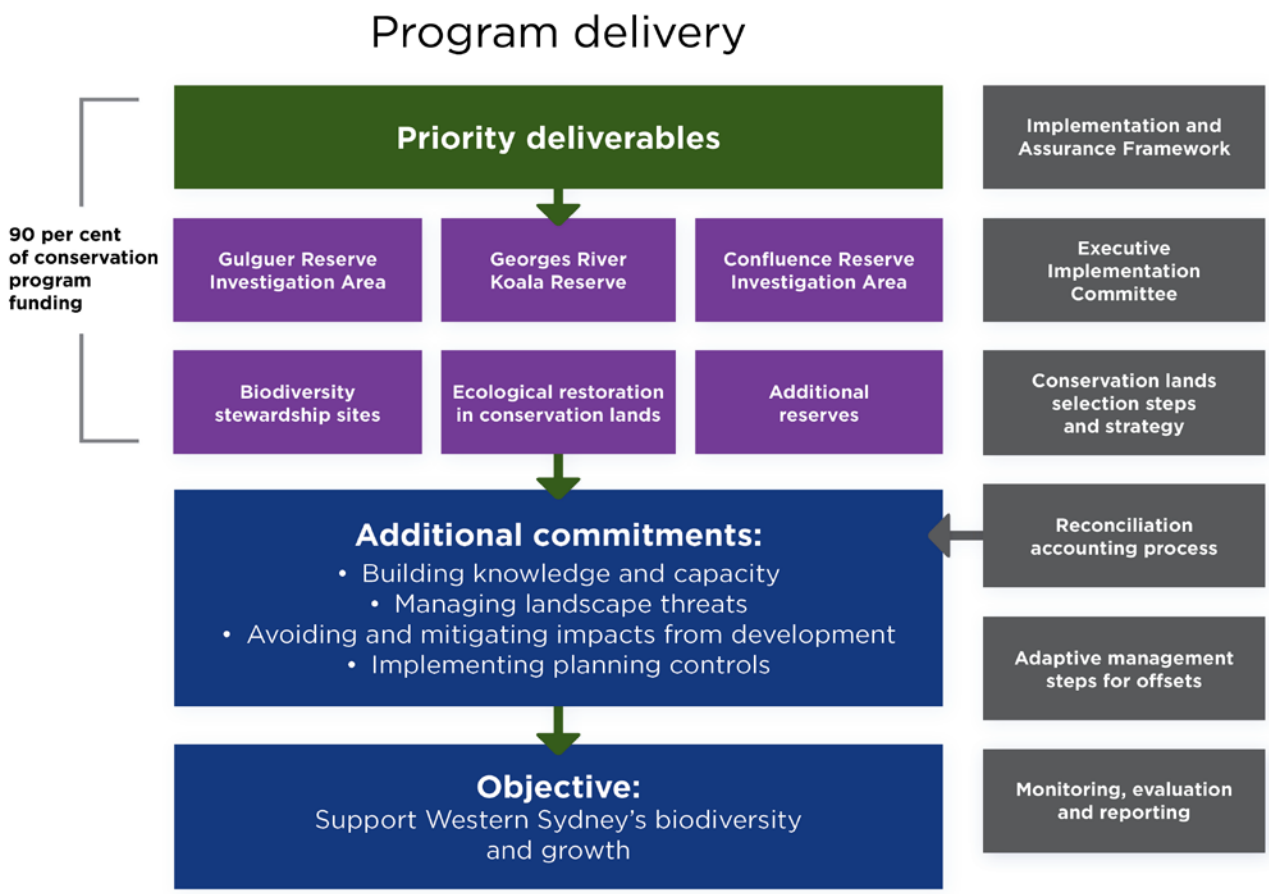


Figure 14: The delivery of the conservation program

Plan commitments

Commitments sit within the Plan's conservation framework to deliver on the Plan's vision, objectives and eight outcomes. They will be implemented over the life of the Plan until 2056, through a series of planned and managed actions that have been set over varying timeframes, according to their priority and feasibility over time.

The Plan includes 28 commitments. As described below, 24 commitments will be delivered through the Plan's conservation program. They have been categorised into five categories. These are: avoiding and minimising impacts; mitigating indirect and prescribed impacts; conserving flora, fauna and habitat; managing landscape threats; build knowledge and capacity. The Plan's additional four commitments relate to development actions, governance and reporting (commitments 1, 26, 27 and 28). The complete list of commitments is in 'Appendix C. Plan commitments'.

The list of BC Act and EPBC Act protected matters to which impacts will be offset through this Plan is shown in 'Appendix D. EPBC Act and BC Act matters to be offset through this Plan'.

Actions to deliver commitments are detailed in *Sub-Plan A: Conservation Program and Implementation*.

Avoiding and minimising impacts

Urban development

Avoiding and minimising impacts on threatened biodiversity is a critical step in reducing the overall impacts of proposed developments. It is important to formalise commitments and actions to demonstrate this avoidance and strengthen the protection of those areas avoided for biodiversity purposes. Both the BC Act and the EPBC Act require avoidance as a first step in the assessment and approval process.

The department used avoidance criteria (see 'Appendix B. The Plan's avoidance criteria') to identify areas of high biodiversity value to avoid from development and to designate urban capable land to be biodiversity certified in each nominated area. The urban capable land within each nominated area will be biodiversity certified and defined in the Plan as certified-urban capable land. The assessment report details the processes used to make these designations.

More generally, land has been avoided from the certification process because it is:

- of high biodiversity value (defined through the criteria listed in 'Appendix B. The Plan's avoidance criteria'
- not suitable for development because it is a riparian corridor and is regulated under *Water Management Act 2000* or it is too steep for development (any land with a slope greater than 18 degrees)
- excluded from the area covered under the Plan (excluded land) including because it is existing protected land, is Commonwealth land, or is land that is already developed (e.g. existing urban areas)
- in the nominated areas and already assessed as part of another development approval (such as Bingara Gorge), or is progressing through an alternative development assessment (such as Mount Gilead and Menangle Park)

As a result of upfront strategic planning for urban development the Plan designates 4,745 hectares of 'avoided land'. Across the four nominated areas, this includes 3,670 hectares of native vegetation, of which 2,735 hectares has been avoided for biodiversity purposes, and 935 hectares is within riparian corridors and steep slopes. Avoided land also includes some non-vegetated land such as small wetlands and waterbodies, land that is strategically important to protect or enhance corridors, or small enclosed clearings that are surrounded by native vegetation. These areas were identified by applying the avoidance criteria, described in Appendix B.

To support the protection of these areas, the department is proposing to apply environmental conservation zoning (E2) except for land owned by LALCs or under claim by LALCs. Aboriginal-owned land and land under claim represents 90 hectares of the 4,795 hectares of total avoided land. Further information on the E2 zoning is provided in the 'Implementation through planning controls' section (see page 67).

While the certified-urban capable land has been designated for urban development through the Plan, planning for essential infrastructure is in various stages for each of the four nominated areas. This means that additional, essential infrastructure development may be needed outside certified-urban capable land to support growth over the next four decades and beyond. In recognition of this, the Plan's avoidance commitment (Commitment 2) has been reduced by 10% of the total area

of avoided land in the nominated areas. This, however, doesn't alter the proposed environmental conservation zoning applied to all of the avoided land in the Plan.

Every effort should be made to ensure that infrastructure development is limited to the certified-urban capable land. Any development outside of those areas will need to comply with the 'Appendix A. Guidelines for essential infrastructure development' and obtain all required NSW biodiversity approvals. This includes specific requirements to avoid, mitigate and offset impacts to MNES and other relevant EPBC Act matters.

The department will be responsible for notifying public authorities of their obligations under the Plan, monitoring the impacts of development and monitoring compliance with avoidance, mitigation and offset commitments under the Plan.

Major infrastructure corridors

The Plan commits to a future process to avoid and minimise impacts on areas of high biodiversity value, including consideration of specific BC Act and EPBC Act listed species, within major infrastructure corridors described in the Plan. To do this, Transport for NSW will consider how to avoid these areas during the strategic planning phase of each major transport project to understand potential impacts on biodiversity.

For the infrastructure corridors within nominated areas, which are to be strategically biodiversity certified under the Plan, the Plan's avoidance criteria (Appendix B. The Plan's avoidance criteria) will be applied, including specific consideration of five threatened species determined by the assessment report and identified in Commitment 3.

Transport for NSW will be required to report to the Department of Planning, Industry and Environment and executive implementation committee on development impacts and adjustments identified through the NSW State Significant Infrastructure approvals process (or equivalent) for each transport project. This will include specific reporting on avoidance achieved, within the mapped or protected corridors identified in this Plan.

The department will use this information to track impacts and adjust offset requirements through the Plan's reconciliation accounting process. Adjustments to the Plan's projected impacts to biodiversity (including MNES) and offset requirements will be published regularly through the Plan's annual updates and five yearly reviews. Where areas have been avoided for biodiversity purposes, the department would look to apply planning controls, such as environmental conservation zoning.

For the infrastructure corridors outside the nominated areas, the requirement for avoidance would be identified through the BC Act Biodiversity Assessment Method, utilising the Biodiversity Certification Assessment Report or Biodiversity Development Assessment Report, in addition to specific consideration of biodiversity values and specific sites, including Commonwealth land, as determined by the assessment report and identified in Commitment 4.

The following commitments are specific to avoiding and minimising impacts on biodiversity and MNES from development under the Plan.

Commitments to avoid impacts on biodiversity and MNES

Commitments

Commitment 2

Avoid and minimise impacts from urban, industrial and infrastructure development to at least 4,315[7] hectares of land. This target includes avoiding 3,670 hectares of native vegetation comprising:

- 2,735 hectares of native vegetation avoided for its biodiversity value
- 935 hectares of native vegetation avoided for other purposes including riparian corridors and steep slopes

Commitment 2.1

The avoidance target of 4,315 hectares will be met by avoiding up to the following areas of EPBC Act-listed threatened ecological communities:

- 1,945 hectares of Shale Sandstone Transition Forest
- 95 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- 170 hectares of River-Flat Eucalypt Forest (subject to listing)
- 30 hectares of Coastal Swamp Oak (Casuarina glauca) Forest
- 25 hectares of Cooks River Castlereagh Ironbark Forest

Commitment 2.2

The avoidance target of 4,315 hectares will be met by avoiding up to the following areas of BC Act-listed threatened ecological communities:

- 2,135 hectares of Shale Sandstone Transition Forest
- 475 hectares of Cumberland Plain Woodland
- 170 hectares of River-Flat Eucalypt Forest
- 90 hectares of Swamp Oak Floodplain Forest
- 30 hectares of Shale Gravel Transition Forest
- 30 hectares of Cooks River Castlereagh Ironbark Forest
- 20 hectares of Moist Shale Woodlands

Commitment 2.3

The avoidance target of 4,315 hectares includes limiting cumulative direct impacts over the life of the Plan from essential infrastructure to the EPBC-listed Shale Sandstone Transition Forest TEC within non-certified land to no more than:

- 20 hectares in the Wilton Growth Area
- 20 hectares in the Greater Macarthur Growth Area

Commitment 2.4

Prioritise the avoidance of impacts from essential infrastructure on non-certified land to:

- known populations of the following threatened flora species:
    - *Grevillea parviflora* subsp. *parviflora* (Small-flower Grevillea)
    - *Persoonia bargoensis* (Bargo Geebung)
    - *Persoonia nutans* (Nodding Geebung)
    - *Genoplesium baueri* (Yellow Gnat-orchid)

[7] The total area of avoided land at the start of the Plan is 4,795 hectares. The avoidance target has reduced this figure by 10% to allow for potential future development of essential infrastructure in non-certified land. E2 zoning will be applied to all avoided land in the nominated areas.

Commitments

  - *Pimelea spicata* (Spiked Rice-flower)
  - *Pultanea parviflora*
- important koala corridors within the Wilton and Greater Macarthur Growth Areas to maintain their integrity

Commitment 3
Avoid and minimise impacts to threatened ecological communities, species and their habitat within major infrastructure corridors in the Plan's nominated areas. This includes avoiding where possible:

- Areas of high biodiversity value (refer to avoidance criteria at Appendix B. Avoidance criteria)
- Areas of potential habitat connectivity, particularly vegetation in riparian corridors, for the following species:
  - Eastern Pygmy Possum
  - Green and Golden Bell-Frog
  - Spotted-tailed Quoll
  - Squirrel Glider
  - Yellow-bellied Glider
- Known flora populations within the OSO and M7/Ropes Crossing Link Road corridors, including:
  - *Dillwynia tenuifolia*
  - *Grevillea juniperina* subs. *Juniperina*
  - *Pultanea parviflora*
  - *Persoonia nutans*
- Outer Sydney Orbital waterway crossings minimises structures within riparian areas, waterway re-alignments, and bilk earthworks on adjacent floodplain areas.

Commitment 3.1
Where an action cannot feasibly or practically avoid impacts on an identified area, these impacts are to be minimised as far as possible. Minimisation can be achieved by refining design elements to reduce the overall impact.

Commitment 3.2
Transport for NSW will be responsible for determining the area of avoidance achieved for each of the relevant BC Act and EPBC Act matters using:

- the estimated construction footprint as shown in the EIS for each infrastructure corridor
- the Plan's data and mapping for threatened ecological communities, species and their habitats.

Commitment 3.3
The strategic biodiversity certification (BC Act) for each of the infrastructure corridors will only be activated once the areas avoided and the areas to be developed have been reported (as per Commitment 3.2).

Commitment 4
Avoid and minimise impacts to threatened ecological communities, species and their habitat in the sections of the four major infrastructure corridors outside the nominated areas but within the Plan Area in accordance with the:

- major infrastructure corridors class of action description
- Biodiversity Assessment Method (BC Act)

Commitments

Commitment 4.1

This includes consideration to avoid and minimise impacts to threatened species, populations and communities as a result of tunnel construction activities in major infrastructure corridors and to minimise impacts to Commonwealth Land sites including impacts to existing infrastructure and disruption to existing services.

This includes avoiding disturbance to the following locations where possible:

- Known flora populations within the OSO and M7/Ropes Crossing Link Road corridors, including:
    - *Dilwynia tenuifolia*
    - *Grevillea juniperina* subs. *Juniperina*
    - *Pultanea parviflora*
    - *Cynanchum elegans*
- Protected lands within and adjacent to the proposed tunnel footprints as follows:
    - Mater Dei BioBank site within the Outer Sydney Orbital footprint near Camden
    - Registered Property Agreement site within the Outer Sydney Orbital footprint at Camden Airport
    - Metro Offset site within the footprints for the Outer Sydney Orbital and Metro Rail Future Extension near Harrington Park
- Nepean River and associated riparian corridor within the Outer Sydney Orbital footprint
- Camden Golf Club at Narellan adjacent to the footprint for the Metro Rail Future Extension
- Mount Annan Botanic Gardens within the footprint for the Metro Rail Future Extension
- Populations and habitat within or adjacent to the footprints for the Outer Sydney Orbital and Metro Rail Future Extension for:
    - *Eucalyptus benthamii*
    - *Pomaderris brunnea*
    - *Pimelea spicata*
    - Cumberland Plain Land Snail
- Commonwealth land at:
    - Camden Airport
    - Western Sydney University (Campbelltown Campus)
    - 12 Werombi Road, Grasmere NSW

Mitigating indirect and prescribed impacts

The development of the nominated areas and major infrastructure corridors may have indirect or prescribed impacts in addition to the direct impacts on biodiversity from clearing native vegetation.

Indirect impacts are defined as those not directly associated with clearing for development but arise from vegetation clearing and changes in land-use patterns.

Prescribed impacts are impacts on biodiversity values that do not comprise direct clearing of native vegetation and are listed in Clause 6.1 of the Biodiversity Conservation Regulation.

Understanding and addressing indirect and prescribed impacts resulting from the development identified in the Plan is a requirement under the EPBC Act and the BC Act. The assessment report has assessed these potential impacts on threatened ecological communities, species and habitat.

Urban and industrial development in nominated areas

The Plan includes a commitment to mitigate indirect impacts on threatened ecological communities, species and habitat from the urban development within the nominated areas to best practice standards (commitment 5). The assessment report has identified specific recommendations to manage and mitigate indirect and prescribed impacts to certain threatened species and threatened ecological communities for each nominated area. These recommendations will inform development controls that apply to all development and specifically protect biodiversity including threatened flora or fauna species and threatened ecological communities. These are listed in Appendix E. Specific mitigation measures to address residual risk.

Development Control Plans (DCPs) for the relevant nominated areas are one mechanism to manage and mitigate indirect and prescribed impacts to threatened ecological communities, species and habitat within each nominated area.

DCPs are prepared under section 3.43 of the *Environmental Planning and Assessment Act 1979* (NSW) and the Environmental Planning and Assessment Regulation 2000. They provide detailed planning and design development controls and support statutory instruments such as local environmental plans and SEPPs. DCPs will be prepared for each nominated area or controls may be integrated into existing Local Government DCPs where precincts require the use of existing DCPs. These DCPs will include objectives and controls to guide the protection of biodiversity.

Two broad types of development controls will be implemented.

General environmental controls that will benefit the environment, including biodiversity values. These controls are typically common or standard controls implemented by councils in NSW to manage the impacts of development on the environment through the development application process

Specific controls that apply to specific species and threatened ecological communities (TECs) in specific locations or broader nominated areas. These controls have been identified through the assessment report and are needed to address residual risks to species or TECs that remain after implementation of the general environmental controls.

The DCPs will set out development controls that need to be addressed by neighbourhood plans and development applications to mitigate indirect and prescribed impacts on threatened species. Controls to address specific biodiversity values, including threatened ecological communities and

species are in Appendix E. Species and TEC-specific mitigation measures. The general environmental controls to be implemented are described in Chapter 15 of the Assessment Report.

In addition, the department will work with the relevant planning authority to:

- incorporate requirements to audit and monitor the implementation of development controls in the standard set of conditions in subdivision plans
- incorporate provisions in relevant land-use plans for the nominated areas to give legal effect to specific development standards as required.
- Provide ongoing support to councils in the application of DCP controls within the nominated areas, including the sharing of knowledge, maps and data.

Mitigation measures for infrastructure activities

The department will establish guidelines that will include the mitigation measures for indirect and prescribed impacts to biodiversity from infrastructure activities, as described in Appendix E. Specific mitigation measures to address residual risk.

These will need to be considered by the determining authority for certain activities including state significant development and Part 5 activities under the *Environment Planning and Assessment Act 2000.*

Mitigating impacts on the Southern Sydney koala population

The Southern Sydney koala population is one of two known populations in the Cumberland subregion. It occurs within and near the Wilton and Greater Macarthur growth areas. As land use changes in Western Sydney and the area becomes more urbanised, these koalas will be exposed to increasing threats, including dog attack, vehicle strikes, fire and climate change.

