HUME CITY COUNCIL

LAND AND BIODIVERSITY PLAN 2015-2019

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HUME CITY COUNCIL

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ACKNOWLEDGEMENTS

Council acknowledges that we are on Gunung-Willam-Balluk land. The Gunung-Willam-Balluk of the Wurundjeri were the first and original people of this land.

1. INTRODUCTION

Hume City supports many significant heritage, landscape and biodiversity values. This includes a range of indigenous plants, threatened vegetation communities, wildlife, waterways and sites of cultural and geological significance. Many of these values, such as the ancient River Red Gums and deep waterway valleys of the volcanic plains, define the character of our landscape and contribute strongly to Hume City's identity and sense of place.

Hume City Council and its community have had a long involvement in managing land and biodiversity values. This work has been encapsulated in a number of strategies, most recently the *Sustainable Land Management Strategy 2009-2013* (SLMS) and the *Natural Heritage Strategy and Action Plan 2011-2015* (NHS), which have worked in parallel to set the management direction for land and biodiversity in Hume City over the past five years. Through the delivery of these strategies a number of achievements have been made (Figure 1).

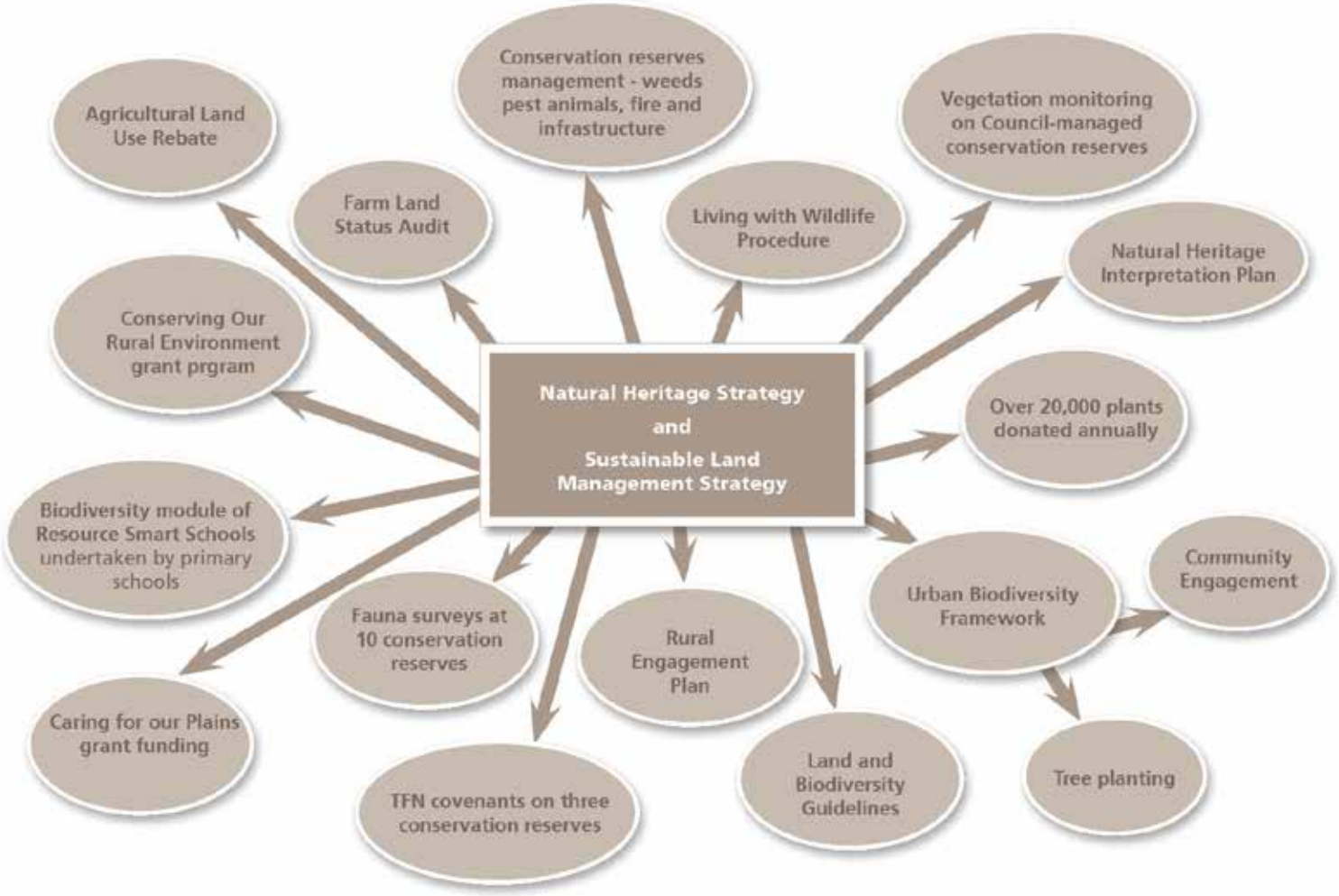


Figure 1: Achievements of the SLMS and NHS.

The *Land and Biodiversity Plan 2015-2019* (the Plan) is an amalgamation and revision of the SLMS and NHS and aims to build on their achievements to deliver improved outcomes for land and biodiversity over the next four years. It seeks to continue Council's coordinated approach to setting management actions, responsibilities and targets that are consistent with the *Hume Horizons 2040 Plan* and Hume City's overarching strategic document for environmental sustainability, the *Pathways to Sustainability Framework 2015-2019* (Pathways).

The Plan consists of:

- goals, background information and the planning and policy context for the management of land and biodiversity assets in Hume
- an overview of land and biodiversity values in Hume, threats to these values and opportunities for enhancement
- an action plan that sets the objectives, actions, responsibilities and targets for implementation over the next four years.

1.1 SCOPE

The Plan sets management direction for the following assets in Hume City:

- Biodiversity (indigenous plants and animals)
- Significant landscape features such as waterways and geological formations
- Cultural heritage sites and values on Council-managed land
- The urban forest, including trees in public open space, streetscapes and on private land.

How the Plan addresses these assets is defined within the context of Council's roles and responsibilities as a land owner and manager, a planning authority and a facilitator/provider of community support, education and capacity-building.

1.1.1 Land Ownership and Management

Hume City Council is responsible for managing a network of Council-owned conservation reserves that form part of the public open space across the municipality. Under State and Commonwealth legislation, Council has an obligation to manage these areas and key threats to biodiversity, such as weeds. Council also manages several high conservation Crown Land reserves and a number of conservation areas on municipal rural roadsides. Council also works collaboratively with other public land managers that manage sites that are a part of Hume City's conservation estate.

