City of Wanneroo

Natural Areas
Asset Management Plan
















Document Control						
HPE Content Manager Container ID: 9789						
Rev No	**Date**	**Revision Details**	**TRIM Ref**	**Author**	**Reviewer**	**Approver**
1.0	02.09.2021	2021 NAAMP - Draft	19/185402v3	RH	KT/BC	Natural Area Working Group (NAWG) Endorsement
1.1	23.09.2021	2021 NAAMP – NAWG Endorsement	19/185402v3	RH	NAWG	AMSG Endorsement
1.2	15.10.2021	2021 NAAMP – AMSG Endorsement	19/185402v3	RH	AMSG	ELT Endorsement
1.3	10.11.2021	2021 NAAMP - Final	19/185402v4	RH		

Contents

List of Figures

List of Tables

1 EXECUTIVE SUMMARY

The Natural Area Asset Management Plan (NAAMP) details how the City of Wanneroo (the City) intends to develop a robust approach to the management of Natural Areas. Natural Area management at the City, is inclusive of both the management of native vegetation assets and infrastructure assets.

Native vegetation incorporates vascular plants and non-vascular plants, including mosses and lichens. Native vegetation assets provide a wide variety of ecological services for native flora and fauna within local, regional and international contexts. In addition to contributing to biodiversity through species richness, flora also provides food, shelter and habitat to native fauna and microorganisms.

Infrastructure assets located within Natural Area parks (NA parks) assist with the long-term protection of native vegetation assets and provides the wider community access, and opportunities for, the enjoyment of the City's natural areas.

NA parks at the City have been grouped into three (3) different types of environments due to their similar management requirements. The three (3) environment types are:

- Bushland
- Coastal Foreshore and
- Wetland.

The NAAMP's objective is to document measures currently undertaken by the City, or which need to be improved upon, to ensure that natural areas:

- are managed to ensure continued, long-term ecological/ecosystem function;
- are maintained in line with legislative requirements (State, Commonwealth);
- are maintained to a safe and accessible standard for all users; and
- to provide an appropriate level of service at a cost that is affordable to the City.

1.1 Current Services and Costs

The City currently manages 137 NA parks throughout 36 suburbs. These natural areas total 1,672.24 hectares and are spread across bushland, coastal foreshore and wetland environments. Various management activities are undertaken by City field crews and/or City contractors on both the native vegetation and infrastructure assets to maintain the biological

and social values of natural areas.

As at 30 June 2020, the City's current infrastructure asset portfolio located at NA parks has depreciable infrastructure asset components with a replacement value of $11,179,588.00, with the corresponding depreciated replacement cost value of $7,775,698.00.

It should be noted that the native vegetation present within these NA parks cannot be costed in terms of accurate replacement costs, as current industry standards and practices cannot replicate the return of a complete remnant natural environment due to the complexities of the relationships present between biotic and abiotic factors, species richness and ecological function to that of an original, unaltered state.

Table 1: Number of NA parks.

Environment Type	Total Number of Natural Area Parks (#)	Total Area in hectares (ha)
Bushland	111	714.1
Coastal Foreshore	17	512.42
Wetland	9	445.72
Total NA Parks	**137**	**1,672.24**

Table notes:

1. *Table 1 excludes Sport and Recreation POS, and Streetscapes.*
2. *Sport and Recreation POS is the focus of the Park Asset Management Plan (PAMP).*

To enable native vegetation within the City's NA parks to be cross referenced to, and with, like vegetation across the Swan Coastal Plain (SCP) (encompassing the Perth Metropolitan area), native vegetation is classified to a specific Vegetation Complex[1]. Classification is dependent upon characteristics of various combinations of landforms, soils and rainfall along the SCP, south of Lancelin. There are a total of fifteen (15) vegetation complexes mapped by Heddle *et al* in 1980, twelve (12) of which occur within the City of Wanneroo (LBP, 2018-2023).