To mitigate these impacts, the conservation program will install koala exclusion fencing between important koala habitat and the urban capable land to protect koalas near urban areas. Exclusion fencing will separate koalas from future urbanised areas in the Wilton and Greater Macarthur growth areas and will be installed on both sides of Appin Road to protect koalas from vehicle strike.

In some circumstances, exclusion fencing may not be suitable due to land topography, existence of waterways or creeks or being a heritage-listed area. In these areas, bespoke fencing will be considered. However, in cases where no fencing type is possible, controls will be developed according to the Koala Habitat Protection Guideline for 60 metres from the koala habitat, and precinct design requirements included in the relevant development control plans. For further details on installation of koala fencing under the Plan, including where exclusion fencing may not be suitable, see *Sub-Plan B: Koalas*.

Mitigating impacts from major infrastructure corridors

The construction and operation of major infrastructure corridors could have indirect and prescribed impacts on biodiversity.

Transport for NSW will, in accordance with the Plan, assess the impacts on biodiversity and other environmental values based on detailed design and implement mitigation measures in accordance with published, best practice guidelines.

In addition, Transport for NSW will be required to undertake ongoing monitoring of high-value environmental areas, and review and adjust mitigation measures (where practical) in response to monitoring outcomes.

The assessment report has identified specific recommendations to manage and mitigate indirect and prescribed impacts from the operation and construction of major infrastructure corridors. These are also listed in Appendix E. Specific mitigation measures to address residual risk.

Mitigating impacts on heritage places

There are four World/and or National Heritage Places identified within 10km of the Plan Area.

- The Greater Blue Mountains World Heritage Area which is listed as both a World and National Heritage Place
- Parramatta Female Factory and Institutions Precinct which is listed as a National Heritage Place
- Old Government House and Government Domain which is listed as both a World and National Heritage Place
- Ku-ring-gai Chase National Park which is listed as a National Heritage Place.

The EPBC Act establishes a range of protections for World Heritage and National Heritage sites. Direct and indirect impacts to these sites in the form of loss, damage or notable alternation to their World or National Heritage values from the Plan are negligible. The Greater Blue Mountains World Heritage Area is adjacent to the western boundary of the Plan Area, and lies 1km from the nearest nominated area, Greater Penrith to Eastern Creek Investigation Area. The other sites are further from the development footprints and are unlikely to be impacted. The sites have been assessed in detail in the assessment report.

Mitigating impacts on Commonwealth land

Commonwealth land is a matter protected under section 26 of the EPBC Act. Potential direct and indirect impacts on the environment of Commonwealth land was assessed in the development of the Plan. There are 12 known Commonwealth land sites in the Plan area.

The risks from the development under the Plan to the environment on Commonwealth land has been assessed as low for each of the 12 sites. One site was found to have potential direct impacts from development under the Plan however the environmental values of the site are not significant and the impacts on these values are not considered to be notable. Four sites were found to have potential indirect impacts, as they are located within the nominated areas. However, they will not be directly impacted by development in the nominated areas. The rest of the 12 sites are distantly located from the development footprints of the nominated areas or infrastructure corridors and the risk of indirect and facilitated impacts was assessed as low.

While the general mitigation measures and processes to be implemented under the Plan are considered adequate to mitigate any risks of indirect impacts to environmental values of the sites, the assessment report has identified a specific mitigation measures to manage impacts to surface water flows and water quality of Blaxland Creek from adjacent development. The specific measure is identified in Appendix E. Specific mitigation measures to address residual risk.

Further information about the assessment of indirect and prescribed impacts from development in the Plan Area can be found in the assessment report.

The following commitments are specific to mitigating indirect and prescribed impacts from development under the Plan, as determined through the assessment report.

Commitments to mitigate indirect and prescribed impacts

Commitments

Commitment 5
Mitigate indirect and prescribed impacts from development on threatened ecological communities, species and their habitat to best practice standards.

Commitment 5.1
This includes implementing development controls within the nominated areas to protect threatened species as prescribed in Appendix E of the Plan.

Commitment 5.2
This includes implementing development controls within the nominated areas to protect the following threatened ecological communities as prescribed in Appendix E of the Plan:

- Cooks River Castlereagh Ironbark Forest (NSW and Cth) in Western Sydney Aerotropolis
- Cumberland Plain Woodland (NSW and Cth) in Greater Penrith to Eastern Creek Investigation Area
- River-flat Eucalypt Forest (NSW) / Coastal Floodplain Eucalypt Forest (Cth) in all nominated areas
- Shale Sandstone Transition Forest (NSW and Cth) in Wilton and Greater Macarthur growth areas
- Shale-Gravel Transition Forest (NSW) in Greater Penrith to Eastern Creek Investigation Area
- Swamp Oak Floodplain Forest (NSW) / Coastal Swamp Oak Forest (Cth) in Greater Penrith to Eastern Creek Investigation Area and Western Sydney Aerotropolis

Commitment 5.3
This includes mitigation measures to address indirect and prescribed impacts on threatened ecological communities, species and their habitat during construction and operation of infrastructure projects as prescribed in Appendix E of the Plan.

Commitment 5.4
This includes consulting with public land managers to minimise impacts to the following threatened species as prescribed in Appendix E of the Plan:

- populations of *Persoonia nutans* in Wianamatta Regional Park
- populations of *Pimelea spicata* on public land in all nominated areas
- Macquarie Perch in Erskine Creek, Glenbrook Creek, Georges River and Cordeaux River
- Green and Golden Bell Frog along Ropes Creek

Commitment 6
Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat.

Commitment 6.1
This includes mitigation measures to address impacts on the following threatened species during construction and operation of transport infrastructure as prescribed in Appendix E. Species and TEC-specific mitigation measures.

Plants

- *Cynanchum elegans*
- *Dillwynia tenuifolia*
- *Grevillea juniperina* subsp. *juniperina*
- *Persoonia nutans*
- *Pultenaea parviflora*

Commitments

Animals

- Cumberland Plain Land Snail
- Large Bent-winged Bat
- Eastern Coastal Free-tailed Bat
- Eastern Pygmy-possum
- Greater Glider
- Green and Golden Bell Frog
- Little Bentwing-bat
- Southern Myotis
- Spotted-tailed Quoll
- Squirrel Glider
- Yellow-bellied Sheathtail-Bat

Commitment 6.2
This includes mitigation measures to address impacts on the following threatened species during construction of proposed tunnels within the major infrastructure corridors:

- *Eucalyptus benthamii*
- *Pimelea spicata*
- *Pomaderris brunnea*
- Cumberland Plain Land Snail

Key threats/indirect impacts that need managing are:

- Hydrological disturbance
- Spread of weeds
- Spread of infection/disease
- Soil erosion and sedimentation
- Ground settling or subsidence
- Disturbance to ground shelter habitat (e.g. removal of fallen logs, slashing)

Commitment 6.3
This includes addressing mitigation requirements of the Biodiversity Assessment Method (or equivalent) for major infrastructure corridors outside of nominated areas.

Commitment 7
Mitigate indirect and prescribed impacts from urban, infrastructure and major infrastructure (transport) development on the Southern Sydney koala population to best practice standards and in line with the Chief Scientist Koala Report.

Conserving flora, fauna and habitat

The 'conserve flora, fauna and habitat' category of commitments will protect threatened ecological communities, species and their habitats through establishing new conservation lands in priority, strategic locations to enhance long-term resilience and ecological function. New conservation lands are integral to delivering the Plan's conservation outcomes and commitments as larger remnants of vegetation communities are better able to support resilient populations of species and are less susceptible to 'edge effects', catastrophic events, and the expected impacts of climate change (DECCW 2010).

In-perpetuity protection of biodiversity will be achieved through new or additional national parks, nature reserves, and local council- or community-based biodiversity reserves, and biodiversity stewardship sites on public or private land.

New conservation lands will be selected from the Plan's strategic conservation area in accordance with the Plan's conservation lands selection steps and implementation strategy. These are detailed in the 'Establishing conservation lands as offsets' section (see page 70).

The Plan's offset target for impacted native vegetation is approximately 5,475 hectares. The resulting area of new conservation will be much greater than this target and will likely be double that. For many new reserves or national parks, additional land will be required for compatible open space and recreational use. New conservation lands, including through reserves or Biodiversity Stewardship Sites may also include areas of native vegetation not directly meeting the Plan's conservation targets but will be protected collectively with the Plan's impacted native vegetation communities. The proposed Georges River Koala Reserve will also add a significant amount of additional land conserved to protect important koala habitat through the Plan.

Collectively, up to 11,000 hectares could be protected within new conservation lands to deliver in perpetuity biodiversity outcomes, improved ecological resilience and connectivity and increased green space and publicly accessible reserves for the community to enjoy.

Reserves

Reserves are a vital measure of the conservation program to protect, manage and conserve biodiversity in Western Sydney. Reserves are recognised as the foundation of biodiversity protection as they ensure the largest and most intact remnants of vegetation are protected in perpetuity.

Public reserves are also important for providing public access to green space for existing and new residents of Western Sydney. Expanding the reserve network will improve opportunities for recreation, wellbeing and social connection, and support liveability in the Western Parkland City.

Conservation lands established through the conservation program will include both new reserves and additions to existing reserves. The term 'reserves' in the Plan can refer to national parks, nature reserves, state conservation areas, regional parks (all managed by National Parks and Wildlife Service), council reserves and community-based reserves, as long as they have secure (on-title) agreements in place and will be managed for conservation in perpetuity.

The proposed Georges River Koala Reserve will, once established, secure priority habitat corridors in the Cumberland subregion to support connectivity for ecological communities and species, including the koala (see Case Study 2).

The Gulguer Reserve Investigation Area (see Case Study 3), as a priority of the Plan, could provide an east-west corridor between existing protected lands in the Warragamba area. It aims to extend Gulguer Nature Reserve and Bents Basin State Conservation Area and connect them with the Burragorang State Conservation Area. This extended reserve would create an important biodiversity corridor and increase public access to green spaces that are currently heavily used.

The Confluence Reserve Investigation Area (see Case Study 4), in the area of Windsor Downs Nature Reserve, would support the east-west corridor in the existing Londonderry reserve network. This area also includes Agnes Banks, Wianamatta, and Castlereagh nature reserves. The proposal includes restoring up to 365 hectares of native vegetation communities, including those targeted for protection under the Plan, which would make it the largest restoration project in the Plan.

Other areas within the strategic conservation area have also been identified for further investigation as future reserves to provide greater landscape connectivity such as Bargo.

Land tenure across the Plan Area is mostly freehold, meaning land will be acquired for reserves from private landholders over time. Areas that are best protected through the national parks system will likely have a long implementation phase to allow voluntary acquisition. Smaller reserves, or additions to existing reserves, may be easier to acquire and establish. The complexity of the acquisition process will depend on how many lots and landholders are involved in negotiations for each proposed reserve.

Biodiversity stewardship agreements will be established over parcels of land, as they are acquired by the NSW Government. Having a stewardship agreement in place will ensure funding for ongoing active management of reserve sites is secured in perpetuity.

Biodiversity stewardship sites

A biodiversity stewardship agreement is a cooperative agreement between a landholder and the NSW Government to establish a biodiversity stewardship site on their land. Biodiversity stewardship agreements will be a primary mechanism to protect conservation lands as greater than 75% of the remaining native vegetation in the Cumberland subregion is privately owned (Open Lines 2020).

Establishing biodiversity stewardship sites on private land is particularly useful when the land is characterised by fragmented patterns of ownership (such as in the Plan Area). Managing conservation lands as stewardship sites can offer opportunities to expand the range of natural values that are protected while providing buffers and corridors to already protected areas (OEH 2018). For further detail, see Case Study 5.

In a biodiversity stewardship agreement, the landholder voluntarily enters into the agreement and manages the area in accordance with an agreed management plan. Biodiversity stewardship agreements are registered on the title of a property and provide in-perpetuity protection of the site's biodiversity values with a secure, ongoing source of funding. Through the establishment of a biodiversity stewardship agreement, the economic value of the biodiversity attributes on the land can be realised, potentially providing monetary gain to protect and manage the environment.

Ecological restoration

Vegetation in the Plan Area has been historically cleared for agriculture and more intensive land uses. This has resulted in extensive fragmentation of the remaining native vegetation, reduced connectivity and overall loss of ecological resilience.

Ecological restoration can play a critical role in improving connectivity between remnant habitat patches, expanding the remnants and replacing some areas of over-cleared vegetation communities.

Case study 5: A focus on the Razorback area

The Razorback area is located to the north of Picton and to the south of Theresa Park, with Orangeville/Spring Creek to the west and Camden Park to the east. The area is appealing for conservation through biodiversity stewardship agreements as it:

- is close to already protected land, including the Blue Mountains World Heritage Area and Burragorang State Conservation Area
- supports an east–west corridor, linking important koala habitat to protected land
- supports a north–south corridor that links Gulguer to Tahmoor
- supports the NSW Government's Biodiversity Investment Opportunities Map (BIO Map) cores and corridors
- contains several medium-sized to large existing biodiversity stewardship sites.

There is an opportunity to connect vegetation patches in the Razorback area and provide a broader regional corridor. Establishing biodiversity stewardship agreements at this site would strengthen the east–west corridor and reinforce a link to primary and secondary koala habitats in the south-east of the Plan Area. Several threatened fauna species have been identified in the area, including the koala, the Cumberland Plain Land Snail and the Swift Parrot.

The Plan's conservation program will prioritise and fund on-ground actions to actively restore the vegetation communities in the Plan Area. Activities will include restoration of TECs for up to 25% of the Plan's target to secure 5,475 hectares of impacted native vegetation. Restoration to meet this target is defined as being revegetation undertaken in vegetation zones or management zones in a biodiversity stewardship agreement that have a vegetation integrity (VI) score of less than 15. The Plan defines this as reconstruction.

Reconstruction efforts will focus on:

- target threatened ecological communities where there is a shortfall in established conservation lands
- expanding the habitat area for at-risk species
- enhancing connectivity with neighbouring reserves and neighbouring areas of high biodiversity value.

The department is developing a Restoration Strategy as a priority action for the Plan in consultation with key stakeholders and delivery partners. The strategy will identify the restoration potential of land within priority conservation sites and identify opportunities for landholders to undertake active restoration of more degraded sites as part of a biodiversity stewardship agreement.

Actions can range from assisted regeneration to reconstruction, to bring sites back to benchmark diversity, structure and function. The required management actions will depend on the condition of each site, determined at the time through a biodiversity stewardship site assessment report, in accordance with the NSW Biodiversity Conservation Trust Revegetation Guidelines.

Protecting threatened flora and fauna

Species-specific offset targets were developed for 15 species where residual adverse risks from development through the Plan were assessed as being high. A risk-based approach was undertaken due to the inherent level of uncertainty in the baseline data both for species habitat and species records.

The determination of what EPBC Act-listed species need offsets was based on the level of risk of residual adverse direct impacts undertaken for each species determined by the assessment report.

BC Act-listed species needing offset targets were candidate species credit species directly impacted by the development in relation to:

- Species populations, or
- Habitat for highly restricted species (endemic or largely endemic to the Cumberland Plain) that was considered likely to contain the species (records not present), based on advice of the ecological consultants, or
- Priority management sites for site-managed species under the SOS program.

The 15 target species are listed below in Commitment 9. For 13 of these species, a target number of offset locations is used as the target. An 'offset location' is a site where one or more populations and habitat of the species has been confirmed through surveys or an expert report as being present. Offset location sites may be reserves or stewardship sites.

For two species, considered at-risk, the Swift Parrot and the Koala, offset targets for habitat was considered more appropriate. For the Swift Parrot, 'potential foraging habitat' was used. For the Koala, 'important habitat' (defined as primary and secondary corridors) was used as the offset target as this has been mapped in the Plan Area and will be impacted by the development.

Achieving the Plan's species targets will be guided by the conservation lands selection steps. These steps prioritise the acquisition of species credits through the establishment of conservation lands under the Plan but also allow the direct purchase of species credits from within the Cumberland subregion or across NSW. In certain circumstances where direct acquisition of land-based offsets cannot be secured, the program would allow the implementation of a conservation action if it will directly benefit the impacted species. This is further detailed in the 'Conservation lands selection steps' section (see page 71).

Potential habitat for all 49 species that may be impacted by development under this Plan will be protected through securing the Plan's threatened ecological community targets within conservation lands, as in many cases, species habitat and areas of threatened ecological communities will overlap. The Plan's reconciliation accounting process will track the Plan's progress in securing potential habitat for species in addition to the specific offset targets for at-risk species.

Commitments to conserve flora, fauna and habitat

Commitments

Commitment 8
Protect a minimum of 5,475 hectares of native vegetation[8] in the Cumberland subregion to conserve biodiversity values in perpetuity in accordance with the conservation lands selection steps.

Commitment 8.1
This target includes minimum areas of the following EPBC Act-listed threatened ecological communities:

- 715 hectares of Shale Sandstone Transition Forest
- 575 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- 575 hectares of Coastal floodplain eucalypt forest of eastern Australia[9] (nominated for listing)
- 105 hectares of Cooks River Castlereagh Ironbark Forest
- 5 hectares of Coastal Swamp Oak Forest

Commitment 8.2
This target includes minimum areas of the following BC Act-listed threatened ecological communities:

- 3,170 hectares of Cumberland Plain Woodland
- 1,540 hectares of Shale Sandstone Transition Forest
- 450 hectares of River-Flat Eucalypt Forest
- 150 hectares of Shale Gravel Transition Forest
- 110 hectares of Cooks River Castlereagh Ironbark Forest
- 50 hectares of Swamp Oak Floodplain Forest
- 5 hectares of Freshwater Wetlands on Coastal Floodplains
- <1 hectares of Moist Shale Woodland

Commitment 8.3
Track and adjust offset targets using the Plan's reconciliation accounting process and report to DAWE and EES. The Plan's cumulative offset targets for threatened ecological communities may be adjusted to account for future avoidance of biodiversity values within major infrastructure corridors.

Commitment 9
Protect threatened species likely to be at risk of residual adverse impacts from development under the Plan in accordance with the Plan's conservation lands selection steps.

Commitment 9.1
This includes protecting known offset locations for the following target threatened species:

Flora species

- 2 offset locations for *Cynanchum elegans*
- 3 offset locations for *Dillwynia tenuifolia*
- 1 offset location for *Epacris purpurascens* var. *purpurascens*
- 3 offset locations for *Grevillea juniperina* subsp. *juniperina*
- 1 offset location for *Hibbertia fumana*

[8] While there is overlap between the TEC targets listed in commitments 8.1 and 8.2, there are differences in the listings between EPBC Act-listed and BC Act-listed TECs, such as differences in approach and criteria. Therefore, the BC Act-listed TECs in commitment 7.2 incorporate targets for EPBC Act-listed TECs.
[9] The "River-flat eucalypt forest on coastal floodplains of New South Wales" was nominated for listing as a threatened ecological community under the EPBC Act in 2016. It has since been renamed as *Coastal floodplain eucalypt forest of eastern Australia*. The proposed conservation status for this ecological community is 'endangered'.