1.1.2 Planning

In accordance with the *Planning and Environment Act* 1987, Council is responsible for ensuring that all controls which regulate the protection of natural and cultural values under the Hume Planning Scheme are implemented via the planning process. Council must also continuously review the Hume Planning Scheme to ensure it adequately protects the environment. Council is also responsible for enforcing the Hume Planning Scheme and taking action to prevent and enforce against illegal works or development which negatively impact on Hume City's natural and cultural heritage.

Council works collaboratively with state and federal governments to ensure that state and federal legislation are implemented with new developments and enforced throughout the municipality. In addition, Council advocates to state and federal governments for the best planning outcomes for the Hume community and the local environment.

1.1.3 Community Support, Education and Capacity-building

Much of Hume City's biodiversity and other natural heritage assets occur on privately-owned rural land. Council has a role to play in supporting and building the capacity of land managers, particularly rural landowners, to protect and enhance these natural heritage assets and (where relevant) to continue to farm the land in a sustainable manner. Council also plays a role in engaging and educating the local community about natural and cultural heritage values and the importance of their preservation

Extensive conservation areas occur on land managed by the state government and other public land managers in Hume. Council has a role to play in supporting and partnering with these organisations to better manage land and biodiversity in Hume and achieve joint outcomes.

1.2 PURPOSE AND GOALS

In 2014 Council published the *Hume Horizons 2040 Plan* (2040 Plan) that captures the community's vision for the future of Hume, including environmental sustainability. The Land and Biodiversity Plan aims to assist Council in realising the 2040 Plan vision, specifically the vision of *a sustainably built and well-maintained city with an environmentally engaged community.* To achieve this, the Plan sets three goals:

GOAL 1: The City's natural heritage, environment and rural spaces are protected, enhanced, maintained and valued.

GOAL 2: Cultural heritage sites are identified, protected and effectively managed.

GOAL 3: Suburbs are leafier with increased canopy cover.

These goals underpin the objectives, targets and actions set out in the Action Plan (section 6).

1.3 PLANNING AND POLICY CONTEXT

Council will plan for and manage land and biodiversity assets in accordance with relevant federal, state and local legislation, policies and strategies. The *Land & Biodiversity Plan 2015 - 2019* will operate within the context of this legislation, policy and strategy and complement their approach.

1.3.1 Supporting Council Strategies

In addition to assisting the implementation of the 2040 Plan and Pathways, the Plan supports and complements a number of other Council strategies and plans (Figure 2).

Figure 2: Council's strategy framework supporting the implementation of the Plan

1.4 IMPLEMENTATION

The Plan takes a 'whole of organisation' approach, identifying several Council departments to provide leadership and assistance in implementing the action plan. In accordance with Pathways, Council will take a partnership approach with other public land managers in Hume, the community and other key stakeholders to implement the plan and work toward mutual outcomes for land and biodiversity in the region. This will be achieved by fostering partnership projects where possible and increasing overall collaboration.

Regular information about the Plan will be provided through a range of communications (such as articles in local media, Live Green and RE-Source newsletters, Hume City Council's website, Hume Pride etc.). Progress on the implementation of the Plan will be through Council's annual Sustainability Report, the Hume City Council Plan reporting, and the annual Hume City Council Annual Report. A full review of the Plan will be undertaken in 2019.

2. OVERVIEW OF HUME CITY'S LAND AND BIODIVERSITY

Humans cannot live without land and the biodiversity it supports. They provide the foundation of our economy and our food supply and provide a number of valuable 'ecosystem services' that underpin our existence, including the production of soil, fresh water and air and the provision of spaces to live and recreate.

2.1 LANDSCAPE

Hume City's landscape covers an area of approximately 504 square kilometres, which is topographically characterised by expansive plains interspersed with volcanic hills and intersected by several deeply-incised river valleys. These landscape features are overlain by a cultural landscape dominated by urban development, extensive rural areas supporting an agricultural community and scattered remnant woodlands and grasslands.

2.1.1 Geology and Geomorphology

Hume supports a number of significant geological and geomorphological features, such as volcanic cones, road cuttings and river sediments. The Geological Society of Australia (GSA) has identified 30 such features in the Hume area. Collectively, they are known as Sites of Geological and Geomorphological Significance (GGS).

In addition to GGS sites, Hume contains many old volcanic cones that form scenic hilltops and a number of major ridgelines adjacent to creek valleys. These geomorphological features contribute to Hume City's rural and natural landscape character.

2.1.2 Waterways and Wetlands

Waterways and wetlands form some of the most iconic natural features in the Hume region. They also support Hume City's biodiversity and are fundamental to its preservation.

Hume supports five major waterways and hundreds of smaller connecting tributaries. In the west of the municipality, the Jacksons, Deep and Emu creeks form the Maribyrnong Catchment, while in the east the Merri and Moonee Ponds creeks form a part of the Yarra Catchment. These waterways vary in their degree of health. Council is responsible for managing several creek-side reserves along these creeks and for ensuring, through the planning process, that developments do not have a detrimental impact on waterways, including their physical form, water quality and the biodiversity they support.

Council manages several wetlands in Hume, often occurring on a creek floodplain. These wetlands support local biodiversity, particularly birds and aquatic species, and play an important role in collecting and filtering run-off from urban areas.

2.1.3 Rural Areas and Agriculture

Hume City's rural areas support an agricultural community that relies on the landscape's natural resources, such as soil, nutrients and water, to produce food and other products. The dominant agricultural pursuit in Hume is grazing, which occupies approximately 85% of rural land. Other minor industries include horse management, grape and olive production and cereal production. The long-term viability of this production and the rural way of life is dependent upon the land's resources remaining healthy.

In addition to supporting production, the rural areas are also valued aesthetically by the broader community, providing scenic views and a counterpoint to the urban landscape. Many landowners in Hume choose to live in the rural areas for lifestyle reasons, enjoying the rural / natural setting that their property affords and the biodiversity it supports.

2.1.4 Native Vegetation

Hume supports some of the most endangered vegetation types in Australia, including grassy woodland and grassland. These vegetation communities once dominated the Hume landscape, but due to historic urban and rural development, only 24% of Hume's original native vegetation now remains in fragmented patches (Figure 3). Complementing the larger patches of vegetation are smaller remnants and areas that have been revegetated, both of which form stepping stones between the larger patches and creek corridors.

The majority of Hume City's remnant vegetation occurs on privately-owned rural land. This includes extensive areas of grassy woodland, grassland, riparian and escarpment vegetation. The remainder occurs within hundreds of parks and reserves managed by either Council or State government agencies.

The retention of native vegetation across the landscape is fundamental to the survival of many native flora and fauna species and to the ability of the environment to continue providing us with ecosystem services. The retention of scattered old trees, which are one of the most visible and iconic features of the Hume landscape, is also important to biodiversity conservation.