The City's Local Biodiversity Plan (LBP) outlines the City's targets for retention, protection and management of natural areas including targets for protection of vegetation complexes. The LBP mapped Vegetation Complexes throughout the City, however the data captured is not exclusive to the natural area parks under the care, control and maintenance of the City (the subject of the NAAMP). To allow for cross referencing and comparison of the native vegetation within the City's natural area parks to similar locations within the Swan Coastal Plain region and to successfully plan and manage these natural areas in line with LBP strategies, further

[1] Complexes as defined by Heddle et al (1980) and Mattiske and Havel (1998) are based on the pattern of vegetation at a regional scale as it reflects the underlying key determining factors of landforms, soils and climate (DEC, 2007).

GIS analysis of vegetation complex data for the City's natural area parks is required Refer Improvement Action 1.

The NAAMP considers the following infrastructure assets located at NA parks as shown in the below table.

Table 2: Infrastructure Assets considered by this NAAMP.

Asset Group	Asset Name
Access tracks	Emergency and Maintenance Vehicle Access Tracks (EMVAT's) (Materials: ESL, Limestone and Sand)
Park Equipment	Drink Fountain
	Pest Equipment
Park Structures	Balustrade / Handrail
	Bird Nesting (Osprey)
	Bollards (Standard, Non Standard)
	Fencing (Chainmesh, Coastal Foreshore, Conservation (Standard, Non Standard), Panel fence, Post and Rail, Post and Wire, Post and Wire mesh, Rural and Security)
	Park Furniture (e.g. Bench seats)
	Gates (e.g. pedestrian, vehicle and heavy duty vehicle gate types)
	Lighting (Luminaire and Pole)
	Outdoor Shower
	Safety rails
	Park Shelters (Gazebo's of varying materials (Large, Medium and Small).
	Steps (Non-coastal)
	Walls

Table notes:

1. *NAAMP excludes Coastal Infrastructure Assets (for example: boardwalks, formalised beach access ways, lookouts, swimming enclosure and coastal protection structures etc). These assets are the subject of the Coastal Infrastructure Asset Management Plan (CIAMP).*
2. *Relevant signage assets will be included in NAAMP revisions, once data validation occurs*.

Changes to the natural area assets portfolio occurs via the creation of new assets, the upgrade or renewal of existing assets and the disposal of assets. New natural area assets are received either by; developer contribution (establishment of natural area parks via the process of subdivision) or via the City's capital works program. Additionally, the City's capital works program also provides for the renewal and upgrade of existing natural area assets. The disposal of natural area assets occurs as either part of the renewal or upgrade of an existing asset or via maintenance works.

The City's current and future funding forecasts are shown in the tables below.

Table 3: Current funding for Natural Area Assets 2020/2021.

	New ($)	Upgrades ($)	Renewals ($)	Maintenance ($)
Infrastructure Assets	$624,000.00	$654,000.00	$1,226,000.00	53,348.77
Vegetation Assets				2,081,637.38
Utilities	NA	NA	NA	11,891.00
Insurance	NA	NA	NA	11,669.00
TOTAL	**$624,000.00**	**$654,000.00**	**$1,226,000.00**	**$2,158,546.15**