Commitments

- 1 offset location for *Hibbertia puberola*
- 1 offset locations for *Marsdenia viridiflora* subsp. *viridiflora*
- 2 offset locations for *Persoonia nutans*
- 3 offset locations for *Pimelea spicata*
- 2 offset locations for *Pultenaea parviflora*
- 1 offset locations for *Pultenaea pedunculata*

Fauna species

- 3 offset locations for *Meridolum corneovirens*
- 2 offset locations for *Myotis macropus;*

Commitment 9.2
This includes protecting potential habitat for the following target threatened fauna species:

- 4,470 hectares of potential foraging habitat for *Lathamus discolour*
- 610 hectares of important habitat for *Phascolarctos cinereus.*

Commitment 9.3
Track and adjust offset targets using the Plan's reconciliation accounting process and report to DAWE and EES. The Plan's offset targets for threatened species may be adjusted to account for future avoidance of biodiversity values within major infrastructure corridors.

Commitment 10
Establish a reserve to protect the north-south koala movement corridor along the Georges River between Appin and Kentlyn.

Commitment 11
Establish at least two new reserves in addition to the Georges River Koala Reserve that will protect threatened communities, species and habitat that are targeted for protection through the Plan.

Commitment 12
Secure priority habitat corridors in the Cumberland subregion in perpetuity, to support connectivity for ecological communities and species.

Commitment 13
Undertake ecological restoration of up to 25% of the Plan's offset target for native vegetation (Commitment 8) in areas secured for conservation within the Cumberland subregion.

Commitment 14
Minimise impacts from development on biodiversity values in the strategic conservation area.

Commitment 15
Minimise impacts from adjoining land-uses on biodiversity values of conservation land.

Managing landscape threats

Increased urbanisation brings increased threats to biodiversity, such as habitat loss, weed invasion, pest animals and disease. Reducing and managing threats to the area's biodiversity in a strategic and coordinated manner will be essential to achieving the Plan's objective to improve long-term ecological function and resilience.

The Plan commits to addressing key strategic priorities to manage and reduce landscape threats to biodiversity in the conservation lands, established by the Plan. The assessment report has identified that weeds, pest animals, fire, disease and climate change will be the most significant threats to the persistence of threatened species and TECs in the Cumberland subregion. The following are specific commitments to address and manage landscape threats.

The following case study presents a short overview of the scope of the fire strategy to be developed as an action under the Plan (Case Study 6).

Case study 6: Implementing a fire management strategy

Fire is a natural feature of the environment and is essential to the survival of some plant and animal communities. Inappropriate fire regimes, however, can damage environmental values.

Bushfire regimes are a major determinant of the distribution and abundance of plants and animals. The timing, frequency and intensity of fires determine to what extent nutrient cycles, erosion patterns and hydrological regimes are adversely impacted by a fire event.

A conservation action of the Plan is to develop and implement a fire management strategy that aligns with National Parks and Wildlife Service and Rural Fire Service fire strategies to protect biodiversity values, property and people. The strategy will aim to manage fire regimes in existing and new conservation lands such as national parks and reserves to maintain and enhance biodiversity over time.

For each nominated area in Western Sydney, a range of fire management strategies will be developed that could include fuel reduction, fire trails, detection and cooperative arrangements. Where urban boundaries and conservation lands align, fuel reduction programs and fire trail maintenance will be designed and implemented in consultation with relevant stakeholders to best protect life, property, natural and cultural assets

Commitments to manage landscape threats

Commitments
Commitment 16 Manage priority weeds in strategic locations in the Cumberland subregion to reduce threats to land secured within the strategic conservation area.
Commitment 17 Manage priority pest animals in strategic locations in the Cumberland subregion to reduce threats to land protected in the strategic conservation area. **Commitment 17.1** Reduce the risk of secondary poisoning from pesticides for the following threatened raptor species: • Little Eagle • Spotted Harrier • Square-tailed Kite • White-bellied Sea-eagle
Commitment 18 Manage fire in strategic locations in the Cumberland subregion to support the maintenance of biodiversity values on conservation land.
Commitment 19 Support new or existing programs to control key diseases affecting threatened species and ecological communities in the Cumberland subregion.
Commitment 20 Support existing or new programs to help threatened species and ecological communities adapt to the impacts of climate change in the Plan Area.

Building knowledge and capacity

The Plan is underpinned by a range of supporting commitments that aim to enhance conservation outcomes by increasing the capacity of the community to participate in biodiversity conservation or through enhancing the scientific knowledge base on threatened ecological communities, species and their management.

Activities such as education and extension services will increase awareness of biodiversity and encourage participation in conservation activities. Research will enhance our knowledge of threatened species and improve our understanding of threats and land management issues. Together, these programs will help to inform the adaptive management needed to achieve the Plan's conservation vision for Western Sydney.

The department will develop a 10-year Aboriginal Engagement and Implementation Strategy under Commitment 22. The following case study presents a short overview of the scope of the strategy.

Case study 7. Engaging and partnering with Western Sydney Aboriginal communities

Engaging and partnering with Western Sydney's Local Aboriginal Land Councils and Aboriginal community is recognised as an important component of delivering the Plan.

The department will continue to work with Western Sydney's Local Aboriginal Land Councils and Aboriginal community to collaboratively develop a 10-year Aboriginal Engagement and Implementation Strategy. This strategy will ensure Aboriginal people are at the forefront of implementing the Plan and can benefit from the economic opportunities arising from the Plan's implementation.

Some of actions that could be included in the strategy are:

- establishing a partnership with NSW Aboriginal Land Council, and Western Sydney's Aboriginal community and Local Aboriginal Land Councils to support delivery of the Plan
- funding the upfront costs of biodiversity assessment to encourage and support the establishment of stewardship sites on Aboriginal-owned land
- ensuring that at least 5% of expenditure for services needed for implementation of the Plan are awarded to Aboriginal-owned businesses
- building capacity in Aboriginal businesses and organisations by providing training and start-up funding for businesses that contribute to achieving the conservation outcomes of the Plan.
- working with the Department of Crown Lands to support the speedy resolution of Aboriginal land claims under the *Aboriginal Land Rights Act 1983* for areas within potential conservation lands
- working with the National Parks and Wildlife Service (NPWS) and Local Aboriginal Land Councils to investigate opportunities for joint management of new conservation reserves by the Aboriginal community within the Plan Area
- supporting cultural activities on conservation lands such as a scheme to acknowledge and celebrate cultural values on conservation lands.

Commitments to build knowledge and capacity

Commitments
Commitment 21 Provide opportunities for the residents of Western Sydney to learn about and actively participate in biodiversity conservation including koala conservation.
Commitment 22 Partner with Aboriginal communities in Western Sydney to provide opportunities to participate in biodiversity conservation and related economic opportunities arising from the Plan.
Commitment 23 Provide for extension services to community groups, councils, Local Aboriginal Land Councils, and landholders to support biodiversity conservation on public and private land.
Commitment 24 Invest in research that will help to secure threatened species and increase understanding of threats and land management issues.
Commitment 25 Support rehabilitation measures to help maintain koala health and welfare.

Implementation through planning controls

The department proposes to introduce a new SEPP for strategic conservation planning. The purpose of the proposed SEPP is to ensure that development in the nominated areas is consistent with the BC Act, the EPBC Act and the Plan's commitments and actions.

The proposed SEPP will also minimise impacts on areas of high biodiversity value and can provide the best opportunities to deliver biodiversity outcomes and support the ecological function of the Cumberland subregion.

To support the protection of this land, the Plan proposes to introduce:

- environmental conservation zoning to protect areas avoided for biodiversity purposes and riparian corridors
- a requirement that urban capable land in precinct plans covered by the biodiversity approvals are consistent with the areas of certified land, and protect avoided land identified in the Plan
- planning controls designed to minimise impacts on land identified as having strategic biodiversity value, including:
    - areas with high-biodiversity value
    - areas with important connectivity or ecological restoration potential
- planning clauses to support the identification, management and acquisition of sites that have been proposed for future public land conservation (e.g. public reserves and new or additional national parks) to offset development impacts and help meet the Plan's commitments
- development controls that will mitigate indirect and prescribed impacts on nominated areas, with specific controls to address threats to koalas living in the preserved habitat areas and corridors adjacent to the nominated areas
- guidelines to manage impacts to biodiversity from infrastructure development by public authorities on non-certified land in the nominated areas identified under the Plan for approval under Part 10 of the EPBC Acta Ministerial Direction under section 9.1 of the *Environmental Planning and Assessment Act 1979* to protect areas identified as having strategic biodiversity value, as well as avoided land.

There is some land owned or under claim by LALCs in the strategic conservation area and the environmental conservation (E2) zone. There will be no planning controls or rezoning proposed over this land through the Plan.

Further detail on the objectives, considerations and additional provisions can be found in the proposed SEPP's Explanation of Intended Effects.

As required, planning and development controls will also be drafted or amended in the relevant precinct plans, neighbourhood plans and associated development control plans to address threats to biodiversity, reduce the indirect impacts of urban and transport development and strengthen conservation outcomes.

Environmental trends

Adapting to a changing climate

Climate change is and will increasingly become a serious threat to native species and ecosystems in Western Sydney. It is expected to be an ongoing challenge to the effectiveness of this Plan and its commitments to secure ecological function.

The most significant natural hazards that will affect Western Sydney include bushfires, flooding and heatwaves. These natural hazards will be exacerbated by climate change, with wide-ranging impacts on biodiversity in the region. Climate change is likely to result in longer and more intense bushfire seasons, which will place additional pressure on the effectiveness of the conservation program proposed in the Plan.

Changes to bushfire patterns, temperature and rainfall were key considerations in designing the conservation program to help native species and ecosystems to adapt to climate change in Western Sydney. Commitments to address increasing risks include funding research to identify the most at-risk species and ecological communities in the Cumberland subregion (commitments 20 and 24), and identifying priority locations, such as climate refugia to support the persistence and adaptation of at-risk species and ecological communities (Commitment 20).

The Plan's evaluation program will help to measure the success of the Plan in enabling plants and animals to adapt and survive in a changing climate (Commitment 27).

The urban heat island effect in Western Sydney

Air temperatures in Western Sydney are expected to increase in the future as a result of climate change. This process will be exacerbated by the urban heat island effect, a phenomenon that occurs when large amounts of hard and dark-coloured surfaces such as roads and roofs cause localised warming. This will increase as urbanisation increases.

The NSW Government has implemented policies to address the urban heat island effect and increase resilience to climate change. The Five Million Trees for Greater Sydney program was introduced in 2018 with a target of completing the planting by 2030.

In 2019, the 'Greening our city' Premier's Priority was announced to ensure 1 million of those trees were planted by 2022. This work involves reviewing the planning system to identify ways to increase the retention of mature trees, green cover and green spaces, and incentivise new tree planting and green cover projects, particularly in dense residential areas.

The Plan will contribute to and support broader government efforts to mitigate the urban heat island effect by:

- introducing development controls specific to protecting biodiversity and other key environmental features in urban development areas of the nominated areas (commitments 2 and 5).
- strengthening the protection of areas of key biodiversity identified across the Plan Area, with a focus on securing new conservation lands where biodiversity would be protected in perpetuity (commitments 8–15).

Implementation and Assurance

Bents Basin is a popular spot for recreation in Western Sydney.

Implementation and assurance framework

The Plan's Implementation & Assurance Framework (see Figure 15) has been designed to ensure successful implementation of the Plan and provide assurance to the many stakeholders with an interest in the Cumberland subregion that the Plan will deliver on its intended outcomes, objective and vision.

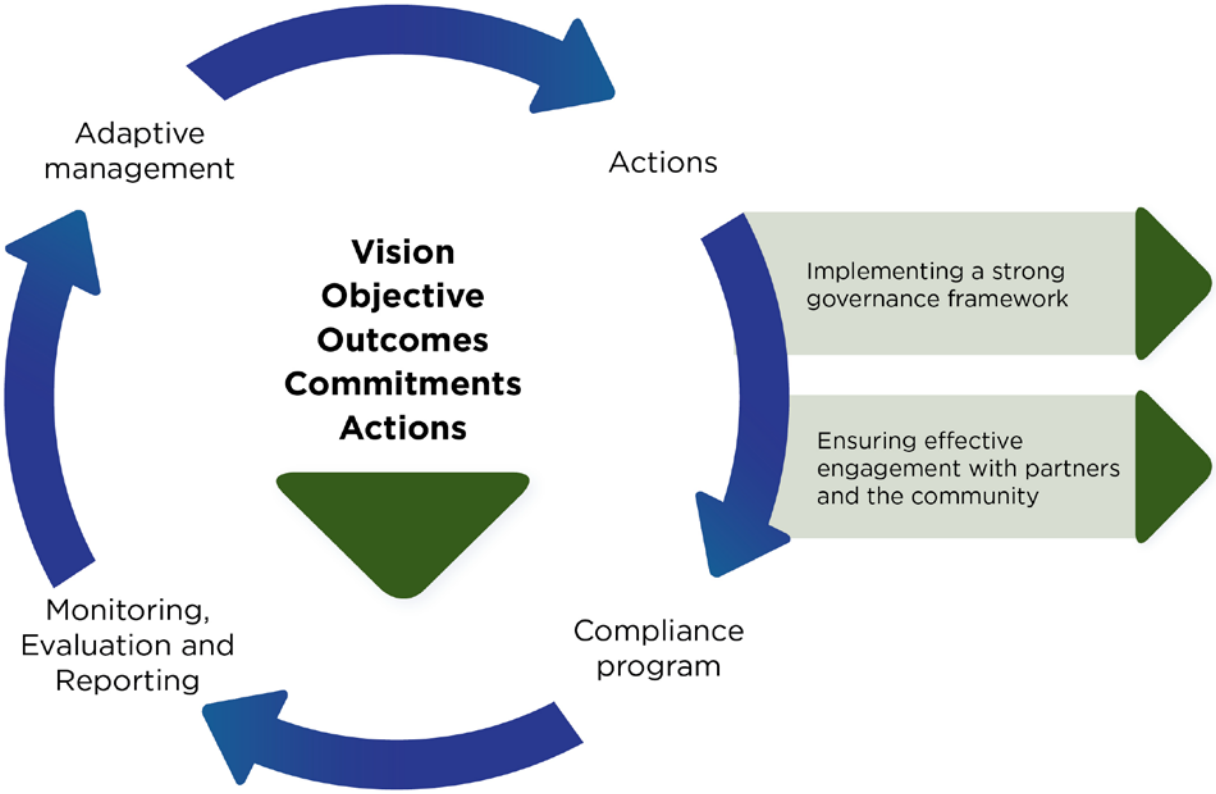


Figure 15: Implementation & Assurance framework for the Plan

Governance

The department is the responsible agency for implementing the Plan and meeting regulatory requirements.

The infrastructure corridors program is administered by Transport for NSW, who are a major project partner of strategic conservation planning.

The department's responsibilities will include central coordination and management of implementation including reporting requirements to ensure consistency with the monitoring, evaluation and reporting framework; contract and grant management; the preparation of reports for publication; and the management of potential compliance breaches.

The department will work with delivery partners, including government and non-government entities and other stakeholders, to ensure efficient and effective implementation of the Plan. Service level agreements or memorandums of understanding are being established with key agency and delivery partners to support the fulfilment of specific Plan commitments. The department will also be responsible for periodically reporting to approval bodies, relevant NSW and Commonwealth ministers, and the public on the progress of the Plan's implementation.

The department will establish an executive implementation committee with executive-level representatives from key government agencies to ensure the Plan's commitments are fulfilled and its outcomes delivered through oversight of the monitoring, evaluation, reporting and adaptive management processes. The executive implementation committee will be the key decision-making authority to determine the appropriate course of action on matters raised, or whether issues need to be escalated for ministerial attention.

Governance arrangements will be supported by the evaluation program and may be subject to change by agreement of the executive implementation committee.

Figure 16 presents the detailed governance framework for the Plan, including the roles of the evaluation program and delivery partners.

The roles and responsibilities of the Plan's key agency and delivery partners are detailed in Table 4.

Table 4: Roles and responsibilities for implementation

Delivery partners	Role
The department (DPIE)	The department is the approval holder responsible for implementing the Plan.
National Parks and Wildlife Service	The NPWS will be the long-term manager of future reserves and national parks created under the *National Parks and Wildlife Act 1974* (NSW).
Office of Strategic Lands	OSL will be the key delivery partner for land acquisition for reserves established under the Plan
Biodiversity Conservation Trust (BCT)	The BCT will deliver the biodiversity stewardship agreement program under the Plan.
Councils	Councils will play a role in establishing council reserves and ensuring conservation is embedded in local planning controls. Including following section 9.1 Directions in considering any Planning Proposals submitted to them.
Community organisations	Community organisations could manage smaller parcels of conservation lands.
Private landholders	Private landholders to enter into biodiversity stewardship agreements to manage conservation on their land.