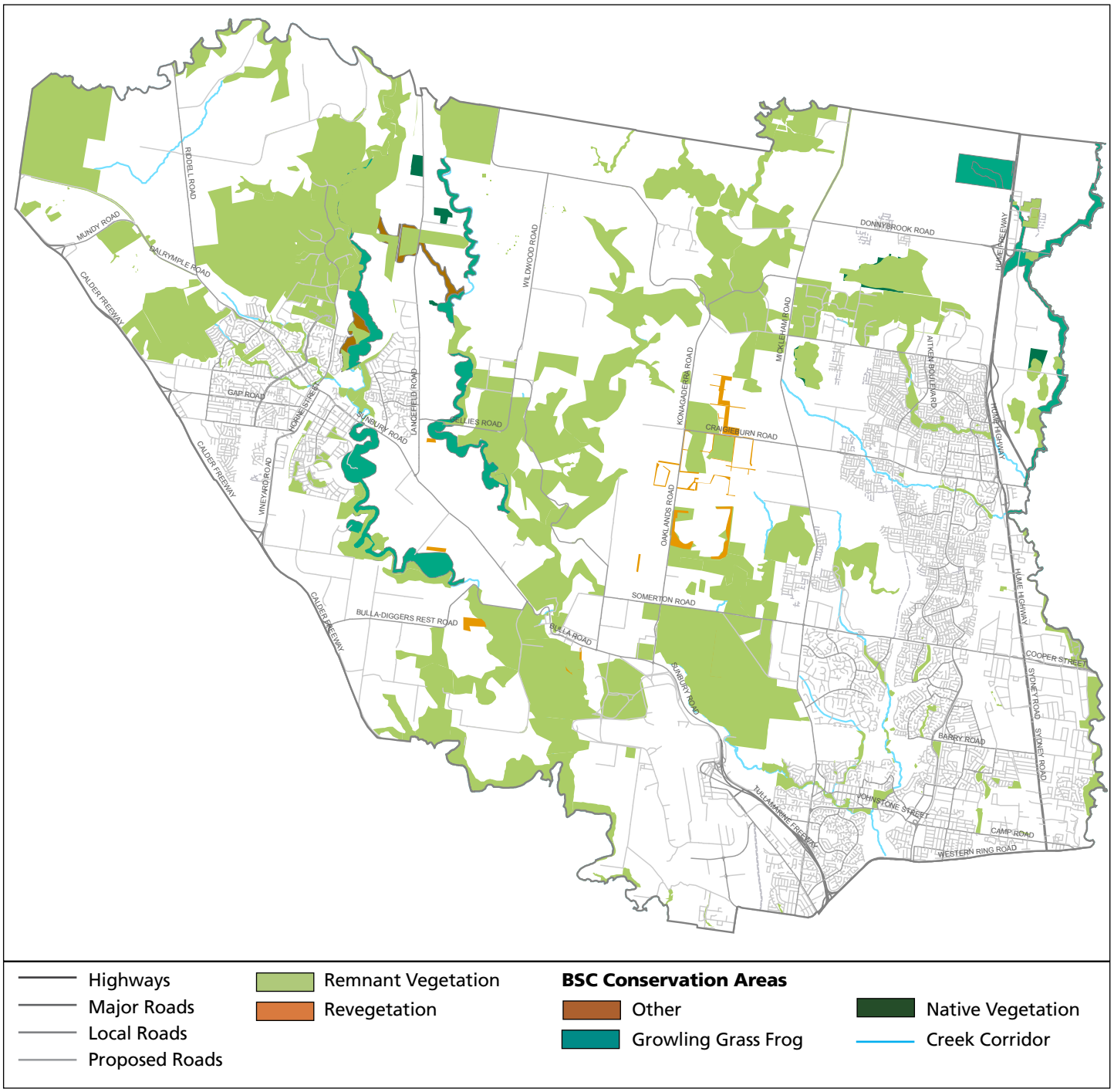


Figure 3: Existing native vegetation cover in Hume, demonstrating a high degree of vegetation fragmentation.

2.1.5 Wildlife

Native wildlife species are an integral component of Hume City's biodiversity and are important to the function of healthy ecosystems. Despite significant landscape change, habitat degradation and the introduction of invasive species, a number of sites in Hume continue to support both common and threatened native wildlife. Eastern Grey Kangaroos and native birds are among the more commonly sighted wildlife species, while less common species include the elusive Platypus and the threatened Growling Grass Frog and Golden Sun Moth.

Council manages several sites that support native wildlife species. Management plans for these sites and on-ground activities must be considerate of their habitat requirements, particularly where threatened species occur.

2.3 CULTURAL HERITAGE

Humans have had a long association with the Hume landscape, from the early indigenous tribes that occupied a relatively natural landscape, to the early colonial people that pioneered a rural way of life and profoundly changed the landscape.

2.3.1 Cultural Heritage Sites

Evidence of this land's cultural origins can be found at a number of locations across the municipality. Indigenous heritage includes camp sites, scar trees, middens, stone tools and bora rings. Non-indigenous heritage includes buildings, dry stone walls and sites where historical events have taken place. These heritage relics and sites form part of a cultural legacy that is highly valued historically, spiritually and scientifically by our community. As such, their preservation is important.

2.4 URBAN FOREST

A suburb that is greener, with a higher density of trees and shrubs in urban yards, on nature strips and in parklands, provides many benefits to the community and to biodiversity, and contributes to the aesthetic value, identity and character of an area.

Collectively the entire population of trees and woody shrubs within the urban environment is known as the Urban Forest. Hume City's urban forest positively contributes to the urban environment by absorbing heat and providing shade, which reduces solar radiation resulting in a reduction in the urban heat island effect. The urban forest also provides important habitat for wildlife in urban areas, reduces the impacts of storm water run-off, assists in air purification and mitigates the effects of climate change.

For Hume City's urban forest to effectively deliver these benefits to the community and to maintain biodiversity the number of trees and shrubs in streetscapes, urban yards, public spaces and in parklands must be increased and existing trees must be protected.

3. THREATS AND IMPACTS FOR LAND AND BIODIVERSITY

Part 1.2 of the Plan sets the following goals to protect and enhance land and biodiversity:

- The City's natural heritage, environment and rural spaces are protected, enhanced, maintained and valued.
- Cultural heritage sites are identified, protected and effectively managed.
- Suburbs are leafier with increased canopy cover.

The following threats and impacts are identified as the most important current barriers to achieving these goals.