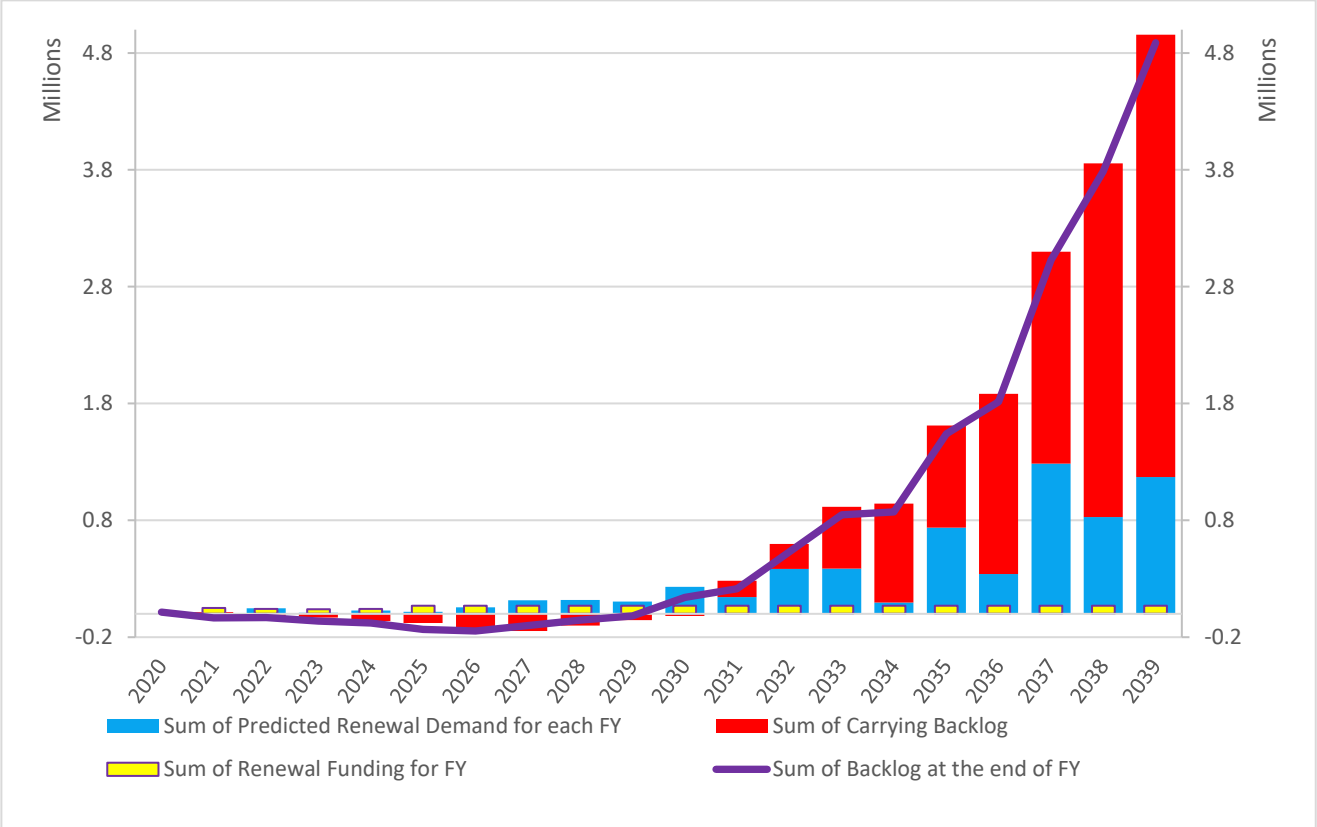
Table 4: 20 Year Outlook – Resultant Unfunded Renewal / Backlog.

20 year Planned Renewal Expenditure ($)	Predicted 20 Year Renewal Demand Forecast ($)	Resultant 20 Year Unfunded Renewals/Backlog ($)
$1,225,000.00	**$6,099,889.00**	**$4,874,889.00**

It should be noted that the confidence level for native vegetation asset data is currently low, particularly with respect to vegetation condition information. Floristic data collecting, collating and validation is required throughout the City's natural area park portfolio. As the confidence in the City's floristic data increases and is representative of on ground conditions, leading to accuracy in planning rehabilitation works (renewal) and assisting budgeting processes, including the Long Term Financial Plan (LTFP).

When looking at natural area parks assets as a whole, the total 20 year planned renewal expenditure of $1.23M is approximately $4.9M less than the corresponding renewal demand of $6.1M. This figure is considered to be manageable over a 20 year period. It should be noted that the confidence level in the supporting asset data is currently low, particularly with respect to asset condition assessments. As the data is validated and updated through regular condition assessments, the forecast renewals will be more accurate and closely reflect what is required on the ground and better inform the LTFP process.