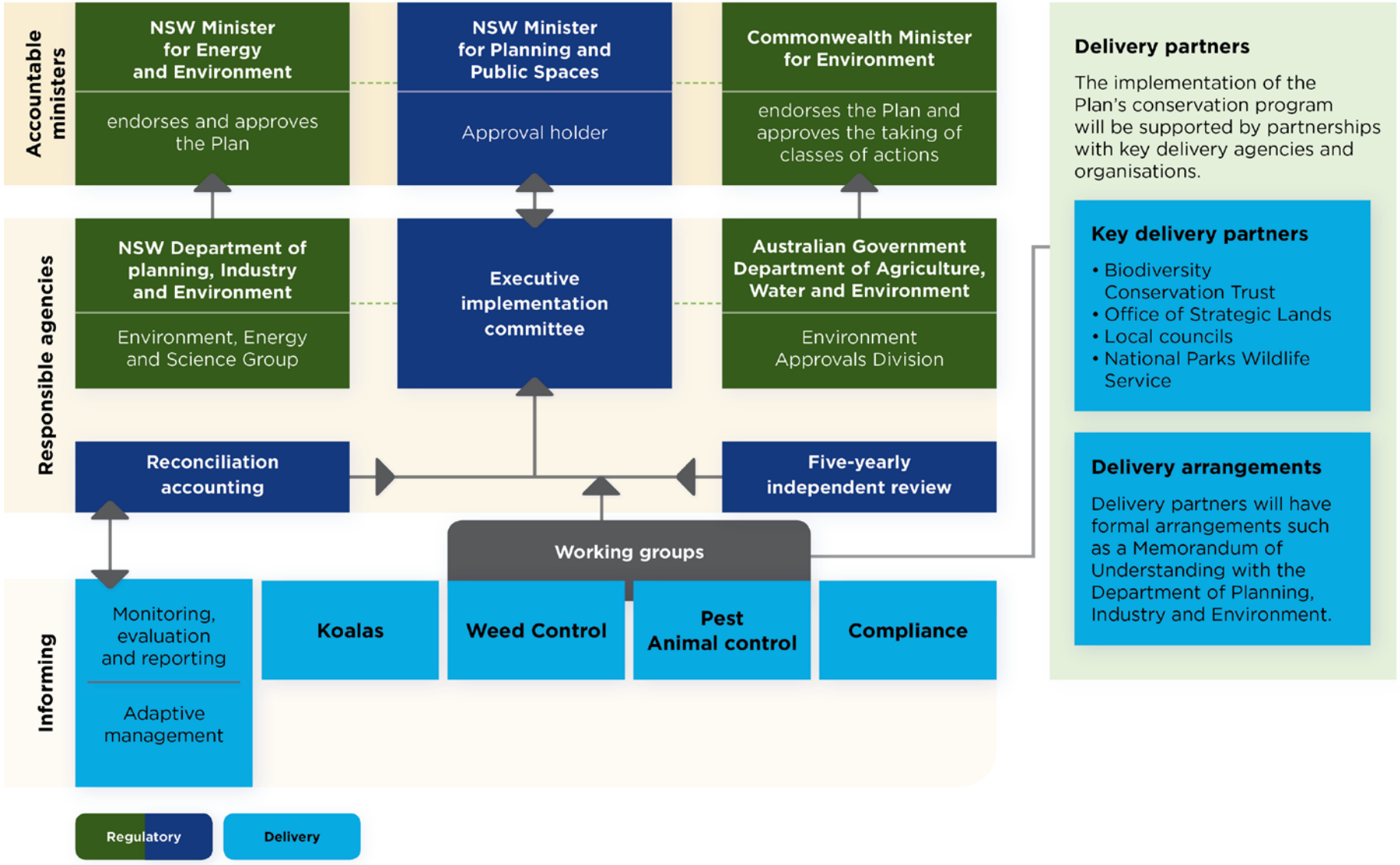


Figure 16: Governance framework for the Plan

Funding

Funding is required to implement the conservation program over the life of the Plan. The NSW Government has already committed $84 million in the first five years to implement the Plan's commitments and actions.

The Plan proposes to fund the conservation program through developer contributions. The funding model proposes to recover costs from industry through a biodiversity component of a Special Infrastructure Contribution on development in the four Western Sydney nominated areas.

A Special Infrastructure Contribution for biodiversity of $4,500 per dwelling was proposed in the Wilton and Greater Macarthur Growth Areas draft Land Use and Infrastructure Implementation Plans. The NSW Minister for Planning will consider a range of developer contribution levels, including full cost recovery, prior to making a final determination on the biodiversity component of the Special Infrastructure Contribution before the Plan is approved.

The department will regularly review the Plan's resourcing requirements to ensure it can adapt to changing circumstances and enable the long-term implementation of the conservation program.

Establishing conservation lands as offsets

The department recognises the inherent uncertainty in delivering a conservation program of this scale over a relatively long timeframe. To address risk and uncertainty, the department has developed several methods to oversee, track and establish conservation lands as biodiversity offsets over the life of the Plan. They are:

- a series of steps and principles to guide the selection of conservation lands, while providing some flexibility in delivery
- a reconciliation accounting process to reconcile offsets acquired through the Plan (including conservation lands) with development impacts throughout the life of the Plan to 2056
- adaptive management steps to align the securing of biodiversity offsets with development.

Implementing these methods will ensure the Plan's conservation targets for TECs and threatened flora and fauna are met over the large timeframe and spatial scale of the conservation program. It will also provide certainty that impacts to threatened species, populations and communities will be offset at the time of impact.

These methods will be subject to the independent five-yearly review to ensure they remain effective in delivering the Plan's commitments and outcomes.

A description of the methods is provided below and summarised in Figure 17.

In addition, the department will develop a 'conservation lands implementation strategy' to guide the process for investigating, acquiring and establishing land identified through the Plan's strategic conservation planning. The strategy will include:

- priorities for establishing conservation lands to:
    - meet targets for protecting TECs and threatened species
    - meet connectivity and restoration priorities
    - maximise long-term viability of biodiversity values
- targets and proposed timeframes for acquiring and/or protecting land through a biodiversity stewardship agreement
- proposed mechanisms for securing each area of priority conservation land

- suitable land managers for each area of priority conservation land.

The strategy will be developed as a priority action to deliver the Plan's conservation lands commitments.

Principles for establishing conservation lands

The following are the overarching principles to guide implementation decisions for acquiring conservation lands through the Plan's reserve program or establishing biodiversity stewardship sites through the biodiversity stewardship agreement program. This includes decisions by the Plan's executive implementation committee, the department and the Plan's conservation lands delivery partners.

Regular reviews of conservation program implementation will consider how offset sites delivered through the respective stewardship and reserve programs are meeting the following principles:

1. Conservation lands protect the large patches of vegetation that are in better or the best available condition.
2. Conservation lands work efficiently together at site, local and regional scales to enhance ecological connectivity and landscape function in the long term and in a changing climate.
3. Work on conservation lands includes active ecological restoration of degraded areas of the landscape to provide a biodiversity gain (particularly for impacted TECs where there is a shortfall based on reconciliation accounting). Effort should focus on protecting and restoring corridors, enhancing ecological connectivity and providing vegetative buffers to core patches of intact vegetation.
4. Conservation lands protect and manage habitat for impacted threatened species and TECs in accordance with commitments and actions (direct offsets).
5. The selection of new reserves is informed by species adaptation needs in a changing climate, including consideration of changing distribution patterns and habitat requirements.
6. Biodiversity resilience is improved through early implementation of conservation lands, including acquiring available reserve sites or through securing biodiversity stewardship agreements with willing landowners prior to impacts.
7. Data underpinning the Plan's strategic conservation area is reviewed every five years to ensure that decision-making is supported by up-to-date and accurate information.
8. The implementation of conservation lands is timely and demonstrates value for money.

Conservation lands selection steps

The conservation land selection steps will be used to identify, select and secure offsets by establishing new conservation lands through the Plan's reserve or biodiversity stewardship site program. The order of these steps reflects spatial and ecological priorities to meet the Plan's offset targets and secure a strategic conservation outcome in the Plan Area within the Cumberland subregion.

The department acknowledges that it may be challenging to meet some of the offset targets in the Plan Area as many of the targeted communities and species have limited extent or habitat remaining in the Cumberland subregion. Rather than committing to a reduced offset target, the Plan allows flexibility in reaching those targets through the conservation lands selection steps.

The conservation land selection steps will guide effective and flexible implementation of the conservation program to 2056 by allowing offsets to be secured outside the Plan Area when they

can't be secured from within; and allowing for offset substitutes in cases where like-for-like species and threatened ecological community offsets are unlikely to be secured.

The ecological and spatial criteria that determine the order of selection steps, in addition to the offset requirements for substitutes (Box 4) has been developed according to the limitations provided in the Biodiversity Conservation Regulation 2016 (NSW) but refined to prioritise the biodiversity and connectivity of the Cumberland subregion. Retaining presence of species in the Cumberland or adjacent subregions is prioritised. The threatened ecological community targets are likewise prioritised to within the Plan's strategic conservation area, but many of these are already restricted to within the Cumberland subregion and its immediate surrounds.

In addition to the establishment of new conservation lands, the NSW Government will seek to acquire direct species credits in accordance with the selection steps and offset requirements to meet the Plan's commitments for target species. This will ensure that offsets can be secured for threatened species as a priority, if habitat does not become available as a new conservation land.

The department will establish formal agreements with delivery partners to secure offsets, including conservation lands, and will be responsible for ensuring delivery partners comply with the proposed steps. The Biodiversity Conservation Trust will follow these steps when implementing the Plan's biodiversity stewardship site program. The department must also follow these steps when developing reserve proposals with future land managers.

These steps will be assessed as part of the five-yearly review for implementing the Plan and updated if found not effective in delivering the conservation program objective and targets.

Conservation lands selection steps

1) Secure offsets from priority areas within the Plan's strategic conservation area, with a preference for (in order):
   a) target TECs[10] with the greatest impact, based on the 2019 impact assessment (Cumberland Plain Woodland, Shale Sandstone Transition Forest, River-Flat Eucalypt Forest)
   b) target TECs that have the highest percentage cleared status (as identified in the BioNet Vegetation Classification database for the corresponding PCTs)
   c) target TECs or species habitat where there is a shortfall, based on offset reconciliation accounting (this includes sites with restoration potential)
   d) areas that provide potential habitat for target species (identified in the Plan) or for the following EPBC Act-listed key species:
      i) Grey headed flying fox
      ii) Regent honeyeater
      iii) Green and Golden Bell Frog
   e) areas with additional conservation benefits (that is, connectivity; riparian habitat; refugia for threatened species; and adjacency to existing protected areas).
2) Secure offsets from elsewhere within the Plan's strategic conservation area following the same ecological criteria specified in Step 1.

Priority areas will be determined during implementation and will include:

- presence of target PCTs
- presence of larger areas of remnant native vegetation
- presence of species habitat hotspots
- presence of important species populations
- presence of habitat for most impacted species
- areas avoided for biodiversity within the nominated areas
- areas owned by Office of Strategic Lands, the NSW Government or local government
- areas adjacent to already protected land (for example, biobanking sites and reserves for biodiversity purposes such as national parks or for other existing offsets)
- land that enables connectivity through the landscape.

The following steps only apply to the Biodiversity Stewardship Site program and are subject to the Plan's offset requirements:

1) Secure target TECs outside the strategic conservation area but within the Cumberland subregion or adjacent subregions. Alternatively, as a last option, anywhere else they occur in NSW, following the ecological criteria identified in step 1.
2) Secure species offset locations or area of habitat for target species[11] according to the offset requirements in Box 3.
3) Secure alternate native vegetation according to the offset requirements in Box 3.

[10] Target TECs are those TECs with a direct offset target in the Plan
[11] Target species are threatened species with a direct offset target in the Plan

Box 3. Offset requirements

Threatened ecological communities:

1. Alternate offsets can only be used once appropriate steps have been taken to obtain target TECs (including all like-for-like credits[12] that make up the relevant TEC)
2. A maximum of 20% of the Plan's cumulative offset targets for TECs can be secured outside of the Cumberland subregion over the life of the Plan (including either like-for-like credits or alternate offsets).
3. Where like-for-like offsets for the impacted TEC cannot be secured, preference should be for plant community types of the same Class first, then of same Formation, to those in the target TEC. Plant community types that make up an alternate offset must also be part of a TEC.
4. Spatial preference should first be the Cumberland and adjacent subregions—then the Sydney Basin bioregion—then anywhere in NSW

Species:

5. Direct acquisition of offsets for targeted species from start of Plan implementation (Year 1). Offsets need to be sourced from within the Cumberland subregion and adjacent subregions
6. If at Year 5, offset targets for critically endangered or endangered species have not been met, the direct purchase of offsets for the same species can be secured from anywhere in NSW
7. If at Year 10, no offset locations for critically endangered or endangered species have been identified, the program can consider the implementation of conservation actions[13] for these species
8. If at Year 10, offset targets for endangered species have not been met, the direct purchase of offsets for the same species can be secured from anywhere in NSW
9. If at Year 15, no offset locations for endangered species have been identified, the program can consider the implementation of conservation actions for these species
10. If at Year 15, offset targets for vulnerable species have not been met, the direct purchase of offsets for the same species can be secured from anywhere in NSW
11. If at Year 20, the conservation program is still not on track to meet targeted species offsets, the program can consider the implementation of conservation actions for any remaining at-risk species
12. If at Year 30, the conservation program is still not on track to meet targeted species offsets, direct purchase of offsets for any species of the same Kingdom and of the same or higher threat status within the Cumberland or adjacent subregions is permitted

[12] As defined under the *Biodiversity Conservation Regulation 2017*
[13] As defined under the *Biodiversity Conservation Regulation 2017*

Reconciliation of offsets and impacts

The Plan's Evaluation Program, described in Sub-Plan A, will monitor and report on the Plan's progress in delivering offsets and will include an ongoing reconciliation accounting process to reconcile the establishment of new conservation lands or direct purchase of credits with development impacts throughout the life of the Plan to 2056.

The reconciliation accounting process will provide a reliable mechanism to facilitate reporting on the Plan's targets and commitments and inform the selection of offsets sites. It will also be used to determine when adaptive management steps may be required if development impacts are exceeding the delivery of conservation lands.

Reconciliation outputs will be provided to the Plan's executive implementation committee to support decision-making and will inform evaluation and reporting on the Plan's outcomes and commitments. Quarterly updates will be provided to the executive implementation committee via a tracking spreadsheet.

Collecting data on offsets

In accordance with the *Draft guidelines for planning authorities* (EES 2019), the department has assessed biodiversity impacts, measured in credits, to inform the offset targets under the Plan. The offset target methods used for the Plan is described in the section 'Addressing impacts' (see Box 2 on page 35).

The department proposes to purchase and retire biodiversity credits from biodiversity stewardship sites and creating or extending reserves to offset the impacts of development. Biodiversity assessments will be undertaken as part of the process of creating biodiversity stewardship sites. Additional offsets secured through the Plan will include direct purchase of species credits where appropriate and supporting management actions such as threat management, community education and research.

The reconciliation accounting process will track progress on achieving the Plan's offset targets for species and threatened ecological communities. While not required to specifically meet the Plan's offset commitments, monitoring the acquisition of credits will also form part of evaluating progress towards the Biodiversity Certification Assessment Report (BCAR) ecosystem credit balance.

If offsets are not being adequately secured for the Plan's respective TEC and species targets, it will trigger a response to prioritise those offsets through the reserve, biodiversity stewardship agreement or ecological restoration programs (see Step 1b in the section 'Conservation lands selection steps').

Collecting data on impacts

As part of the reconciliation accounting process, the evaluation program will track delivery of housing development and transport infrastructure in the nominated areas.

Housing data will be collated from the department's existing Metropolitan Housing Monitor and Sydney Greenfield Monitor, which gather and publicly report live data on estimated dwelling potential, number of lots sold and available, and the number of completed dwellings in released and rezoned precincts. Similarly, transport infrastructure development will be tracked by Transport for NSW and reported regularly to the department.

This data will be incorporated into the Plan's evaluation program via the reconciliation tracker to ensure that the delivery of the conservation program remains ahead of development. The tracker and corresponding data will be used to inform decision-making in relation to program delivery, reporting and adaptive management, where necessary.

Adaptive management steps for offsets

Adaptive management may be required in the case that offsets are not being secured in line with development. Adaptive management steps for offsets have been developed to provide certainty as to how this would occur (figure 16). The Plan's executive implementation committee is triggered to consider the adaptive management steps when the total offsets secured are less than 80% of the total offset liability to that time.

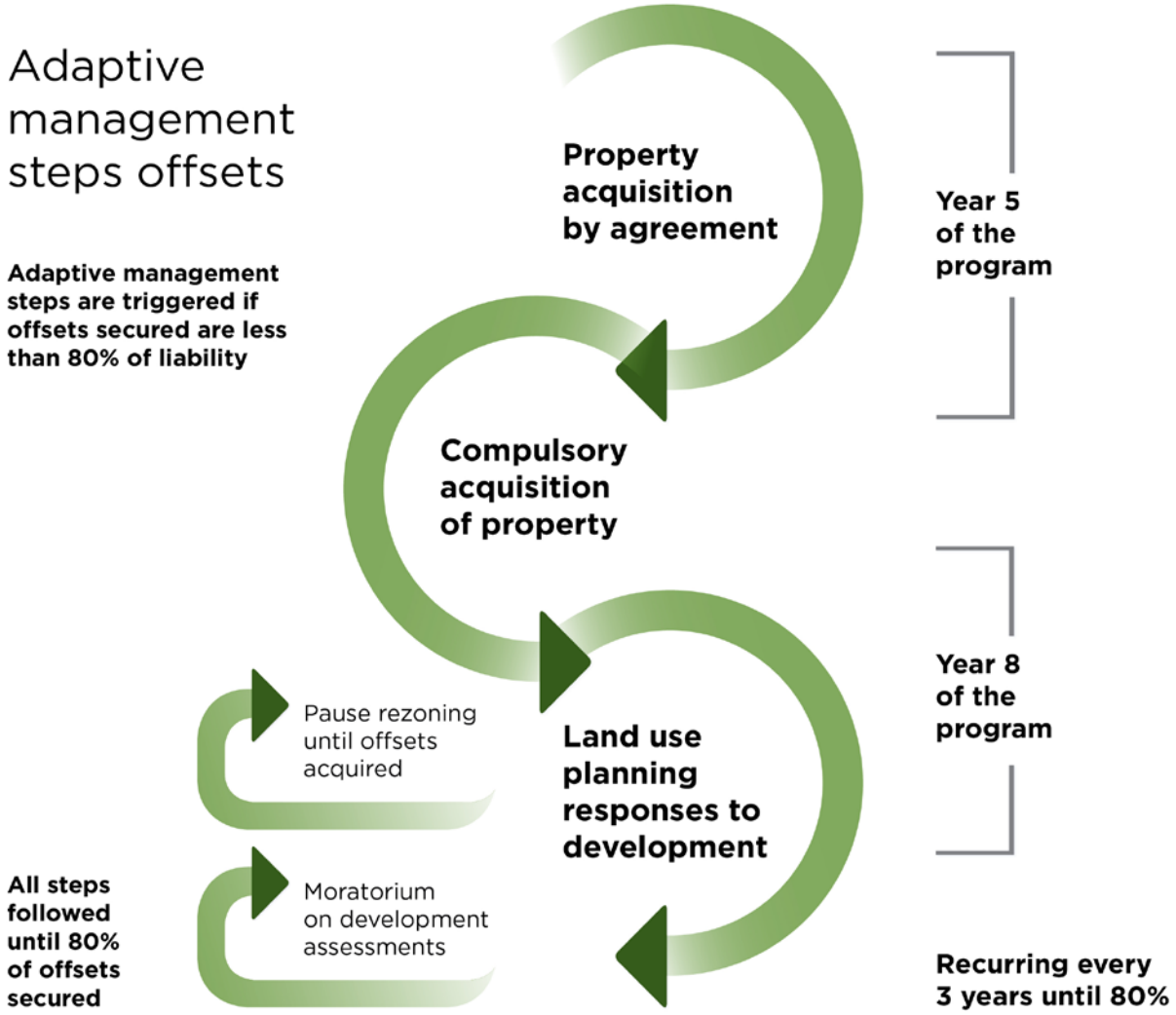


Figure 16: Detailed governance arrangements for offsets

Determining the Plan's adaptive management offset liability

The amount of offset liability needed to trigger the adaptive management steps will be determined using a ratio of 3.5:1 applied to the total area in hectares of native vegetation cleared in certified land. This will apply an average ratio for tracking purposes to assist with decisions on adaptive management. This ratio will be reviewed for its effectiveness as part of the Plan's regular reviews.