3.1 DEVELOPMENT PRESSURE

Significant urban and industrial development will continue to be carried out in Hume City's growth corridors in the coming decades. This development will result in the loss of native vegetation and the habitat of some species of fauna, damage to natural areas, biodiversity loss and impacts on the ability of the environment to provide ecosystem services. While the population of some species will decline, other more mobile and adaptive species will place additional demand on the reserve system, rural areas and the urban environment to meet their resource needs.

3.2 HABITAT LOSS AND FRAGMENTATION

Habitat loss is the primary threat to species on Earth (Fischer and Lindenmayer, 2007, p. 268). In Hume, past land clearing for urban and rural development has resulted in the decline of native vegetation, significantly reducing habitat for many species. This includes the loss of many hollow-bearing trees across the landscape which provide nesting sites for a number of fauna species. Development continues to place pressure on existing habitat in the growth corridors.

Habitat loss over time has led to landscape fragmentation, whereby patches of native vegetation occur in isolation surrounded by a rural and urban matrix (Figure 3). Fragmentation reduces landscape connectivity, limiting ecosystem function and native plant and wildlife movement across the landscape.

The long-term survival of many species in this landscape will be tested if the current extent of native vegetation and its connectivity do not increase. A vegetation extent of at least 30% in a fragmented landscape is considered necessary for bird and mammal persistence (McIntyre and Hobbs, 1999, p. 1285) and species extinction cascades are likely to occur when landscape vegetation cover is low, particularly below 30% (Fischer and Lindenmayer, 2007, p. 272). Hume City's extent is currently at approximately 24%.

3.3 CLIMATE CHANGE

Climate change is placing additional stress on the land and its biodiversity. Agricultural production, which is already a challenging pursuit in Hume, is becoming more challenging and unviable in some instances. Some species of flora and fauna will be unable to tolerate or adapt to changing climatic conditions in a sufficient timeframe, resulting in decline. Waterways are also being negatively affected, which has further consequences for biodiversity.

It is likely that the valleys and escarpments will be less vulnerable to future climate change impacts than the plains. These areas are naturally buffered from extreme variation in climatic condition and will serve as important habitat refugia (areas that will support more species and assemblages than other areas in the landscape) as climate change progresses (National Climate Change Adaptation Research Facility). The drainage lines and streams they support are moister than the surrounding landscape and can support greater species survival and reproduction (Soderquist and Mac Nally, 2000).

Climate change will impact on the agricultural sector in Hume, resulting in loss of production, increased weed infestation and a general impoverishment of the rural landscape. The agricultural sector will need to adapt if possible and alternative, sustainable land use options will need to be sought as climate change intensifies.

Climate change will also continue to impact on the urban environment, particularly through the heat-island effect, whereby temperature increases in urban areas due to the extent of non-permeable surfaces such as roads and buildings. This will have a negative impact on the local community, wildlife and gardens.

3.4 WATERWAY AND WETLAND DEGRADATION

Pollution is a significant issue for waterways in Hume. Pollutants, including sediment, residues from herbicides, pesticides and fertilisers, faecal contaminants from livestock, oils, household chemicals and industrial chemicals, enter streams directly or via stormwater. Some of these pollutants render a waterway inhospitable to fauna, particularly sensitive species like macro-invertebrates and frogs, and some plants.

The level of flow in waterways can be reduced by drought and human interventions such as damming and other extractions. When flow is very low, the nutrient and pollution-rich water can become stagnant, triggering algal blooms. These blooms feed off the nutrients, heavily depleting dissolved oxygen levels that aquatic species depend upon. In wetland systems excessive nutrient and pollutant input from adjacent urban land significantly increases the risk of algal blooms and can be toxic to some aquatic fauna. Bird feeding can exacerbate the issue by attracting larger flocks of waterbirds that contribute excessive faecal contamination. This can also make the wetland unsightly and attract vermin such as rats.

It is important that developments adjacent to waterways do not significantly alter local water flow and that sediment is retained on site so it does not wash into the waterway, increasing turbidity to dangerous levels for aquatic life.

3.5 EROSION

Soil erosion is a common issue in some of Hume City's river valleys, where past vegetation removal has altered the flow of water. It is particularly prevalent along the Jacksons Creek Valley, where the sodic (salt-rich) soils are highly susceptible to dispersing, resulting in the formation of tunnel and gully erosion (Environmental Earth Sciences, 2010). Erosion can have a negative impact on biodiversity and cultural heritage values.

3.6 WEEDS

Weeds present one of the greatest threats to biodiversity, particularly to sensitive native flora species, through direct competition for space, light, water and nutrients. They also present a challenge to the agricultural sector. It is estimated that weeds cost the Australian economy $4 billion per year in management and lost production (CSIRO).

Weeds such as Serrated Tussock, Chilean Needle Grass and Artichoke Thistle are widespread and persistent in Hume, despite a concerted effort by Council and landowners to control them and contain their spread. This problem will be further compounded by climate change, and new weed threats are likely to emerge in the changing climate.

The Department of Economic Development, Jobs, Transport and Resources (DEDJTR) is responsible for enforcing and regulating weed management in Victoria in accordance with the *Catchment and Land Protection Act* 1994. Its approach, as outlined in the Biosecurity Strategy, is focussed on the protection of assets and preventing further spread of noxious weeds from areas of widespread infestation. The most invasive noxious weeds, such as Serrated Tussock and Chilean Needle Grass, are widespread in much of Hume. As such, little weed enforcement from DEDJTR occurs in Hume, which presents a further challenge to minimising the impact of these weeds.

3.7 PEST ANIMALS

Pest animals are a primary threat to biodiversity and can also be problematic in agricultural areas. Rabbits threaten native vegetation through grazing and soil disturbance. They also have a major impact on waterways by causing soil bank erosion. Foxes predate on native fauna and are considered a pest in agricultural areas due to livestock predation.

A review of Council's pest animal management program was undertaken in 2014. One of the key recommendations of this review was that Council continue to manage rabbits as a high priority on Council-managed land and integrate a number of management techniques such as poison baiting, fumigation, fencing and harbour removal to enhance success. Some resources were also recommended for fox management.

Linked to these recommendations is Council's ongoing commitment to supporting and building the capacity of the community to manage these pests. Other pest animals, such as feral goats and Common Mynas, were deemed to be of less concern to land and biodiversity, but should continue to be monitored in the region.

3.8 INAPPROPRIATE LAND MANAGMENT

A number of landowners degrade their land and its biodiversity through the use of inappropriate land management activities. One of the most visual and damaging of these activities is overgrazing (or overstocking), which destroys native vegetation and pastures and, in extreme cases, creates large areas of bare earth. In this state, neither native vegetation, nor pasture can re-establish sufficiently.