Figure 1: Consolidated Natural Area Park Assets Renewal Funding – Forecast vs Budget.



The City's 2020 Community Scorecard Survey results showed significant improvements in the Performance Index Scores from previous years. Some performing above the industry average (refer to section 4.2 for details). For natural area park related services, the City scored well in the following:

- Conservation and Environmental Management – 59 (industry avg 58);
- Management of Local Beaches and Coastline – 67 (industry avg 64); and,
- Natural disaster education, prevention and relief (for bushfires, flooding, cyclones etc) – 57 (industry avg 56).
- Off-road vehicles – 56 (industry avg NA).

The three key performance indicators of NA parks infrastructure asset are:

- Asset Consumption Ratio (ACR) is low at 72%.
- Asset Sustainability Ratio (ASR) is low at 13.7%.
- Asset Renewal Funding Ratio (ARFR) is high at 67.9%

The value of asset backlog is not substantial at this time and an increase in renewal funding will improve all ratios significantly. These ratios are further discussed in section 8.2.

1.2 Recommendations

A total of 36 task actions are recommended to improve the City's management of natural area park assets (inclusive of native vegetation and infrastructure assets). The NAAMP's top ten (10) key task actions are (refer to Section 9 for further details):

- Review and analyse Natural Area and Native Vegetation specific data for the City's Natural Area Parks to assist with comparing parks across the City and the Swan Coastal Plain (SCP) and to additionally assist with maintenance and management planning - Refer Improvement Action 1.
- Develop a program to implement Condition Assessments and Validation of Data of all natural area park infrastructure assets to be undertaken once every five years - Refer Improvement Action 2.
- Implementation of a dedicated Asset Management Information System (AMIS) - Refer Improvement Action 3.
- Development of a prioritisation matrix (utilising multi-criteria analysis) for natural area parks and the resultant natural area park priority list - Refer Improvement Action 4.
- Develop a program to implement floristic surveys for relevant reserves on the natural area park priority list to be undertaken once every five years - Refer Improvement Action 4.
- Development of the Community Facilities Provision Framework (CFPF): Open Space and Community Buildings focusing on policies, strategies, design guidelines and specifications to inform the planning and design of the City's open space (including natural area parks) and community buildings - Refer Improvement Action 8.
- Development of the Natural Area Park Maintenance Management Plan (NAMMP) - Refer Improvement Action 19.
- Further development and refinement of technical levels of service for natural area park assets - Refer Improvement Action 7.
- Review of 2011 City POS service levels - Refer Improvement Action 9.
- Review and undertake actions to address Natural Area Park Asset Capture and Handover - Refer Improvement Actions 10, 11, 12, 13, 15 and 16.

2 INTRODUCTION

Management of natural areas requires informed decisions and a long term agreed framework for the care and maintenance of assets. This natural area asset management plan (NAAMP) document will outline the required activities and implementation timelines related to the management of both native vegetation assets and the infrastructure assets assisting in the protection of native vegetation.

In accordance with Liveable Neighbourhoods (2009), Nature open space (NA park(s)) natural areas are defined as land for which the primary function is the retention and ongoing management of indigenous flora and fauna. The purpose of nature open space is to provide Public Open Space (POS) for people to connect and enjoy nature, whilst protecting its environmental values. The balance of these two purposes are at times mutually exclusive, whereby a NA parks environmental values supersede recreational values or pursuits.

The City currently manages 1,672.24 hectares of reserved land containing native vegetation for which the City has Management Orders for the purposes of ‘conservation’, 'conservation and passive recreation' and 'recreation' (Crown Land). These natural areas form a total of 137 NA parks across bushland, coastal foreshore and wetland environments. NA parks containing remnant native vegetation are significant assets for the City, not only in terms of their biodiversity, ecological processes and functions, but also, as they provide economic, health and wellbeing benefits for City residents, the broader community and visitors.