The offset liability ratio has been determined based on the Plan's offset target method, which applied a higher ratio to impacted native vegetation of higher condition or threat status to determine the amount of offset target for each protected matter—see Box 2 in 'Addressing

impacts'. The offset liability ratio differs in that it applies an average ratio across all the Plan's impacts.

Importantly, this would give a total amount of native vegetation (in hectares) to be offset—not an amount for each impacted TEC or species. This method aligns with the strategic nature of delivering the Plan's conservation program, while ensuring that the executive implementation committee can maintain oversight over whether the Plan is on track in delivering offsets and apply adaptive management when required.

The amount of offset secured versus the Plan's offset liability to that time will be determined through the reconciliation accounting process.

The executive implementation committee will retain responsibility for overseeing adaptive management steps. The steps that will be considered and implemented until a balance has been achieved are:

1. property acquisition by agreement
2. compulsory acquisition of property
3. land use planning responses to development.

Each adaptive management step is outlined below.

Timing for adaptive management steps for offsets

Adaptive management steps will not be considered in the first five years of the conservation program to allow for time for the initial set up and implementation of the Plan. However, in the case that offsets are significantly lagging within the first five years, the executive implementation committee can decide to initiate them earlier, if there is an agreed reason to do so.

Where the Plan's offsets secured are less than 80% of the offset liability after year five, the executive implementation committee would be triggered to consider adaptive management steps, commencing with voluntary acquisition (property acquisition by agreement).

There would be at least another three years before the final adaptive management step (land use planning responses) would be considered if offsets secured are still less than 80% of the offset liability. This step would be considered not earlier than year eight.

Land use planning responses will be in place until the offsets secured can contribute to a minimum of 80% of the Plan's offset liability to that time.

The adaptive management steps (starting from 1 to 3) are reconsidered on a three-yearly basis from the time the Plan's offset secured reaches 80% of its liability.

How will land acquisition work?

Land identified as suitable for conservation could be prioritised for acquisition if offsets are not meeting the staged delivery of housing and infrastructure. A land acquisition framework is being developed to ensure transparency and fairness for landholders, and to ultimately deliver the offsets required under the Plan (Commitment 7, Action 9).

Generally, the Plan's acquisition program will have a phased process and involving voluntary acquisition measures, reflecting the long-term duration of the Plan. If acquisition is triggered through the adaptive management steps described above, a more targeted approach may be used—such as through 'property acquisition by agreement' or through compulsory acquisition. The department would consult with members of the community and key stakeholders before any decision on compulsory acquisition was made. Box 4 describes the various methods of land acquisition being considered under the Plan.

Land use planning responses relating to development

If offsets are not keeping pace with development impacts and steps to address this imbalance through acquisition mechanisms continues to leave a shortfall, the department, under the direction of the Plan's executive implementation committee will use the NSW planning system to manage development decisions.

The planning system enables land use planning responses to development if offsets are not being secured at the rate required. Planning responses could include:

- pausing the rezoning of remaining precincts in the nominated areas, until sufficient offsets acquired,
- if rezoning of all nominated areas has occurred, placing a moratorium on development assessments being determined within the nominated areas via an amendment to the Environmental Planning and Assessment Regulation 2000 (NSW).

The planning responses will remain until the offsets secured can contribute to a minimum of 80% of the Plan's offset liability to that time.

Box 4. Proposed land acquisition mechanisms

Market purchase
Land would be purchased on a voluntary basis through a negotiated sale with the landholder. The Office of Strategic Lands would pay the market value of the land.

Active acquisition

The Office of Strategic Lands would actively engage with landowners and express an interest to purchase their land through local council meetings or by doorknocking. If a landowner decided to sell, open negotiations with the Office of Strategic Lands would commence.

Property acquisition by agreement

Where land is identified for acquisition, the Office of Strategic Lands would contact the landowner and organise a meeting to explain the process, along with the landowner's rights and obligations. The Office of Strategic Lands would then arrange a valuation of the land and encourage the landowner to seek an independent valuation.

Once the Office of Strategic Lands made initial contact with the landowner, a minimum six-month period to reach an agreement would begin.

Compulsory acquisition

Compulsory acquisition is a statutory process under the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW). The Act sets out the process the relevant agency must follow when it is necessary to acquire land using a compulsory process. The statutory process also provides the means for resolving disputes around the amount of compensation payable to the landowner.

Evaluation

Implementing the Plan will require regular monitoring against the environmental, social and economic outcomes, evaluation to inform the use of adaptive management, and public reporting to government and the community on progress in delivering the conservation program and achieving its outcomes. The evaluation program (see Figure 18) will help to assess the progress of the Plan and support its implementation.

Further detail on the evaluation program and key evaluation questions can be found in *Sub-Plan A: Conservation program and implementation*.

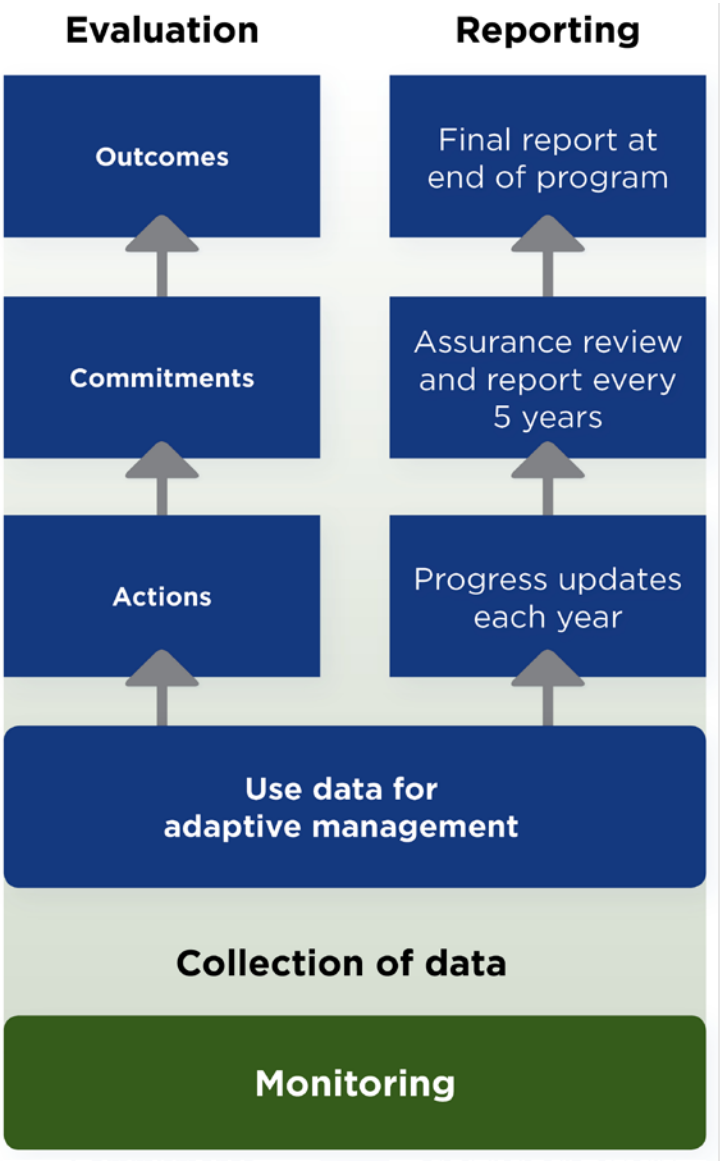


Figure 17: The evaluation program

Plan reporting

The department is committed to assurance reporting, including annual progress updates on the Plan's outputs, outcomes (if they are apparent) and commitments. The department will also collate finer-scale conservation program and project reporting from relevant delivery partners more frequently to support implementation decisions and adaptive management.

A comprehensive, independent review of the status of the Plan, its implementation and interim outcomes will also be prepared every five years. This report will be approved by the NSW Minister for Planning and Public Spaces and provided to the NSW Minister for the Environment and the Commonwealth Minister for the Environment.

The progress updates and the five-yearly report, as well as other relevant data and information, will be made publicly available via the department's website and published in accordance with the NSW Government's accessibility requirements. They will remain available throughout the life of the Plan.

Adaptive management of the Plan

Adaptive management is critical to achieving the Plan's outcomes. It will allow for management of spatial and time uncertainties across the approximately 200,000hectare Plan Area and throughout the life of the Plan to 2056. Large-scale changes that could have an impact on the effective implementation of the Plan include unpredicted climate variation and changing economic or social variables. Other changes may include the conservation status of individual species or plant communities; local events such as fires, floods and disease; changes in administration or the roles and responsibilities of delivery agencies and stakeholders; and new technology.

Adaptive management will use the data sourced through monitoring and the findings of program evaluation to determine if actions need to be revised to more effectively fulfil the Plan's commitments. Importantly, where evaluation suggests a commitment is not tracking as planned, it will trigger a review and potential modification to the required action or delivery of action.

Incorporating adaptive management into the Plan's delivery mechanisms will manage against risk and ensure continual improvement of implementation practices.

While the Plan's outcomes and commitments will be fixed, the actions may be adaptively managed over time to respond to changes such as those outlined above. To ensure the Plan's commitments continue to deliver to 2056, changes to the proposed actions could be made in cases where:

- targets are not being met
- the conservation program logic does not adequately translate into the desired outcomes
- external factors arise that affect the assumptions, logic or delivery of the Plan.

Compliance

A compliance strategy will be developed and funded as part of the reporting requirements for development. It will be facilitated through this Plan (Commitment 28). The compliance strategy will:

- identify relevant compliance mechanisms
- set out compliance monitoring and auditing priorities and processes
- set out a decision-making framework for taking compliance action
- set out procedures and protocols for taking compliance action
- identify roles and responsibilities for compliance.

A compliance working group will be established comprising the department, councils and other relevant stakeholders.

At a minimum, monitoring to ensure that development is consistent with this Plan will include:

- regular auditing and reporting of infrastructure delivery
- annual updates on the Plan's progress
- a five-yearly review of the Plan's implementation.

Where non-compliance is identified, the department will implement the process detailed in Box 5.

Box 5. Audit and compliance process

The monitoring report identifies a deviation from, or non-compliance with, a Plan commitment.

The regulator reviews the deviation or non-compliance and considers its importance in terms of impacts on protected matters.

The regulator advises that either:

- the deviation or non-compliance is minor or trivial or didn't occur and no further action is required
- the deviation or non-compliance requires corrective action.

If corrective action is required, the department or other party will be provided with an opportunity to correct the non-compliance.

Reporting on compliance

Reporting on compliance will be an important part of the evaluation program to ensure compliance threats are adequately managed in the conservation areas. Compliance reporting will be included in all facets of the reporting framework including regular reporting to the executive implementation committee, yearly updates to be published as well as the independent five-yearly review.

Appendices

Grevillea juniperina subsp. *juniperina*, one of the threatened species that can be found in Wianamatta Regional Park

Appendix A. Guidelines for essential infrastructure development

This section sets out the requirements for essential infrastructure development for approval under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) in the Plan's non-certified land (see Figure 6 through to Figure 9). These guidelines are designed to ensure that essential infrastructure development continues to avoid, minimise, mitigate and offset impacts on matters of national environmental significance and other relevant EPBC Act matters, as required, consistent with the conservation outcomes of this Plan.

The guidelines cover:

- essential infrastructure development to which these guidelines will apply
- requirements for avoiding, minimising, mitigating and offsetting impacts
- reporting and compliance measures
- roles and responsibilities.

The intended audience for these guidelines comprises planning and approval authorities, such as the department, local councils and public authorities that deliver infrastructure.

Developments to which these guidelines apply

Essential infrastructure outside the Plan's certified land

Planning for infrastructure is in various stages for each of the Plan's nominated development areas (nominated areas). While the strategic conservation planning process has identified the most suitable areas for development in each nominated area, the department recognises that additional, essential infrastructure development may be needed outside certified land to support growth over the next four decades and beyond.

Essential infrastructure, as defined by these guidelines includes:

- electricity generating works or solar energy systems
- electricity transmission or distribution
- pipelines and pipeline corridors
- roads and traffic
- sewerage systems
- stormwater management systems
- telecommunications and other communication facilities
- waste or resource management facilities
- water supply systems
- recreation works (environmental facility, information and education facility, kiosk, recreation area, recreation facilities (outdoor), water recreation structure and other supporting development) only on certain non-certified land in the Western Sydney Aerotropolis (see Figure 7).

Criteria for essential infrastructure development

Essential infrastructure development in non-certified land must also meet all the following criteria:

- any development by a public authority, this includes:
    - local development
    - Part 5 activities (5.1) under the *Environmental Planning and Assessment Act 1979* (except for road activities)

and which is also;

- essential infrastructure designed to service and support urban and industrial development within nominated areas of the Western Parkland City
- wholly or mostly within the nominated areas.

It does not include:

- State significant development
- State significant infrastructure
- Classified Roads
- Division 5.1 Road Activities (*Environmental Planning and Assessment Act 1979*).

Planning, assessment and implementation

Essential infrastructure will be managed through the NSW planning and approvals framework as current at the time of the project (see Box 5).

Essential infrastructure may be carried out by or on behalf of a public authority on non-certified land, if:

- environmental impacts of the activities are considered under the *Environmental Planning* and Assessment Act, and an 'avoid and mitigate' process is applied
- MNES are considered through the 'avoid and mitigate' process and any relevant MNES-specific requirements of the Plan are applied (see Table 5: Plan commitments relevant to essential infrastructure in non-certified land)
- the biodiversity impacts of the activities will be assessed under the Biodiversity Conservation Act, if triggered, and an 'avoid, mitigate, offset' process will be applied
- the public authority has notified the department of the development.

Table 5: Plan commitments relevant to essential infrastructure in non-certified land

Commitments
Commitment 1 Development will be undertaken in accordance with the Plan and any conditions of approval. **Commitment 1.1** Essential infrastructure in non-certified land will be implemented consistent with the Plan's Essential Infrastructure Guidelines.
Commitment 2 Avoid and minimise impacts from urban, industrial and infrastructure development to at least 4,315[14] hectares of land. This target includes avoiding 3,670 hectares of native vegetation comprising: • 2,735 hectares of native vegetation avoided for its biodiversity value • 935 hectares of native vegetation avoided for other purposes including riparian corridors and steep slopes **Commitment 2.1** The avoidance target of 4,315 hectares will be met by avoiding up to the following areas of EPBC Act-listed threatened ecological communities: • 1,945 hectares of Shale Sandstone Transition Forest • 95 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest • 170 hectares of River-Flat Eucalypt Forest (subject to listing) • 30 hectares of Coastal Swamp Oak (Casuarina glauca) Forest • 25 hectares of Cooks River Castlereagh Ironbark Forest **Commitment 2.3** The avoidance target of 4,315 hectares includes limiting cumulative direct impacts over the life of the Plan from essential infrastructure to the EPBC-listed Shale Sandstone Transition Forest TEC within non-certified land to no more than: • 20 hectares in the Wilton Growth Area • 20ha in the Greater Macarthur Growth Area **Commitment 2.4** Prioritise the avoidance of impacts from essential infrastructure on non-certified land to: • known populations of the following threatened flora species: o *Grevillea parviflora* subsp. *parviflora* (Small-flower Grevillea) o *Persoonia bargoensis* (Bargo Geebung) o *Persoonia nutans* (Nodding Geebung) o *Genoplesium baueri* (Yellow Gnat-orchid) o *Pimelea spicata* (Spiked Rice-flower) o *Pultanea parviflora* • important koala corridors within the Wilton and Greater Macarthur Growth Areas to maintain their integrity

[14] The total area of avoided land at the start of the Plan is 4,795 hectares. The avoidance target has reduced this figure by 10% to allow for potential future development of essential infrastructure in non-certified land. E2 zoning will be applied to all avoided land in the nominated areas.

Commitments

Commitment 5

Mitigate indirect and prescribed impacts from development on threatened ecological communities, species and their habitat to best practice standards

Commitment 5.3

This includes mitigation measures to address indirect and prescribed impacts on threatened ecological communities, species and their habitat during construction and operation of infrastructure projects as prescribed in Appendix E of the Plan.

Commitment 7

Mitigate indirect and prescribed impacts from urban, infrastructure and major infrastructure (transport) development on the Southern Sydney koala population to best practice standards and in line with the Chief Scientist Koala Report (2020).

Box 5: Planning, Assessment and Implementation Requirements

To ensure compliance with the MNES commitments in this Plan, essential infrastructure will be planned and developed in accordance with a comprehensive system for environmental assessment and management. This includes specific procedures dealing with the identification of biodiversity issues, particularly threatened species, populations and ecological communities.

Procedures applied are:

Environmental impact assessment (pre-construction) - the impacts of proposed activities on the environment must be considered along with identified mechanisms to deliver environmental solutions. The environmental assessment process aims to:

- identify environmental impacts at the earliest possible stage in project development
- take steps to avoid or minimise potential impacts as the first priority
- assess the unavoidable impacts of a proposed activity on the environment before making a decision on whether it should proceed, including consideration of cumulative impacts
- ensure the community is appropriately consulted and that their input is taken into account in decision-making
- provide appropriate offset measures to ensure that any residual impacts that cannot be avoided or minimised do not have an unacceptable environmental impact.

Environmental management and compliance (during construction and operation) – to ensure that activities comply with legislative requirements and deliver effective implementation of identified safeguards and mitigation measures during project construction and future on-going maintenance.

As at 2020 the *Environmental Planning and Assessment Act 1979* provides the primary legislative basis for planning and environmental assessment. The Act includes provisions to ensure that the potential environmental impacts of a development or activity are rigorously assessed and considered in the decision-making process.

Meeting Plan commitments

All essential infrastructure projects covered by this Plan will be undertaken in a manner that delivers on the commitments detailed in Appendix C of this Plan. This will include but is not limited to:

- ✓ avoid land for biodiversity or other environmental purposes within the nominated areas where possible; this includes specific consideration of nationally threatened species, ecological communities and their habitats. These areas will be zoned for environmental purposes and should be avoided where possible
- ✓ where an action cannot feasibly or practicably avoid impacts on non-certified land, the public authority shall ensure the impacts are minimised as far as possible. This includes by refining design elements to reduce the overall impact
- ✓ fulfil biodiversity offset requirements under the *Biodiversity Conservation Act 2016 or any subsequent legislative scheme in place at the time*
- ✓ implementing impact mitigation measures based on the outcomes of environmental assessment of detailed designs, including consideration to Plan commitments 4 and 6.