Property neglect is another common issue in Hume. Weed infestations dominate these neglected properties, becoming a source of weed invasion for other rural properties and conservation areas.

A number of unlawful activities are still practiced in Hume, despite increasing knowledge of the issues they present to land, waterways, biodiversity and cultural heritage. These include soil dumping, clearing of native vegetation and interference with creeks and drainage areas where permits have not been issued.

3.9 LACK OF KNOWLEDGE OF CULTURAL HERITAGE VALUES

Although some sites and assets of cultural heritage importance are known to Council, it is likely that many remain unidentified on Council-managed land due to a lack of detailed investigation. In addition, Council does not have detailed information about the significance of sites and assets that are currently known and how they should be managed. As a result, their long-term preservation may be at risk from the current management regime or future development.

3.10 LACK OF KNOWLEDGE OF LOCAL FAUNA POPULATIONS

Although Council undertook fauna surveys in 2012 and 2013 across 10 sites, the majority of Council-managed sites are yet to be surveyed and knowledge of wildlife populations in Hume and their management requirements are largely unknown. Greater knowledge of fauna populations is critical to their long-term survival, particularly in Hume City's grasslands and woodlands which are subject to a high extinction rate.

3.11 LACK OF COMMUNITY CONNECTEDNESS TO NATURE

When people build a connection to a place or value, their level of appreciation increases and they are more likely to care for it and take action to ensure its protection (Hume City Council, 2015a). Although 67.5% of the Hume community believe it is important to protect bushland and grasslands (Hume City Council, 2015b), environmental stewardship within the community is limited to a small number of environmental groups such as Friends groups and Landcare. Lack of connectedness to nature is likely to be a key driver of this.

4. EXISTING PROGRAMS ADDRESSING THE THREATS

Council has a long history of developing and implementing projects and programs and working with the community to protect and enhance land and biodiversity. The following table outlines existing Council projects and programs that address the threats identified in section three. Council will continue these valuable programs and enhance them where possible. Opportunities for enhancement are identified in section five.

Threats	Program / Project	Purpose
Habitat loss and fragmentation, weeds, pest animals, erosion, inappropriate land management, lack of community connectedness to nature	Conserving our Rural Environment Grant	The program assists landowners to protect environmental assets on their land and address fragmentation by improving landscape connectivity.
	Agricultural Land Use Rebate	The program assists Council in addressing inappropriate land use and weeds across the rural landscape. It also supports landowners with an agricultural land use to continue their agricultural activities in a sustainable way.
	RE-Source Newsletter	RE-Source, Council's rural environment newsletter, aims to provide rural landowners with information and assistance to manage their land more sustainably. It also promotes training opportunities and incentives.
	Rural Engagement	A Rural Engagement Plan was developed in 2014 to guide Council's engagement with the rural community. It identifies several opportunities to address land management issues through engagement activities, partnerships and advocacy around weed management issues.
	Natural Landscape Management	Council manages over a hundred conservation sites across Hume through activities such as weed control, revegetation and ecological burning.
	Conservation Reserves Monitoring Program	The program surveys vegetation quality and extent annually at Council-managed conservation sites to monitor change over time and assist in assessing the effectiveness of management.
Pest animals	Pest Animal Management Program	Through the program Council undertakes rabbit control at a number of conservation sites and some fox management. The program also aims to build community capacity to manage pest animal issues.
Habitat loss and fragmentation, lack of community connectedness to nature	Greening Program	The program works with community groups, schools, businesses and residents to revegetate public land. This assists in enhancing local biodiversity, landscape connectivity and Hume City's urban forest.
	Live Green Program	Live Green, Council's sustainability engagement program, includes a focus on building connection to nature. Through the program Council runs several biodiversity engagement activities including school incursions and citizen science activities such as wildlife surveying and waterway monitoring.
Waterway and wetland degradation, inappropriate land management	Water Sensitive Urban Design	Council implements an annual program of water sensitive urban design initiatives to improve the quality and quantity of water entering local waterways, including the creation of wetlands, rain gardens and swales.
	Industrial Stormwater Code of Practice	Through the application of the Industrial Stormwater Code of Practice, Council can ensure that all new buildings and uses in industrial areas adequately protect waterways from pollutants and excess nutrients.
	Planning Enforcement	Council undertakes planning enforcement to ensure that adherence to the Hume Planning Scheme is met. The Sustainable Environment Department specifically focuses on the implementation of Site Construction Environmental Management Plans, native vegetation removal and illegal works in rural areas.
Climate change, habitat loss and fragmentation	Street and Reserve Tree Management	Council implements a tree management system with an inventory of over 160,000 street and reserve trees, each of which are monitored and managed.
	Tree Planting and Establishment	Each year, an additional 5,000 street trees and several thousand reserve trees are planted, all of which contribute to Hume City's urban forest.

In addition to these programs, Council also recognises the efforts of other land managers and the community in protecting and enhancing Hume City's conservation estate. The following table outlines some of the key activities of the community and external organisations. Council will support the work of these organisations and seek partnerships when opportunities arise.

Organisation	Overview of projects / programs
Local Friends groups and Landcare groups	Several Friends groups and Landcare groups exist in Hume. Each is comprised of a group of local residents or landowners committed to improving the environmental values and amenity of local reserves and improving the condition of rural land. These groups undertake valuable revegetation and landscape improvement project each year in Hume.
Parks Victoria (PV)	Parks Victoria manages several large reserves in Hume that support both environmental and cultural heritage values. These include Woodlands Historic Park, Bababi Marning (Cooper St Grasslands), Mt Ridley Nature Reserve and Holden Flora and Fauna Reserve.
Merri Creek Management Committee (MCMC)	MCMC is a not-for-profit organisation that advocates for the protection of the Merri Creek catchment and its ecological values. It also manages a number of significant conservation sites in Hume on behalf of Council, runs a community engagement program and attracts grant funding for conservation projects.
Melbourne Water (MW)	Melbourne Water manages waterways, several floodplains and water catchment areas providing ecological services in Hume. MW also supports Council and community restoration projects along waterways through grants it offers.
Port Phillip & Westernport Catchment Management Authority (PPWCMA)	The PPWCMA assumes a coordination role for natural resource management in the region through the Regional Catchment Strategy. It also coordinates several flagship projects in the region, including the Greening the Maribyrnong project in Hume.
Conservation Volunteers Australia (CVA)	In partnership with PV, CVA is championing a program to re-establish a population of the critically endangered Eastern Barred Bandicoot at Woodlands Historic Park.
Wurundjeri Tribe Land Compensation and Cultural Heritage Council (Wurundjeri Council)	The Wurundjeri Council is the Registered Aboriginal Party for the Hume area. It manages sites within Hume that support both indigenous cultural heritage values and environmental values, including the highly significant Sunbury Bora Rings sites.
Australia Pacific Airports Melbourne (APAM)	APAM manages Melbourne Airport, the largest contiguous land area within Hume. It implements a number of environmental initiatives to improve land and biodiversity at the site, including the monitoring and management of waterways and the management of pests, significant conservation sites and cultural heritage values.