A variety of management issues exist across these differing environmental areas and this NAAMP will provide guidance for the long-term management of these natural areas. The NAAMP will demonstrate the responsive and planned management of both, remnant native vegetation assets and infrastructure assets (and the services provided from these assets), compliance with regulatory requirements and communicate the funding required to ensure satisfactory levels of service are delivered.

2.1 Background

The City’s Asset Management Policy requires the creation of Asset Management Plans (AMPs) for the various asset classes (Buildings, Coastal Infrastructure, Stormwater Drainage, Natural Areas, Parks and Transport) and this AMP has been developed specifically for Natural Area infrastructure and native vegetation assets.

AMPs are developed for each asset class for the following purposes:

- To determine an agreed level of service at a cost that is affordable to the community,
- To determine the short, medium and long term financial requirements for assets and to inform the City's Long Term Financial Plan (LTFP),
- To document asset management practises that ensure sustainable management of community assets and identify opportunities for improvement,
- To ensure legislative and reporting requirements are met,
- To support business cases and funding applications, and
- To support community and organisational needs.

The development of this AMP demonstrates the responsive management of natural area assets (and services provided from these assets), compliance with regulatory requirements and communicates the funding needed to provide the required levels of service over a 20 year planning period.

This document is to be read in conjunction with the following City documents (refer to Section 10 for additional reference documents);

- Asset Management Policy (AS01 – 06/18):
- Asset Management Strategy 2018 - 2024: and
- Asset Management Implementation Plan 2018-2024.

2.2 Alignment to Strategic Community Plan

This NAAMP is aligned with the following objectives and strategies from the City's Strategic Community Plan 2021 – 2031 as detailed in Table 5 below.

Table 5: NAAMP alignment with the City's Strategic Community Goals and Priorities.

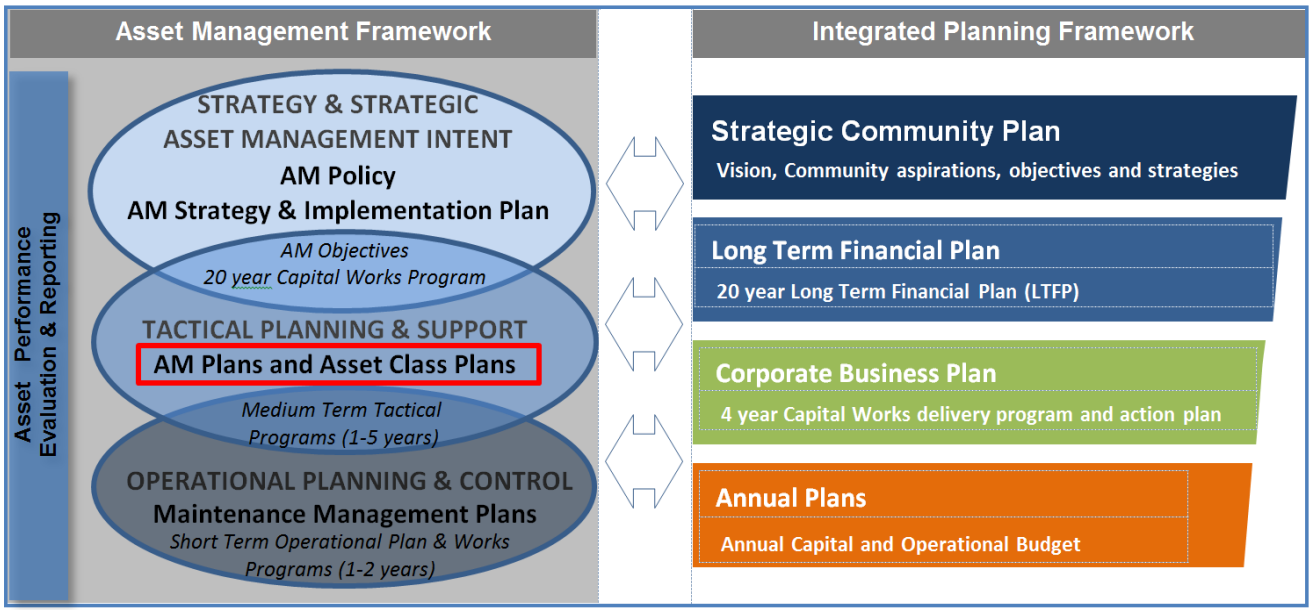
Strategic Goal	Priorities	How Strategic Goals are addressed in this AMP
Goal 4: A sustainable City that balances the relationship between urban growth and the environment.	4.2 Manage and protect local Biodiversity.	Survey Flora and Fauna within the City's natural area parks to establish baseline data to inform the City's capital works, maintenance and management programs. Revegetation, regeneration and rehabilitation projects within City of Wanneroo natural area parks. Planning, scheduling and undertaking on-ground maintenance and management activities in City natural area parks. Identification and removal of contaminated material, and remediation of contaminated sites within natural area parks.
	4.3 Manage natural assets and resources.	Natural area infrastructure asset data collection and validation. New, Upgrade and Renewal projects for natural area infrastructure assets. Survey Flora and Fauna within the City's natural area parks to establish baseline data to inform the City's capital works, maintenance and management programs. Revegetation, regeneration and rehabilitation projects within City of Wanneroo natural area parks. Implementation and on-going review of the YICM Plan 2021-26 with key stakeholders. Implementation, on-going monitoring and review of endorsed natural area management plans. Planning, scheduling and undertaking on-ground maintenance and management activities in City natural area parks. Planning, scheduling, hosting and advocating for environmental events and educational opportunities within City natural areas parks and surrounding regional natural areas.