These legislative requirements and processes may alter over time, however, all essential infrastructure projects will be planned, assessed and delivered to an equivalent standard in line with legislation current at the time.

Roles and responsibilities

The department will be responsible, as approval holder, for notifying public authorities of their obligations under the EPBC Act, monitoring the impacts of development, and compliance with avoidance, mitigation and offset commitments under the Plan.

Compliance and reporting responsibilities fall across both the authority of that development and the department.

Table 6: Requirements of the 'Guidelines for essential infrastructure'

Role	Compliance and reporting responsibilities
Public authority	**Public authority** to notify the department where an essential infrastructure project, applicable to these Guidelines, will impact on MNES, or other relevant EPBC Act matters in the Plan's non-certified land. The notification should demonstrate how compliance with the Plan's Guidelines has been achieved
Department of Planning, Industry and Environment	**The department will:** • notify public authorities of their obligations under the EPBC Act, including to demonstrate how the guideline has been considered • monitor the impacts of development on non-certified land • monitor compliance with the avoidance, mitigation and offset commitments under the Plan, relevant to these guidelines (see Table 5) • apply further controls in the planning system if the Plan's avoidance targets are not being met and to limit impact on areas avoided for biodiversity • provide annual updates to the Commonwealth Department of Agriculture, Water and Environment • undertake monitoring and audit of infrastructure construction and operation as required, to ensure adequate mitigation measures are being applied.

Compliance and audit

The compliance and reporting measures to ensure development is consistent with the Guidelines are presented in Table 6: Requirements of the 'Guidelines for essential infrastructure', including the roles and responsibilities of the department and relevant public authorities.

Both the department (through the Plan's executive implementation committee) and the Australian Government Department of Agriculture, Water and Environment will regularly monitor and audit processes to inform statutory reporting on the Plan or reviews into the Part 10 EPBC Act approvals over time.

If a non-compliance is identified, the Commonwealth Minister for Environment has the discretion to revoke the relevant approval.

Appendix B. The Plan's avoidance criteria

Avoidance of biodiversity values

The Department of Planning, Industry and Environment (the department) and Transport for NSW have undertaken strategic planning to locate and design the urban capable land for nominated areas and infrastructure corridors. This process aims to avoid and minimise impacts on biodiversity values, and has been undertaken consistent with:

- section 8 of the Biodiversity Assessment Method (BAM)
- the draft guidelines for planning authorities (Environment Energy and Science, 2019)
- the strategic assessment Terms of Reference (ToR).

Avoiding and minimising impacts on biodiversity values is an important part of the planning and assessment process. It is a critical step in limiting the effects of the proposed development and reducing the need for the conservation program to offset those impacts. It also provides opportunities to protect important areas of remaining biodiversity, by applying the conservation program's commitments and actions – such as biodiversity stewardship agreements – on avoided lands.

It is also fundamental to demonstrating that the commitments and actions proposed for strategic biodiversity certification adequately address the impacts of the proposed development under section 8.7 of the *Biodiversity Conservation Act 2016* (NSW) (see Part 7). Documenting the process is a requirement of the ToR for the strategic assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

Definition of avoidance

There may be several reasons why land is avoided and not impacted during strategic planning, including because it:

- has biodiversity value
- is not suitable for development (for example, if it is existing protected land, steep land or a riparian buffer).

Under the BAM, avoidance refers to land that is suitable for development and included in the biodiversity certification process but has been avoided because of its biodiversity value. Land not impacted because it is not suitable for development is not considered to have been avoided under the BAM.

In accordance with the BAM, the Cumberland Plain Assessment Report determines avoidance outcomes for specific biodiversity values on the basis of the amount of land avoided because of its biodiversity value. However, it also mentions the amount of land avoided for other purposes – such as land that is not suitable for urban development – to provide additional context.

For the purposes of the Cumberland Plain Assessment Report, land is considered unsuitable for urban development if it is:

- a riparian buffer, consistent with the *Water Management Act 2000* (NSW)
- State-protected land with a slope of more than 18 degrees
- existing protected land, including reserves and offset sites
- Commonwealth land, such as the Defence Establishment Orchard Hills

- land zoned for public recreation (Zone RE 1 under the standard instrument prescribed by the Standard Instrument (Local Environmental Plans) Order 2006).

Flood-prone land is not included in the list of land not suitable for urban development because significant development does occur within flood-prone land in the study area. The use of fill and other flood-mitigation works means that flood-prone land does not necessarily constrain urban development.

For the purposes of the Cumberland Plain Conservation Plan, land avoided from development and not subject to biodiversity certification (the 'avoided land') has been categorised into the following:

- avoided for biodiversity purposes – land that has high biodiversity values to be protected and has been avoided from the certified-urban capable land for this reason
- avoided for other purposes – land that cannot be feasibly developed due to the topography (slope) of the land or having an environmental feature such as a riparian corridor

The remaining three criteria listed above, as land considered unsuitable for development, have been excluded from the Plan and Plan approvals.

Development of avoidance criteria

Criteria were developed to help identify priorities for avoiding biodiversity values (see Text Box 1). These criteria provided detailed guidance, consistent with guidance provided in the BAM, to inform decisions about the location and design of the urban capable land. These decisions were made in a series of workshops attended by the department's precinct planners and ecologists. Applying the avoidance criteria identified land within the nominated areas to be avoided for biodiversity purposes.

The avoidance criteria identified priorities for avoidance within three main categories:

- TECs and plant community types (PCTs)
- threatened species
- ecological processes.

Applying the avoidance criteria results in avoided land that includes non-vegetated areas such as small wetlands and waterbodies, land that is strategically important to protect or enhance corridors, or small enclosed clearings that are surrounded by native vegetation.

Text Box 1: Avoidance criteria and categories

Box 1. Avoidance criteria

(a) TECs and PCTs

1. Critically endangered ecological communities (CEECs) or PCTs ≥90% cleared in large patches and in good condition; or serious and irreversible impact (SAII) entities (TECs)

2. EECs or PCTs ≥70% to <90% cleared in large patches and in good condition

3. PCTs ≥50% to <70% cleared in large patches and in good condition

4. PCTs <50% cleared in large patches and in good condition

(b) Threatened species

1. Known habitat^ for critically endangered species, SAII entities (species), Saving Our Species (SOS) species polygons (where species-specific habitat is present), or large populations of threatened species (relative to typical size for that species); or known primary koala habitat

2. Known habitat^ for endangered species or known secondary koala habitat

3. Known habitat^ for vulnerable species

(c) Ecological processes

1. Land identified as priority conservation lands, BIO Map core areas, or important local habitat corridors for key species including koalas

2. Land identified as BIO Map regional corridors or as areas that provide significant opportunities to support important local habitat corridors for key species, including koalas

3. Areas identified on the Biodiversity Values Map

Boundary rationalisation

Consider removing:

• small nodes or isolated patches of features identified in (a), (b) or (c) if future land use change will lead to significant edge effects and low viability over the timeframe identified, and there is no feasible opportunity to enhance connectivity and extent

• corridors that do not link important areas of habitat, including 'blind corridors'.

^ As indicated by BioNet records or recent survey data

Calculating avoidance outcomes

The following method is used to calculate avoidance outcomes for specific biodiversity values – for example, a threatened ecological community (TEC), – within the nominated areas:

- Step 1: Determine the total existing area of each biodiversity value, in hectares.
- Step 2: Determine the total area impacted by urban development for each biodiversity value.
- Step 3: Determine the total area impacted by transport for each biodiversity value.
- Step 4: Determine the area of each biodiversity value within land unsuitable for urban development.
- Step 5: Determine the area avoided because of its biodiversity value, by subtracting the sum of the amounts from steps 2, 3 and 4 from the amount in Step 1.

During public exhibition, landholders may seek to have the urban capable boundary amended prior to the finalisation of the Plan. The urban capable land boundary will only be updated in line with this Criteria, namely if:

- creeks and water features are mapped incorrectly, in which case they must be updated to match the topography and vegetation indicating movement of water through the landscape
- on-site data collected by accredited assessors supports updating the boundaries
- there is no net change to impact of threatened ecological communities, SAII entities or vegetation in an intact condition state
- there is no impact on an identified landscape corridor
- authorised clearing has occurred. (The relevant Council will review cleared areas and determine if the clearing was permitted. The urban capable land boundary will not be changed if the clearing was unauthorised.)

Appendix C. Plan commitments

Development actions

Commitments

Commitment 1
Development will be undertaken in accordance with the Plan and any conditions of approval.

This applies to the following classes of actions:

- urban and industrial
- infrastructure
- intensive plant agriculture
- major infrastructure corridors

Commitment 1.1
Essential infrastructure in non-certified land will be implemented consistent with the Plan's Essential Infrastructure Guidelines.

Conservation program

Avoid and minimise impacts

Commitments

Commitment 2
Avoid and minimise impacts from urban, industrial and infrastructure development to at least 4,315[15] hectares of land. This target includes avoiding 3, 670 hectares of native vegetation comprising:

- 2,735 hectares of native vegetation avoided for its biodiversity value
- 935 hectares of native vegetation avoided for other purposes including riparian corridors and steep slopes

Commitment 2.1
The avoidance target of 4,315 hectares includes avoiding up to the following areas of EPBC Act-listed threatened ecological communities:

- 1,945 hectares of Shale Sandstone Transition Forest
- 95 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- 170 hectares of River-Flat Eucalypt Forest (subject to listing)
- 30 hectares of Coastal Swamp Oak (Casuarina glauca) Forest
- 25 hectares of Cooks River Castlereagh Ironbark Forest

Commitment 2.2
The avoidance target of 4,315 hectares includes avoiding up to the following areas of BC Act-listed threatened ecological communities:

- 2,135 hectares of Shale Sandstone Transition Forest
- 475 hectares of Cumberland Plain Woodland
- 170 hectares of River-Flat Eucalypt Forest

[15] The total area of avoided land at the start of the Plan is 4,795 hectares. The avoidance target has reduced this figure by 10% to allow for potential future development of essential infrastructure in non-certified land. E2 zoning will be applied to all avoided land in the nominated areas.

Commitments

- 90 hectares of Swamp Oak Floodplain Forest
- 30 hectares of Shale Gravel Transition Forest
- 30 hectares of Cooks River Castlereagh Ironbark Forest
- 20 hectares of Moist Shale Woodlands

Commitment 2.3

The avoidance target of 4,315 hectares includes limiting cumulative direct impacts over the life of the Plan from essential infrastructure to the EPBC-listed Shale Sandstone Transition Forest TEC within non-certified land to no more than:

- 20 hectares in the Wilton Growth Area
- 20ha in the Greater Macarthur Growth Area

Commitment 2.4

Prioritise the avoidance of impacts from essential infrastructure on non-certified land to:

- known populations of the following threatened flora species:
  - *Grevillea parviflora* subsp. *parviflora* (Small-flower Grevillea)
  - *Persoonia bargoensis* (Bargo Geebung)
  - *Persoonia nutans* (Nodding Geebung)
  - *Genoplesium baueri* (Yellow Gnat-orchid)
  - *Pimelea spicata* (Spiked Rice-flower)
  - *Pultanea parviflora*
- important koala corridors within the Wilton and Greater Macarthur Growth Areas to maintain their integrity

Commitment 3

Avoid and minimise impacts to threatened ecological communities, species and their habitat within major infrastructure corridors in the Plan's nominated areas. This includes avoiding where possible:

- Areas of high biodiversity value (defined by the Plan's avoidance criteria at Appendix B. Avoidance criteria)
- Areas of potential habitat connectivity, particularly vegetation in riparian corridors, for the following species:
  - Eastern Pygmy Possum
  - Green and Golden Bell-Frog
  - Spotted-tailed Quoll
  - Squirrel Glider
  - Yellow-bellied Glider
- Known flora populations within the OSO and M7/Ropes Crossing Link Road corridors, including:
  - *Dillwynia tenuifolia*
  - *Grevillea juniperina* subs. *juniperina*
  - *Pultanea parviflora*
  - *Persoonia nutans*
- Outer Sydney Orbital waterway crossings minimises structures within riparian areas, waterway re-alignments, and bilk earthworks on adjacent floodplain areas.

Commitments

Commitment 3.1
Where an action cannot feasibly or practically avoid impacts on an identified area, these impacts are to be minimised as far as possible. Minimisation can be achieved by refining design elements to reduce the overall impact.

Commitment 3.2
Transport for NSW will be responsible for determining the area of avoidance achieved for each of the relevant BC Act and EPBC Act matters using:

- the estimated construction footprint as shown in the EIS for each infrastructure corridor
- the Plan's data and mapping for threatened ecological communities, species and their habitats.

Commitment 3.3
The strategic biodiversity certification (BC Act) for each of the infrastructure corridors will only be activated once the areas avoided and the areas to be developed have been reported (as per Commitment 3.2).

Commitment 4
Avoid and minimise impacts to threatened ecological communities, species and their habitat in the sections of the four major infrastructure corridors outside the nominated areas but within the Plan Area in accordance with the:

- major infrastructure corridors class of action description
- Biodiversity Assessment Method (BC Act)

Commitment 4.1

This includes consideration to avoid and minimise impacts to threatened species, populations and communities as a result of tunnel construction activities in major infrastructure corridors and to minimise impacts to Commonwealth Land sites including impacts to existing infrastructure and disruption to existing services.

This includes avoiding disturbance to the following locations where possible:

- Known flora populations within the OSO and M7/Ropes Crossing Link Road corridors, including:
    - *Dilwynia tenuifolia*
    - *Grevillea juniperina* subs. *juniperina*
    - *Pultanea parviflora*
    - *Cynanchum elegans*
- Protected lands within and adjacent to the proposed tunnel footprints as follows:
    - Mater Dei BioBank site within the Outer Sydney Orbital footprint near Camden
    - Registered Property Agreement site within the Outer Sydney Orbital footprint at Camden Airport
    - Metro Offset site within the footprints for the Outer Sydney Orbital and Metro Rail Future Extension near Harrington Park
- Nepean River and associated riparian corridor within the Outer Sydney Orbital footprint
- Camden Golf Club at Narellan adjacent to the footprint for the Metro Rail Future Extension
- Mount Annan Botanic Gardens within the footprint for the Metro Rail Future Extension
- Populations and habitat within or adjacent to the footprints for the Outer Sydney Orbital and Metro Rail Future Extension for:
    - *Eucalyptus benthamii*
    - *Pomaderris brunnea*

Commitments

  - *Pimelea spicata*
  - Cumberland Plain Land Snail
- Commonwealth land at:
  - Camden Airport
  - Western Sydney University (Campbelltown Campus)
  - 12 Werombi Road, Grasmere NSW

Mitigate indirect and prescribed impacts

Commitments

Commitment 5
Mitigate indirect and prescribed impacts from development on threatened ecological communities, species and their habitat to best practice standards.

Commitment 5.1
This includes implementing development controls within the nominated areas to protect threatened species as prescribed in Appendix E of the Plan.

Commitment 5.2
This includes implementing development controls within the nominated areas to protect the following threatened ecological communities as prescribed in Appendix E of the Plan:

- Cooks River Castlereagh Ironbark Forest (NSW and Cth) in Western Sydney Aerotropolis
- Cumberland Plain Woodland (NSW & Cth) in Greater Penrith to Eastern Creek Investigation Area
- River-flat Eucalypt Forest (NSW) / Coastal Floodplain Eucalypt Forest (Cth) in all nominated areas
- Shale Sandstone Transition Forest (NSW and Cth) in Wilton and Greater Macarthur growth areas
- Shale-Gravel Transition Forest (NSW) in Greater Penrith to Eastern Creek Investigation Area
- Swamp Oak Floodplain Forest (NSW) / Coastal Swamp Oak Forest (Cth) in Greater Penrith to Eastern Creek Investigation Area and Western Sydney Aerotropolis

Commitment 5.3
This includes mitigation measures to address indirect and prescribed impacts on threatened ecological communities, species and their habitat during construction and operation of infrastructure projects as prescribed in Appendix E of the Plan.

Commitment 5.4
This includes consulting with public land managers to minimise impacts to the following threatened species as prescribed in Appendix E of the Plan:

- populations of *Persoonia nutans* in Wianamatta Regional Park
- populations of *Pimelea spicata* on public land in all nominated areas
- Macquarie Perch in Erskine Creek, Glenbrook Creek, Georges River and Cordeaux River
- Green and Golden Bell Frog along Ropes Creek

Commitment 6
Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat.

Commitments

Commitment 6.1

This includes mitigation measures to address impacts on the following threatened species during construction and operation of transport infrastructure as prescribed in Appendix E. Species and TEC-specific mitigation measures.

Plants

- *Cynanchum elegans*
- *Dillwynia tenuifolia*
- *Grevillea juniperina* subsp. *juniperina*
- *Persoonia nutans*
- *Pultenaea parviflora*

Animals

- Cumberland Plain Land Snail
- Large Bent-winged Bat
- Eastern Coastal Free-tailed Bat
- Eastern Pygmy-possum
- Greater Glider
- Green and Golden Bell Frog
- Little Bentwing-bat
- Southern Myotis
- Spotted-tailed Quoll
- Squirrel Glider
- Yellow-bellied Sheathtail-Bat

Commitment 6.2

This includes mitigation measures to address impacts on the following threatened species during construction of proposed tunnels within the major infrastructure corridors:

- *Eucalyptus benthamii*
- *Pimelea spicata*
- *Pomaderris brunnea*
- Cumberland Plain Land Snail

Key threats/indirect impacts that need managing are:

- Hydrological disturbance
- Spread of weeds
- Spread of infection/disease
- Soil erosion and sedimentation
- Ground settling or subsidence
- Disturbance to ground shelter habitat (e.g. removal of fallen logs, slashing)

Commitment 6.3

This includes addressing mitigation requirements of the Biodiversity Assessment Method (or equivalent) for major infrastructure corridors outside of nominated areas.

Commitment 7

Mitigate indirect and prescribed impacts from urban, infrastructure and major infrastructure (transport) development on the Southern Sydney koala population to best practice standards and in line with the Chief Scientist Koala Report (2020).

Conserve flora, fauna and habitat

Commitments

Commitment 8
Protect a minimum of 5,475 hectares of native vegetation[16] in the Cumberland subregion to conserve biodiversity values in perpetuity in accordance with the conservation lands selection steps.