5. OPPORTUNITIES FOR ENHANCEMENT

Many opportunities exist to address the threats and impacts on land and biodiversity outlined in section 3 and to enhance Council's existing land and biodiversity programs outlined in section 4. The following table outlines these opportunities, the threats and impacts they will address, the existing programs / activities they relate to and actions they relate to in the action plan (by action ID).

Threats	Current programs / activities	Opportunities for enhancement	Related Action(s)
Habitat loss and fragmentation Climate change	Offer incentives to rural landowners to protect and enhance biodiversity and increase vegetation extent in the rural areas.	1. Reducing landscape fragmentation and increasing connectivity is a fundamental challenge in Hume. Investment through the current incentive programs is targeted toward flagship areas and other areas of environmental significance where possible. However, investment could be better targeted to meet this challenge if a landscape connectivity plan is developed. This will identify where the best opportunities exist within the landscape to increase connectivity and support Hume City's biodiversity in a changing climate. Partnering with other key land managers in the region will ensure the plan has worth and can be more comprehensively implemented.	1
	Plant thousands of native plants within conservation reserves and along waterways.	2. Revegetation can be undertaken more strategically by pursuing projects within each key linkage identified in the landscape connectivity plan. Developing and implementing works plans for all Council-managed sites within each linkage will guide on-ground improvements to vegetation connectivity. Where these sites adjoin land owned by other public land managers, joint planning should be pursued. In addition, preparing developer guidelines for each linkage in Hume City's growth corridors will assist developers to effectively consider connectivity within their developments.	2 & 3
	Plant several thousand trees and shrubs annually on streetscapes and within Council-managed reserves for amenity, shade and wildlife habitat.	3. To guide Council's tree management program and vision of creating greener suburbs, the Urban Forest Plan should be finalised and implemented.	20
		4. In order for Council-managed land to contribute to greener suburbs, Council must seek a net increase in the number of trees and shrubs in these spaces. Developing a net-gain procedure for the replacement of trees in projects on Council-managed land will be a catalyst for this.	21
		5. The importance of shading in public open space and streetscapes will increase in the future as a result of climate change. Implementing a tree planting shade program will enable the current and future community to continue to enjoy these spaces.	21
		6. Trees significantly influence the local character of suburbs. Under climate change, some tree species will perform better than others, which may influence changes to the local character of streetscapes and open space. Facilitating a community engagement process will enable Council to explore the community's aspirations for streetscapes and open space in the future, including the desired characteristics of trees to suit a range of purposes.	20
	Implement a tree management system, with an inventory of over 160,000 trees that are monitored and managed.	7. Baseline data for canopy cover in Hume was captured in a 2014 survey. Canopy cover is an effective measure of the ability of an urban forest to provide shade and reduce the heat-island effect. Expanding the tree monitoring program to include a canopy cover assessment every five years will assist Council in targeting resources to where they will have the greatest impact and ultimately reaching a desired canopy cover for each neighbourhood.	21

Threats	Current programs / activities	Opportunities for enhancement	Related Action(s)
Development pressure Waterway and wetland degradation Inappropriate land use	Acquisition and management of newly-established public open space and conservation areas through the development process.	8. Council routinely acquires or is gifted land in new development areas to manage as part of the broader public open space network, including wetlands, waterways, escarpments, conservation areas and other encumbered land that all have landscape and biodiversity values and often have recreation nodes or trails enabling community access and enjoyment. Extensive areas within the Sunbury and Hume growth corridors, such as the Jacksons Creek, Emu Creek and Merri Creek corridors, will become significant community assets in the future. These areas will require improvement and management and are of regional and State significance in scale and value. While Council is an appropriate body to manage some of this land (i.e. key recreation nodes and trails), State government agencies such as Parks Victoria and Melbourne Water will also need to acquire and manage these areas to ensure the management of the corridors is financially sustainable. Advocating for the designation of these areas as regional parklands and for State government acquisition and management of these significant assets will assist in securing and ensuring a sustainable outcome.	9
Development pressure Waterway and wetland degradation Inappropriate land use	Apply overlays and other planning mechanisms to protect important landscape elements through the planning scheme and to regulate land use.	9. An environmental planning policy audit was undertaken in 2014. Implementing the recommendations of this audit will strengthen planning scheme protection of significant sites, including conservation reserves, waterways, sites of geological significance and cultural heritage sites. Recommendations include a review of overlays to incorporate flagship areas and other environmental / landscape assets, policy development and a local offsets program.	5
		10. Few private landowners in Hume have secured permanent protection of their conservation areas via covenants. This should be more actively encouraged with the assistance of Trust for Nature.	6
		11. Hume City's rural areas are changing due to significant urban development in the growth corridors. Identifying green wedge values and optimal land use options will assist Council in supporting a productive and well-managed green wedge into the future.	8
	Provide incentives to manage land sustainably through the Agricultural Land Use Rebate and CoRE grant.	12. Overgrazing persists as a key issue affecting the land and native vegetation in rural areas. Targeting this issue through education and incentives will assist in reducing its impact on Hume's rural areas.	4
Lack of community connectedness to nature	Raise community awareness of the value of biodiversity through planting events, workshops, field days and tours.	13. Many of the public land sites that support land and biodiversity assets are not well known within the community or their values are little understood. Implementing the Natural Heritage Interpretation Plan, including nature trails, signage and supporting information will assist in raising awareness of these important sites and fostering a connection between people and place.	10
		14. Raising awareness about the impacts of feeding wildlife, particularly birds, on biodiversity and wetland health will assist in addressing these issues.	11