Commitment 8.1
This target includes minimum areas of the following EPBC Act-listed threatened ecological communities:

- 715 hectares of Shale Sandstone Transition Forest
- 575 hectares of Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest
- 575 hectares of Coastal floodplain eucalypt forest of eastern Australia[17] (nominated for listing)
- 105 hectares of Cooks River Castlereagh Ironbark Forest
- 5 hectares of Coastal Swamp Oak Forest

Commitment 8.2
This target includes minimum areas of the following BC Act-listed threatened ecological communities:

- 3,170 hectares of Cumberland Plain Woodland
- 1,540 hectares of Shale Sandstone Transition Forest
- 450 hectares of River-Flat Eucalypt Forest
- 150 hectares of Shale Gravel Transition Forest
- 110 hectares of Cooks River Castlereagh Ironbark Forest
- 50 hectares of Swamp Oak Floodplain Forest
- 5 hectares of Freshwater Wetlands on Coastal Floodplains
- <1 hectares of Moist Shale Woodland

Commitment 8.3
Track and adjust offset targets using the Plan's reconciliation accounting process and report to DAWE and EES. The Plan's cumulative offset targets for threatened ecological communities may be adjusted to account for future avoidance of biodiversity values within major infrastructure corridors.

Commitment 9
Protect threatened species likely to be at risk of residual adverse impacts from development under the Plan in accordance with the Plan's conservation lands selection steps.

Commitment 9.1
This includes protecting known offset locations for the following target threatened species:

Flora species

- 2 offset locations for *Cynanchum elegans*
- 3 offset locations for *Dillwynia tenuifolia*
- 1 offset location for *Epacris purpurascens* var. *purpurascens*
- 3 offset locations for *Grevillea juniperina* subsp. *juniperina*
- 1 offset location for *Hibbertia fumana*
- 1 offset location for *Hibbertia puberola*

[16] While there is overlap between the TEC targets listed in commitments 8.1 and 8.2, there are differences in the listings between EPBC Act-listed and BC Act-listed TECs, such as differences in approach and criteria. Therefore, the BC Act-listed TECs in commitment 7.2 incorporate targets for EPBC Act-listed TECs.
[17] The "River-flat eucalypt forest on coastal floodplains of New South Wales" was nominated for listing as a threatened ecological community under the EPBC Act in 2016. It has since been renamed as *Coastal floodplain eucalypt forest of eastern Australia*. The proposed conservation status for this ecological community is 'endangered'.

Commitments

- 1 offset locations for *Marsdenia viridiflora* subsp. *viridiflora*
- 2 offset locations for *Persoonia nutans*
- 3 offset locations for *Pimelea spicata*
- 2 offset locations for *Pultenaea parviflora*
- 1 offset locations for *Pultenaea pedunculata*

Fauna species

- 3 offset locations for *Meridolum corneovirens*
- 2 offset locations for *Myotis macropus;*

Commitment 9.2
This includes protecting potential habitat for the following target threatened fauna species:

- 4,470 hectares of potential foraging habitat for *Lathamus discolour*
- 610 hectares of important habitat for *Phascolarctos cinereus.*

Commitment 9.3
Track and adjust offset targets using the Plan's reconciliation accounting process and report to DAWE and EES. The Plan's offset targets for threatened species may be adjusted to account for future avoidance of biodiversity values within major infrastructure corridors.

Commitment 10
Establish a reserve to protect the north-south koala movement corridor along the Georges River between Appin and Kentlyn.

Commitment 11
Establish at least two new reserves in addition to the Georges River Koala Reserve that will protect threatened communities, species and habitat that are targeted for protection through the Plan.

Commitment 12
Secure priority habitat corridors in the Cumberland subregion in perpetuity, to support connectivity for ecological communities and species.

Commitment 13
Undertake ecological restoration of up to 25% of the Plan's offset target for native vegetation (Commitment 8) in areas secured for conservation within the Cumberland subregion.

Commitment 14
Minimise impacts from development on biodiversity values in the strategic conservation area.

Commitment 15
Minimise impacts from adjoining land-uses on biodiversity values of conservation land.

Manage landscape threats

Commitments

Commitment 16
Manage priority weeds in strategic locations in the Cumberland subregion to reduce threats to land secured within the strategic conservation area.

Commitments

Commitment 17
Manage priority pest animals in strategic locations in the Cumberland subregion to reduce threats to land protected in the strategic conservation area.

Commitment 17.1
Reduce the risk of secondary poisoning from pesticides for the following threatened raptor species:

- Little Eagle
- Spotted Harrier
- Square-tailed Kite
- White-bellied Sea-eagle

Commitment 18
Manage fire in strategic locations in the Cumberland subregion to support the maintenance of biodiversity values on conservation land.

Commitment 19
Support new or existing programs to control key diseases affecting threatened species and ecological communities in the Cumberland subregion.

Commitment 20
Support existing or new programs to help threatened species and ecological communities adapt to the impacts of climate change in the Plan Area.

Build knowledge and capacity

Commitments

Commitment 21
Provide opportunities for the residents of Western Sydney to learn about and actively participate in biodiversity conservation including koala conservation.

Commitment 22
Provide opportunities for Aboriginal communities in Western Sydney to participate in biodiversity conservation and related economic opportunities arising from the Plan.

Commitment 23
Provide for extension services to community groups, councils, Local Aboriginal Land Councils, and landholders to support biodiversity conservation on public and private land.

Commitment 24
Invest in research that will help to secure threatened species and increase understanding of threats and land management issues.

Commitment 25
Support rehabilitation measures to help maintain koala health and welfare.

Governance and reporting

Commitments
Commitment 26 Establish governance arrangements including roles, responsibilities and funding to ensure the efficient and effective implementation of the Plan.
Commitment 27 Implement an evaluation program for the Plan that sets out requirements for monitoring, evaluation, reporting and adaptive management.
Commitment 28 Implement a compliance program to ensure compliance with the Plan and conditions of approval,

Appendix D. EPBC Act and BC Act matters to be offset through this Plan

Table 7. Plant community types (PCTs) and threatened ecological communities

PCT number	PCT name	TEC name (BC Act)	NSW legislative status	BC Act impact (ha)	TEC name (EPBC Act)	EPBC legislative status	EPBC impact (ha)
724	Broad-leaved Ironbark - Grey Box - Melaleuca decora grassy open forest on clay/gravel soils of the Cumberland Plain, Sydney Basin Bioregion	Shale Gravel Transition Forest	Endangered	52.2	Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically endangered	154.7
849	Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland	Critically endangered	729.8	Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically endangered	Included in above row
850	Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	Cumberland Plain Woodland	Critically endangered	284.8	Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest	Critically endangered	Included in above row
725	Broad-leaved Ironbark - Melaleuca decora shrubby open forest on clay soils of the Cumberland Plain, Sydney Basin Bioregion	Cooks River Castlereagh Ironbark Forest	Endangered	36.9	Cooks River/ Castlereagh Ironbark Forest	Critically endangered	26.3
781	Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion	Freshwater Wetlands	Endangered	2.1	no equivalent listing	Not listed	0.0

PCT number	PCT name	TEC name (BC Act)	NSW legislative status	BC Act impact (ha)	TEC name (EPBC Act)	EPBC legislative status	EPBC impact (ha)
835	Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion	River-flat Eucalypt Forest	Endangered	165.1	Coastal floodplain eucalypt forest of eastern Australia[18]	Subject to listing	210.2
830	Forest Red Gum - Grey Box shrubby woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion	Moist Shale Woodlands	Endangered	0.1	Western Sydney Dry Rainforest and Moist Woodland on Shale	Critically endangered	0.0
1395	Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest of the edges of the Cumberland Plain, Sydney Basin Bioregion	Shale Sandstone Transition Forest	Critically endangered	487.7	Shale Sandstone Transition Forest in the Sydney Basin Bioregion	Critically endangered	191.8
1800	Swamp Oak open forest on riverflats of the Cumberland Plain and Hunter valley	Swamp Oak Forest	Endangered	19.2	Coastal Swamp Oak (*Casuarina glauca*) Forest of NSW and South East Queensland ecological community	Endangered	1.8
TOTALS	-	-	**-**	**1,777.8**	-	**-**	**584.8**

[18] The “River-flat eucalypt forest on coastal floodplains of New South Wales” was nominated for listing as a threatened ecological community under the EPBC Act in 2016. It has since been renamed as *Coastal floodplain eucalypt forest of eastern Australia*. The proposed conservation status for this ecological community is ‘endangered’.

Table 8. Threatened species

No.	Species name	Common name	Credit class (BC Act)	Type	EPBC Status	BC Status
1	*Acacia bynoeana*	Bynoe's Wattle, Tiny Wattle	Species	Shrub	Vulnerable	Endangered
2	*Acacia pubescens*	Downy Wattle, Hairy Stemmed Wattle	Species	Shrub	Vulnerable	Vulnerable
3	*Allocasuarina glareicola*	-	Species	Shrub	Endangered	Endangered
4	*Anthochaera phrygia*	Regent Honeyeater	Species/ Ecosystem	Bird	Critically Endangered	Critically Endangered
5	*Botaurus poiciloptilus*	Australasian Bittern	Ecosystem	Bird	Endangered	Endangered
6	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Species/ Ecosystem	Bird	Not listed	Vulnerable
7	*Calyptorhynchus lathami*	Glossy Black-Cockatoo	Species/ Ecosystem	Bird	Not listed	Vulnerable
8	*Cercartetus nanus*	Eastern Pygmy-possum	Species	Mammal	Not listed	Vulnerable
9	*Chalinolobus dwyeri*	Large-eared Pied Bat, Large Pied Bat	Species	Mammal	Vulnerable	Vulnerable
10	*Cynanchum elegans*	White-flowered Wax Plant	Species	Epiphytes and climbers	Endangered	Endangered
11	*Dasyurus maculatus maculatus* (SE mainland population)	Spotted-tail Quoll, Spot-tailed Quoll, Tiger Quoll (southeastern mainland population)	Ecosystem	Mammal	Endangered	Vulnerable
12	*Dillwynia tenuifolia*	-	Species	Shrub	Not listed	Vulnerable
13	*Epacris purpurascens var. purpurascens*	-	Species	Shrub	Not listed	Vulnerable
14	*Eucalyptus benthamii*	Camden White Gum, Nepean River Gum	Species	Tree	Vulnerable	Vulnerable
15	*Grevillea juniperina subsp. Juniperina*	Juniper-leaved Grevillea	Species	Shrub	Not listed	Vulnerable
16	*Grevillea parviflora subsp. parviflora*	Small-flower Grevillea	Species	Shrub	Vulnerable	Vulnerable
17	*Haliaeetus leucogaster*	White-bellied Sea-Eagle	Species/ Ecosystem	Bird	Not listed	Vulnerable
18	*Heleioporus australiacus*	Giant Burrowing Frog	Species	Amphibian	Vulnerable	Vulnerable
19	*Hibbertia fumana*	-	Species	Shrub	Not listed	Critically Endangered

No.	Species name	Common name	Credit class (BC Act)	Type	EPBC Status	BC Status
20	*Hibbertia puberula*	-	Species	Shrub	Not listed	Endangered
21	*Hieraaetus morphnoides*	Little Eagle	Species/ Ecosystem	Bird	Not listed	Vulnerable
22	*Lathamus discolor*	Swift Parrot	Species/ Ecosystem	Bird	Critically Endangered	Endangered
23	*Litoria aurea*	Green and Golden Bell Frog	Species	Amphibian	Vulnerable	Endangered
24	*Lophoictinia isura*	Square-tailed Kite	Species/ Ecosystem	Bird	Not listed	Vulnerable
25	*Marsdenia viridiflora subsp. viridiflora* - endangered population	Marsdenia viridiflora subsp. viridiflora - endangered population	Species	Epiphytes and climbers	Not listed	Endangered
26	*Maundia triglochinoides*	-	Species	Herbs and forbs	Not listed	Vulnerable
27	*Melaleuca deanei*	Deane's Melaleuca	Species	Shrub	Vulnerable	Vulnerable
28	*Meridolum corneovirens*	Cumberland Plain Land Snail	Species	Invertebrate	Not listed	Endangered
29	*Micromyrtus minutiflora*	-	Species	Shrub	Vulnerable	Endangered
30	*Myotis macropus*	Southern Myotis	Species	Mammal	Not listed	Vulnerable
31	*Ninox strenua*	Powerful Owl	Species/ Ecosystem	Bird	Not listed	Vulnerable
32	*Persicaria elatior*	Tall Knotweed	Species	Herbs and forbs	Not listed	Vulnerable
33	*Persoonia bargoensis*	Bargo Geebung	Species	Shrub	Vulnerable	Endangered
34	*Persoonia hirsuta*	Hairy Geebung, Hairy Persoonia	Species	Shrub	Endangered	Endangered
35	*Persoonia nutans*	Nodding Geebung	Species	Shrub	Endangered	Endangered
36	*Petauroides volans*	Greater Glider	Species	Mammal	Vulnerable	Not listed
37	*Petaurus norfolcensis*	Squirrel Glider	Species	Mammal	Not listed	Vulnerable
38	*Phascolarctos cinereus*	Koala	Species/ Ecosystem	Mammal	Vulnerable	Vulnerable
39	*Pimelea curviflora var. curviflora*	-	Species	Shrub	Vulnerable	Vulnerable
40	*Pimelea spicata*	Spiked Rice-flower	Species	Shrub	Endangered	Endangered
41	*Pomaderris brunnea*	Rufous Pomaderris	Species	Shrub	Vulnerable	Endangered
42	*Pommerhelix duralensis*	Dural Land Snail	Species	Invertebrate	Endangered	Endangered
43	*Pseudophryne australis*	Red-crowned Toadlet	Species	Amphibian	Not listed	Vulnerable

No.	Species name	Common name	Credit class (BC Act)	Type	EPBC Status	BC Status
44	*Pteropus poliocephalus*	Grey-headed Flying-fox	Species/ Ecosystem	Mammal	Vulnerable	Vulnerable
45	*Pterostylis saxicola*	Sydney Plains Greenhood	Species	Orchid	Endangered	Endangered
46	*Pultenaea parviflora*	-	Species	Shrub	Vulnerable	Endangered
47	*Pultenaea pedunculata*	Matted Bush-pea	Species	Shrub	Not listed	Endangered
48	*Rostratula australis*	Australian Painted Snipe	Ecosystem	Bird	Endangered	Endangered
49	*Tyto novaehollandiae*	Masked Owl	Species/ Ecosystem	Bird	Not listed	Vulnerable

Appendix E. Species and TEC-specific mitigation measures

Urban and industrial, infrastructure and agribusiness development

Mitigation measures to address residual risks to threatened fauna

HABITAT FEATURES AND CONNECTIVITY

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Retain large trees (including dead trees) (≥50cm DBH) during precinct planning where possible and avoid impacts to soil within the dripline of these trees during construction	Large trees within urban landscapes are likely to be important for the persistence of several species within the subregion. Microbats benefit directly through roosting opportunities and indirectly through foraging opportunities. Flying-foxes and nectivorous birds benefit directly through foraging opportunities (high volumes of nectar). Owls and raptors benefit indirectly through large trees providing habitat for prey species	**Microbats:** Southern Myotis, Little Bent-winged Bat, Eastern Coastal Free-tailed Bat, Large Bent-winged Bat, Yellow-bellied Sheathail-bat, Eastern False Pipistrelle, Greater Broad-nosed Bat **Flying-foxes and nectivorous birds:** Grey-headed Flying-fox, Regent Honeyeater, Swift Parrot, Little Lorikeet, Painted Honeyeater, and Black-chinned Honeyeater **Owls and raptors:** Barking Owl, Powerful Owl, Masked Owl, Little Eagle, White-bellied Sea Eagle, Square-tailed Kite, Spotted Harrier	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards.	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	Y	Y	Y	Y	

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Retain areas of high density proteaceae shrubs where possible, particularly along riparian corridors	Proteaceae shrubs such as banksias are a favoured foraging resource for the species and the species is likely to use riparian corridors as habitat or for moving between other areas of suitable habitat	Eastern Pygmy-possum	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**Y**	**Y**	**Y**	**Y**	
If Green and Golden Bell Frog is confirmed present along Ropes Creek, consult with land managers of the riparian corridor to ensure key habitat features are protected and enhanced.	Aims to protect an important population of the species (if confirmed present) at Ropes Creek in GPEC.	Green and Golden Bell Frog	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	Consultation with local councils and other public agencies	**Y** (mapped potential habitat along Ropes Creek**)**	**N**	**N**	**N**	
Undertake pre-construction surveys prior to removal or disturbance (seasonally dependent, before torpor) to human made structures to ensure any roosting habitat for microbat species including mine shafts, storm water tunnels, old or derelict buildings, bridges and culverts	Minimises the potential impacts of urban development to human-made structures that may be used by microbats for roosting or breeding.	Eastern Coastal Free-tailed Bat Little Bent-winged Bat Large Bent-winged Bat Southern Myotis Yellow-Bellied Sheathtail-Bat	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**Y**	**Y**	**Y**	**Y**	

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
are retained where possible									

PEST / DOMESTIC ANIMALS

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Modify pest control techniques implemented during construction and operation of the development and under the pest control strategy to reduce the risk of secondary poisoning (e.g. from Pindone or second-generation rodenticides).	There is a risk of pest control measures causing secondary poisoning of raptors.	White-bellied Sea-Eagle Little Eagle Square-tailed kite Spotted Harrier	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards **C16:** Manage priority pest animals in strategic locations in the Cumberland subregion to reduce threats to land protected in the strategic conservation area	Nominated areas: DCP; Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act Strategic conservation area: Pest animal implementation strategy	**Y**	**Y**	**Y**	**Y**	Strategic conservation area
Where permitted and appropriate, contain domestic cats and dogs in new residential areas during operation of the development at the urban/bushland interface consistent with relevant Council guidelines.	Increased numbers of domestic cats and dogs associated with urban development increases the threat of predation to native animals.	Eastern Pygmy-possum Spotted-tailed Quoll	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP	**N**	**N**	**Y**	**Y**	

HUMAN DISTURBANCE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Establish minimum setbacks for urban development around flying fox camps	Minimises disturbance to known populations	Grey-headed Flying-fox	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP	**Y**	**Y**	**Y**	**Y**	
Consult with relevant resource managers to consider: Prohibiting recreational fishing along the stretches of habitat associated with Erskine Creek, Glenbrook Creek, Georges River and Cordeaux River known to support the species Installing signs / interpretive displays at appropriate sites used to access fishing locations at Erskine Creek, Glenbrook Creek, Georges River and Cordeaux River to assist with identification and awareness of threats	Minimises the risk of increased recreational fishing affecting the species due to larger urban populations associated with urban development	Macquarie Perch	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	Consultation with local councils and other public agencies	**N**	**N**	**N**	**N**	Erskine Creek Glenbrook Creek Georges River Cordeaux River

DISEASE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
If Green and Golden Bell Frog is confirmed present along Ropes Creek, incorporate best practice site hygiene protocols to manage the potential spread of *chytrid* fungus	Minimises the risk of the spread of *chytrid* fungus due to construction activities within potential habitat for the species	Green and Golden Bell Frog	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**Y** (mapped potential habitat along Ropes Ck)	**N**	**N**	**N**	
Incorporate best practice site hygiene protocols to manage the potential spread of pathogens, such as *Phytophthora* and Myrtle Rust within or adjacent to potential habitat for relevant species	Minimises the risk of the spread of pathogens due to construction activities adjacent to potential habitat for the species	Greater Glider	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**Y**	**Y**	**Y**	**Y**	

OTHER

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Consult with relevant land managers to implement critical actions for Cumberland Plain Land Snail under the Save our Species program (EES, 2020) on public land adjacent to urban development during construction and operation of the development, taking into account relevant guidance in the Weed Control Implementation Strategy and the Fire Management Strategy	Minimises indirect impacts to Cumberland Plain Land Snail adjacent to urban capable land	Cumberland Plain Land Snail Key indirect impacts/threats to be managed for this species are: • Weed invasion • Inappropriate fire regimes • Removal of fallen logs for firewood and slashing of habitat	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	Consultation with local councils and other public agencies Weed Control Implementation Strategy Fire Management Strategy	Y	Y	Y	Y	
Implement 'open structure design' when designing structures such as roads adjacent to known populations of Cumberland Plain Land Snail where possible, consistent with the critical actions for this species under the Save our Species program (EES, 2020)	Development in the nominated areas may isolate patches of habitat. This action is consistent with a critical action for this species under the Save our Species program (EES, 2020)	Cumberland Plain Land Snail	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	Consultation with local councils and other public agencies	Y	Y	Y	Y	

Mitigation measures to address residual risks to flora

WEED INVASION

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Implement mitigation measures to manage weeds for flora populations and habitat adjacent to major infrastructure corridors during construction and operation of the development, taking into account relevant guidance in the Weed Control Implementation Strategy	Minimises indirect impacts to flora populations and habitat adjacent to major infrastructure corridors	*Dillwynia tenuifolia* *Pultenaea parviflora* *Persoonia nutans*	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards **C16:** Manage priority weeds in strategic locations in the Cumberland subregion to reduce threats to land secured within the strategic conservation area	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under the EP&A Act Weed Control Implementation Strategy	**Y**	**Y**	**N**	**N**	
As above	As above	*Pultenaea pedunculata*	C5 and C16	As above	**N**	**N**	**Y**	**N**	
As above	As above	*Grevillea parviflora* subsp. *parviflora* (important pop. no. 104)	C5 and C16	As above	**N**	**N**	**N**	**Y**	

ALTERED FIRE REGIME

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Consult with land managers of land containing known populations or habitat for relevant species to mitigate indirect impacts from fire during construction and operation of the development, taking into account guidance in the Fire Management Strategy	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Dillwynia tenuifolia* *Grevillea juniperina* subsp. *juniperina* *Pultenaea parviflora*	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards **C18:** Manage fire in strategic locations in the Cumberland subregion to support the maintenance of biodiversity values on conservation land	Consultation with local councils and other public agencies Fire Management Strategy	Y	Y	N	N	
As above	As above	*Persoonia nutans*	C5 and C18	As above	Y	N	N	N	
As above	As above	*Pultenaea pedunculata*	C5 and C18	As above	N	N	Y	N	
As above	As above	*Grevillea parviflora* subsp. *parviflora* (important population no. 104)	C5 and C18	As above	N	N	N	Y	
As above	As above	*Persoonia bargoensis*	C5 and C18	As above	N	N	Y	Y	

HUMAN DISTURBANCE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Consult with land managers of land containing known populations or habitat for relevant species to mitigate indirect impacts from human disturbance during construction and operation of the development, including controlling public access, managing maintenance activities such as mowing and slashing, and managing rubbish dumping	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Dillwynia tenuifolia* *Grevillea juniperina* subsp. *Juniperina* *Pultenaea parviflora*	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards **C5.3:** This includes consulting with public land managers to minimise exposure to human disturbance for the specified threatened species	Consultation with local councils and other public agencies	**Y**	**Y**	**N**	**N**	
As above	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Persoonia nutans*	C5 and C5.3	As above	**Y**	**N**	**N**	**N**	
As above	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Grevillea parviflora* subsp. *parviflora* (important population no. 104)	C5 and C5.3	As above	**N**	**N**	**N**	**Y**	
As above	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Pultenaea pedunculata* *Genoplesium baueri* (important population no. 21)	C5 and C5.3	As above	**N**	**N**	**Y**	**N**	

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
As above	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Persoonia bargoensis* *Melaleuca deanei* *Pterostylis saxicola*	C5 and C5.3	As above			Y	Y	
As above	Minimises indirect impacts to flora populations and habitat adjacent to urban capable land	*Pimelea spicata* For this species in particular, ensure weed management activities involving the use of herbicides will minimise risks and maintain the species	C5 and C5.3	As above	Y	Y	Y	Y	

DISEASE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Incorporate best practice site hygiene protocols to manage the potential spread of pathogens, such as Phytophthora and Myrtle Rust adjacent to potential habitat for relevant species	Minimises the risk of the spread of pathogens due to construction activities adjacent to potential habitat for the species	*Persoonia bargoensis*	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**N**	**N**	**Y**	**Y**	
As above	As above	*Persoonia nutans*	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**Y**	**Y**	**N**	**N**	

Mitigation measures to address residual risks to threatened ecological communities

Mitigation measure	Rationale for measure	Threatened ecological community	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
When implementing mitigation measures to manage indirect impacts to Cooks River/Castlereagh Ironbark Forest, undertake mitigation in accordance with Best Practice Guidelines: Cooks River/Castlereagh Ironbark Forest (NSW DECC, 2008) within and adjacent to the TEC	Minimises the risk of several indirect impact types on the TEC adjacent to urban development and major infrastructure corridors	Cooks River/Castlereagh Ironbark Forest (NSW and Cth)	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**N**	**Y** (Kemps Creek)	**N**	**N**	
Incorporate best practice site hygiene protocols to manage the potential spread of pathogens, such as *Phytophthora* and Myrtle Rust adjacent to potential habitat for relevant TECs	Minimises the risk of the spread of pathogens due to construction activities for urban development or major infrastructure corridors adjacent to TECs	Cooks River/Castlereagh Ironbark Forest (NSW and Cth)	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under EP&A Act	**N**	**Y** (Kemps Creek)	**N**	**N**	
As above	As above	Cumberland Plain Woodland (NSW and Cth)	**C5**	As above	**Y**	**Y**	**N**	**N**	
As above	As above	River-flat Eucalypt Forest (NSW)/ Coastal Floodplain Eucalypt Forest (Cth)	**C5**	As above	**Y**	**Y**	**Y**	**Y**	

Mitigation measure	Rationale for measure	Threatened ecological community	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
As above	As above	Shale Gravel Transition Forest (NSW)	**C5**	As above	**Y**	**Y** (Kemps Creek)	**N**	**N**	
As above	As above	Shale Sandstone Transition Forest (NSW and Cth)	**C5**	As above	**N**	**N**	**Y**	**Y**	
As above	As above	Swamp Oak Floodplain Forest (NSW)/Coastal Swamp Oak Forest (Cth)	**C5**	As above	**Y**	**Y**	**N**	**N**	

Mitigation measures to address residual risks to other protected matters

Mitigation measure	Rationale for measure	Protected matter	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Ensure development adjacent to the southern and western boundaries of Commonwealth land comprising the Orchid Hills Defence Establishment mitigates impacts to surface water flows and the water quality of Blaxland Creek	Minimises the risk of indirect impacts from hydrological disturbance on an important waterway on Commonwealth land that occurs adjacent to urban development	Commonwealth Land	**C5:** Mitigate indirect and prescribed impacts on threatened species, populations and communities to best practice standards	DCP Guidelines for infrastructure assessment including state significant development and Part 5 activities under the EP&A Act					Orchard Hills Defence Site

Mitigation measures for major infrastructure corridors

Mitigation measures to address residual risks to threatened fauna

HABITAT FEATURES AND CONNECTIVITY

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Incorporate artificial breeding and roosting habitat (e.g. bat boxes, structural cavities) in the design of bridges associated with the major infrastructure corridors in accordance with relevant guidelines or standards	Minimises the potential impacts of the major infrastructure corridors to human-made structures that may be used by microbats for roosting or breeding	Eastern Coastal Free-tailed bat Little Bent-winged Bat Large Bent-winged Bat Southern Myotis Yellow-Bellied Sheathtail-bat	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	State Significant Infrastructure assessment and approval					All major infrastructure corridors within and outside nominated areas

DISEASE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
If Green and Golden Bell Frog is confirmed present along Ropes Creek, incorporate best practice site hygiene protocols to manage the potential spread of *chytrid* fungus	Minimises the risk of the spread of *chytrid* fungus due to construction activities within potential habitat for the species	Green and Golden Bell Frog	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	State Significant Infrastructure assessment and approval					Outer Sydney Orbital (mapped potential habitat along Ropes Creek)
Incorporate best practice site hygiene protocols to manage the potential	Minimises the risk of the spread of pathogens due to	Greater Glider	**C6:** Mitigate indirect and prescribed impacts on	State Significant Infrastructure					All major infrastructure corridors

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
spread of pathogens, such as *Phytophthora* and Myrtle Rust within or adjacent to potential habitat for relevant species	construction activities adjacent to potential habitat for the species		threatened species from major infrastructure (transport) development on threatened species and their habitat	assessment and approval					within and outside nominated areas

OTHER

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Consult with relevant land managers to implement mitigation measures to manage indirect impacts to known populations and habitat for Cumberland Plain Land Snail on public land adjacent to major infrastructure corridors during construction and operation of the development, taking into account relevant guidance in the Weed Control Implementation Strategy and the Fire Management Strategy	Minimises indirect impacts to Cumberland Plain Land Snail adjacent to major infrastructure corridors	Cumberland Plain Land Snail Key indirect impacts/threats to be managed are: • Weed invasion • Inappropriate fire regimes • Removal of fallen logs for firewood and slashing of habitat	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	Consultation with local councils and other public agencies					All major infrastructure corridors within nominated areas

Mitigation measures to address residual risks to flora

WEED INVASION

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Implement mitigation measures to manage weeds for flora populations and habitat adjacent to major infrastructure corridors during construction and operation of the development, taking into account relevant guidance in the Weed Control Implementation Strategy	Minimises indirect impacts to flora populations and habitat adjacent to major infrastructure corridors	*Dillwynia tenuifolia* *Pultenaea parviflora* *Persoonia nutans*	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat **C16:** Manage priority weeds in strategic locations in the Cumberland subregion to reduce threats to land secured within the strategic conservation area	State Significant Infrastructure assessment and approval					Outer Sydney Orbital in Wianamatta Regional Park M7/Ropes Crossing link Road
As above	As above	*Grevillea juniperina* subsp. *juniperina*	C6 and C16	State Significant Infrastructure assessment and approval					Outer Sydney Orbital in GPEC M7/Ropes Crossing link Road Western Sydney Freight Line

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
As above	As above	*Cynanchum elegans*	C6 and C16	State Significant Infrastructure assessment and approval					Outer Sydney Orbital at Cobbity

HYDROLOGY

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Implement mitigation measures to manage hydrology impacts to relevant flora species and habitat adjacent to major infrastructure corridors during construction and operation of the development	Minimises the risk of hydrological impacts to the species	*Cynanchum elegans*	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	State Significant Infrastructure assessment and approval					Outer Sydney Orbital at Cobbity

DISEASE

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Incorporate best practice site hygiene protocols to manage the potential spread of pathogens, such as Phytophthora and Myrtle Rust adjacent to potential habitat for relevant species	Minimises the risk of the spread of pathogens due to construction activities adjacent to potential habitat for the species	*Persoonia nutans*	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on	State Significant Infrastructure assessment and approval					Outer Sydney Orbital in Wianamatta Regional Park

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
			threatened species and their habitat						

TUNNELS

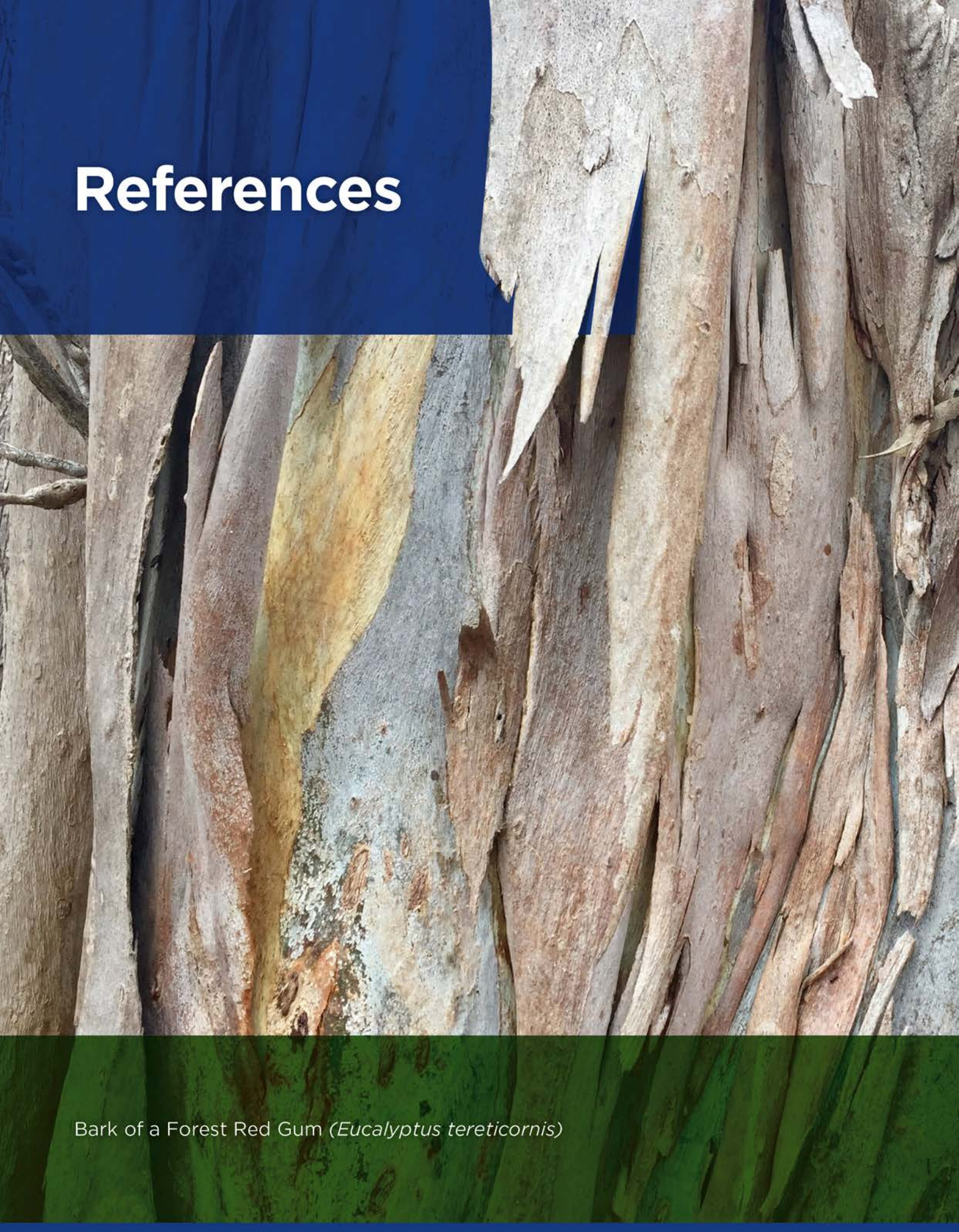
Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
Manage key threats to the species, including: • Hydrological disturbance • Spread of weeds • Spread of infection/disease • Soil erosion and sedimentation • Ground settling or subsidence	Minimises the risk of indirect impacts during tunnel construction and operation	*Cynanchum elegans*	**C6**: Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	State Significant Infrastructure assessment and approval					Outer Sydney Orbital tunnel
As above	As above	*Pimelea spicata*	C6	As above					Metro Rail Future Extension tunnel
As above	As above	*Pomaderris brunnea*	C6	As above					Outer Sydney Orbital tunnel

Mitigation measures to address residual risks to threatened ecological communities

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
When implementing mitigation measures to manage indirect impacts to Cooks River/Castlereagh Ironbark Forest, undertake mitigation in accordance with Best Practice Guidelines: Cooks River/Castlereagh Ironbark Forest (NSW DECC, 2008) within and adjacent to the TEC	Minimises the risk of several indirect impact types on the TEC adjacent to urban development and major infrastructure corridors	Cooks River/Castlereagh Ironbark Forest (NSW and Cth)	**C6:** Mitigate indirect and prescribed impacts on threatened species from major infrastructure (transport) development on threatened species and their habitat	State Significant Infrastructure assessment and approval					Outer Sydney Orbital at Wianamatta Regional Park
Incorporate best practice site hygiene protocols to manage the potential spread of pathogens, such as *Phytophthora* and Myrtle Rust adjacent to potential habitat for relevant TECs	Minimises the risk of the spread of pathogens due to construction activities for urban development or major infrastructure s adjacent to TECs	Cooks River/Castlereagh Ironbark Forest (NSW and Cth)	**C3:** Avoid and minimise impacts to threatened species, populations and communities within major infrastructure corridors in the nominated areas **C4:** Avoid and minimise impacts to threatened species, populations and communities in the four major infrastructure corridors outside the nominated areas	State Significant Infrastructure assessment and approval					Outer Sydney Orbital at Wianamatta Regional Park

Mitigation measure	Rationale for measure	Species	Commitment	Implementation mechanism	GPEC	WSA	GMAC	WTN	Other location
As above	As above	Cumberland Plain Woodland (NSW and Cth)	C3 and C4	State Significant Infrastructure assessment and approval					Outer Sydney Orbital adjacent to WSA Western Sydney Freight Line
As above	As above	River-flat Eucalypt Forest (NSW)/Coastal Floodplain Eucalypt Forest (Cth)	C3 and C4	State Significant Infrastructure assessment and approval	Y	Y	Y	Y	
As above	As above	Shale Gravel Transition Forest (NSW)	C3 and C4	State Significant Infrastructure assessment and approval					Outer Sydney Orbital at Wianamatta Regional Park
As above	As above	Swamp Oak Floodplain Forest (NSW)/Coastal Swamp Oak Forest (Cth)	C3 and C4	State Significant Infrastructure assessment and approval					Outer Sydney Orbital in GPEC

References



Bark of a Forest Red Gum *(Eucalyptus tereticornis)*

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