Threats	Current programs / activities	Opportunities for enhancement	Related Action(s)
Lack of knowledge of local fauna populations	Monitor native vegetation annually within conservation reserves through the Conservation Reserves Monitoring Program.	15. The monitoring program is providing Council with reliable data on the state of each conservation site. However, the habitat function of these sites for fauna is not well understood. Expanding the program to include annual fauna surveying will address this. In addition, the inclusion of monitoring within some private land conservation areas will provide a more holistic understanding of the state of Hume City's conservation estate and its habitat function to inform Council investment in environmental management.	12 13 14
Pest animals Weeds	Manage conservation sites on Council-managed land through activities such as weed control, ecological burning, fencing, pest animal control and revegetation.	16. The Pest Animal Management Program was reviewed in 2014, generating a number of recommendations. Implementing these recommendations, which include a review of priority sites and methodology, increased rabbit-proof fencing and enhanced community engagement, will improve the performance of this service.	16
Lack of knowledge of cultural heritage values	Consider cultural heritage through the planning scheme and in master plans for open space.	17. To build Council's capacity to manage cultural heritage more effectively, and to gain a strong understanding of local indigenous history, training should be provided to staff and other stakeholders where required.	16
		18. The extent of cultural heritage sites and relics on Council-managed land is not well understood. Undertaking a heritage survey of Council-managed reserves to identify and map where cultural heritage values exist will inform site management plans and master plans and will trigger the development of Cultural Heritage Management Plans when required.	17 18
		19. To recognise and promote Hume City's indigenous history, Council should identify opportunities to utilise indigenous words and names for reserves and features, particularly at culturally-significant sites.	19

6. ACTION PLAN

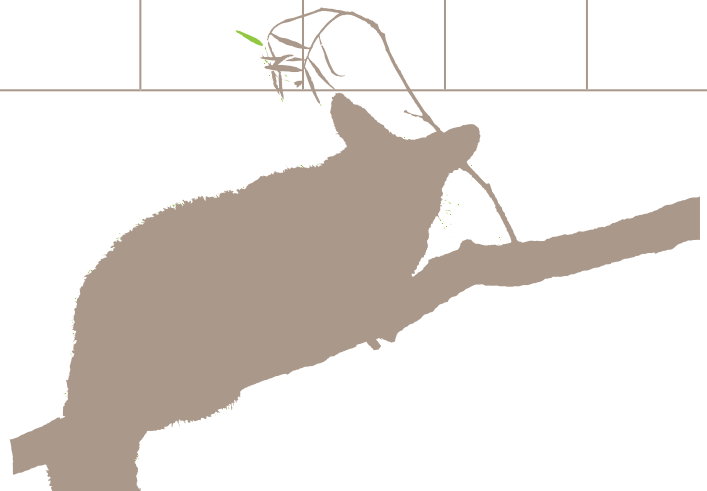
A four-year action plan has been developed to guide Council in pursuing the opportunities identified in section 4. For each goal it identifies objectives, actions, the role that Council departments will play in implementing the actions, external partners / stakeholders, timeframes for completion and the financial investment required by Council to achieve positive change. Targets and measures have also been identified for each objective.

GOAL 1: THE CITY'S NATURAL HERITAGE, ENVIRONMENT AND RURAL SPACES ARE PROTECTED, ENHANCED, MAINTAINED AND VALUED.

ID	Action	Responsibility	Complete Action By:	Resources and Implementation Timeframes				Budget Source
				2015/16	2016/17	2017/18	2018/19	
1	Develop a Landscape Connectivity Plan that identifies existing and potential vegetation corridors, buffers and stepping stones between core habitat areas and barriers to species movement throughout the landscape.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces **Partners:** PV, MW, PPWCMA, MCMC	June 2017	✓	✓			Existing human resources.
2	Develop and implement works plans for each key vegetation linkage identified in the Landscape Connectivity Plan on Council-managed land, to guide revegetation and other enhancement activities.	**Lead:** Parks & Open Spaces Support: Sustainable Environment, Leisure & Youth Services, Subdivisions, Strategic Planning **Partners:** PV, MW, PPWCMA, MCMC, APAM, Friends groups and Landcare	June 2019		✓	✓	✓	Existing human resources
3	Prepare developer guidelines for each key vegetation linkage that falls within Hume City's growth corridors.	**Lead:** Sustainable Environment, Strategic Planning **Support:** Parks & Open Spaces **Partners:** Developers	June 2017		✓	✓		Existing human resources.
4	Target the issue of overgrazing in the rural areas through the provision of information, advice and financial support through the CoRE grant and Agricultural Land Use Rebate.	**Lead:** Sustainable Environment **Partners:** Landcare	Annually		✓	✓		Existing human resources.
5	Implement the actions of the environmental planning policy audit, including updating the existing planning mechanisms to protect significant landscapes, features, conservation areas and offset sites.	**Lead:** Sustainable Environment **Support:** Strategic Planning, Statutory Planning, Subdivisions, Parks & Open Spaces	December 2016	✓				Sustainable Environment recurrent budget ($30,000)

ID	Action	Responsibility	Complete Action By:	Resources and Implementation Timeframes				Budget Source
				2015/16	2016/17	2017/18	2018/19	
6	Encourage and support landowners to permanently protect conservation areas on private land through the application of on-title protection mechanisms such as conservation and offset covenants.	**Lead:** Sustainable Environment **Support:** Statutory Planning **Partners:** TFN	Annually	✓	✓	✓	✓	Existing human resources.
7	Investigate the implications of erosion for public safety and asset protection.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces, Social Development, Engineering & Assets	June 2017		✓			Existing human resources
8	Identify green wedge values (landscape, cultural heritage, biodiversity, agricultural) and confirm optimal land use options to support a productive and well-managed green wedge.	**Lead:** Strategic Planning **Support:** Sustainable Environment, Economic Development, Social Development	June 2016	30,000				Strategic Planning recurrent budget.
9	Advocate to the State Government for greater certainty on the future ownership and management of the escarpment land and conservation areas along the Jacksons Creek and Emu Creek corridors in Sunbury and the Merri Creek in the Hume Corridor, and to identify both the Jacksons Creek Corridor and Merri Creek Corridor as Regional Parks of State significance.	**Lead:** Strategic Planning **Support:** Sustainable Environment, Leisure & Youth Services, Parks & Open Spaces	June 2016 and ongoing	✓	✓	✓	✓	Existing human resources.
10	Implement the Natural Heritage Interpretation Action Plan, including interpretive media and signage for nature trails and places of interest across Hume. (Approved by Council on 13 April 2015)	**Lead:** Sustainable Environment **Support:** Marketing & Communications, Parks & Open Spaces, Leisure & Youth Services, Subdivisions **Partners:** PV, MW, Wurundjeri Council	June 2018		$20,000	$224,900	$12,000	Approved recommendation to refer costs to the 2016/17 Capital Works budget process.
11	Implement an anti-bird-feeding campaign with education and signage to reduce the impacts of swooping and wetland degradation.	**Lead:** Sustainable Environment **Support:** Marketing & Communications, Parks & Open Spaces, Leisure & Youth Services, Subdivisions **Partners:** MW, Friends groups	Annually		✓	✓	✓	Existing human resources.

ID	Action	Responsibility	Complete Action By:	Resources and Implementation Timeframes				Budget Source
				2015/16	2016/17	2017/18	2018/19	
12	Undertake a year-long survey of fauna within Council-managed conservation reserves to identify suitable sites and methodology for an ongoing monitoring program.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces **Partners:** Friends groups, MCMC, MW, PV	June 2016	✓				Sustainable Environment recurrent budget. ($50,000)
13	Subsequent to action 12, develop and implement an ongoing fauna monitoring program that uses a suite of indicator species with different dispersal abilities and habitat characteristics that will integrate with the Conservation Reserves Monitoring Program.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces **Partners:** Friends groups, MCMC, MW, PV	June 2019		✓	✓	✓	Sustainable Environment recurrent budget. ($150,000 - $50,000 per year)
14	Commence a program of flora and fauna monitoring within conservation areas on private rural land to integrate with the Conservation Reserves Monitoring Program and CoRE grant.	**Lead:** Sustainable Environment **Support:** Strategic Planning **Partners:** Landcare	June 2019		✓	✓	✓	Proposed that $30,000 of the existing $150,000 CORE Small Grant per year be allocated to this. Participation is expected to remain below 80% of this cap.
15	Implement the recommendations of the Pest Animal Management Service Review, including additional rabbit-proof fencing, a review of sites included in the on-ground works program and enhanced community engagement around pest animal management.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces	June 2019		$10,000	$10,000	$10,000	Additional recurrent funding request from 2016/17 by Sustainable Environment.



GOAL 2: CULTURAL HERITAGE SITES ARE IDENTIFIED, PROTECTED AND EFFECTIVELY MANAGED.

ID	Action	Responsibility	Complete Action By:	Resources and Implementation Timeframes				Budget Source
				2015/16	2016/17	2017/18	2018/19	
16	Provide training and capacity building activities to build staff knowledge and action about local Indigenous history, indigenous sites in Hume and how to integrate their protection into Council decision-making and management.	**Lead:** Sustainable Environment **Support:** Social Development, Parks & Open Spaces **Partners:** AAV, Wurundjeri Council	Biennially from July 2016					Existing human resources.
17	Undertake a heritage study to identify Indigenous cultural heritage sites on Council land and provide recommendations for their protection.	**Lead:** Sustainable Environment **Support:** Parks & Open Spaces, Strategic Planning, Statutory Planning, Leisure & Youth Services **Partners:** AAV, Wurundjeri Council	July 2016	✓	✓	✓	✓	Sustainable Environment recurrent budget. ($30,000 in 2015/16)
18	Adequately protect and manage cultural heritage sites and ensure they are included in relevant masterplans, management plans, maintenance regimes and contractor site introductions.	**Lead:** Leisure & Youth Services, Strategic Planning, Sustainable Environment, Capital Works, Parks & Open Spaces **Partners:** AAV, Wurundjeri Council	Annually from July 2016		✓	✓	✓	Existing human resources.
19	Identify opportunities as they arise to use Indigenous words and names for parks or features with the appropriate Traditional Owner organisational approval.	**Lead:** Leisure & Youth Services, Social Development, Capital Works **Support:** Sustainable Environment, Finance & Property Development, Parks & Open Spaces **Partners:** AAV, Wurundjeri Council	Annually	✓	✓	✓	✓	Existing human resources.

GOAL 3: SUBURBS ARE LEAFIER WITH INCREASED CANOPY COVER

ID	Actions	Responsibility	Complete Action By:	Resources and Implementation Timeframes				Budget Source
				2015/16	2016/17	2017/18	2018/19	
20	Finalise development of the Urban Forest Plan, including undertaking consultation around community preferences for the provision of trees in streetscapes and open space into the future.	**Lead:** Parks & Open Spaces **Support:** Sustainable Environment	Annually from July 2015	✓	✓	✓	✓	Existing human resources.
21	Implement the Urban Forest Plan, including: Using existing baseline canopy coverage data, undertake annual canopy coverage mapping and calculate information on carbon storage of the urban forest. Develop a net gain procedure for the replacement of trees for projects on Council-managed land. Develop an open space natural shade planting program for council managed play spaces, picnic spots and meeting areas.		Annually from 2016/17		✓	✓	✓	Existing human resources.

MEASURING SUCCESS

A number of measures have been identified to enable Council to determine whether or not implementation of the actions is successfully meeting the goals of this plan. To determine what constitutes success, targets have been developed and the current state in relation to each target has been identified. The measures will be actioned annually to enable Council to track progress toward the 2040 targets over the life of this plan.

Goal	Goal Measures:	Targets	Current State (baseline)
1. The city's natural heritage, environment and rural spaces are protected, enhanced, maintained and valued.	Percentage increase in native vegetation cover. This will be determined by spatially capturing all new revegetation / regeneration projects on both public and private land in Council's GIS system.	**2019:** Native vegetation occupies an additional 1% of the landscape. **2040:** Native vegetation occupies an additional 6% of the non-urban landscape, resulting in 30% total vegetation cover.	24% native vegetation cover in 2015.
	Number of flora and fauna species occurring within Council-managed conservation reserves.	**2019 & 2040:** ensure no flora or fauna species become extinct within Council-managed conservation reserves.	Baseline data collection complete for native vegetation and in progress for fauna (complete 2016).
	Number of Council-managed conservation sites where rabbit impact is deemed acceptable based on a rabbit impact assessment.	**2019:** Rabbit impact deemed acceptable for 80% of Council-managed conservation sites. **2040:** Rabbit impact deemed acceptable at all Council-managed conservation sites.	Baseline data collection in progress (complete 2015).
2. Cultural heritage sites are identified, protected and effectively managed.	Number of cultural heritage sites identified, protected and managed on Council owned land.	**2019:** Finalise data collection for identifying cultural heritage sites on Council owned and managed land. **2040:** All cultural heritage sites are appropriately protected, managed and interpreted (where appropriate).	No baseline information available.
3. Suburbs are leafier with increased canopy cover.	Percentage increase in canopy cover.	**2019:** Finalise baseline data collection for each suburb. **2040:** Canopy cover increase of 30% in car parks, 40% in open space, 25% in streetscapes and 15% on private land.	Baseline data collection in progress (complete 2017).

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APPENDIX 1: ACRONYMS AND ABBREVIATIONS

AAV	Aboriginal Affairs Victoria
APAM	Australia Pacific Airports Melbourne
CFA	Country Fire Authority
CVA	Conservation Volunteers Australia
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
GGS	Sites of Geological and Geomorphological Significance
MCMC	Merri Creek Management Committee
MW	Melbourne Water
PPWCMA	Port Phillip and Westernport Catchment Management Authority
PV	Parks Victoria
TFN	Trust for Nature
Wurundjeri Council	Wurundjeri Tribe Land Compensation and Cultural Heritage Council

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