Goal 5: A well-planned, safe and resilient City that is easy to travel around and provides connection between people and places.	5.2 Plan for and manage land use.	Natural area stakeholder involvement during project initiation and planning stages of proposed City projects and developments in order to, avoid and minimise impacts to significant vegetation and habitat. Providing stakeholder feedback to relevant agencies for proposed developments in line with relevant legislation and in accordance with City guidelines, policies and plans. Within new subdivisional developments the creation of new Nature POS via the Planning process is managed for the City by both SLUPE and LD.
	5.4 People can move around easily.	Provision of new, upgrade and renewal EMVAT projects within City natural area parks that establish connections to pathway infrastructure surrounding these sites.
Goal 6: A future focused City that advocated, engages and partners to progress the priorities of the community.	6.2 Build local partnerships and work together with others	Compliance with, and administration of, State and Federal legislation for the maintenance and management of natural areas within the City. Advocacy and participation in stakeholder consultation regarding the development and/or review of State agency documentation affecting natural areas. Advocacy for optimal environmental outcomes in natural areas. Reporting and mapping of contamination in City natural areas to DWER.

2.3 Asset Management Plan Framework

The City's Asset Management Framework (AM Framework) informs the City's Integrated Planning Framework (IPF) and vice versa. The interrelationship between these two Frameworks' is displayed below.

Figure 2: Alignment of the AM Framework to the IP Framework.



AM Plans represent the tactical planning component of the AM Framework and define the level of service requirements for various asset classes. AM Plans highlight the processes used to manage the associated assets that services rely on, and, the consideration of sustainable provision of current and future services to the community, at the most appropriate standard, time, place and cost.

The NAAMP forms the link between asset management requirements in the City's natural area parks and the resultant implications of this asset class, on long-term strategic and financial planning. Thus ensuring, appropriate levels of funds and resources, are available for, the City's future financial sustainability.

The NAAMP's key elements are:

- **Levels of service** (Section 4) – specifies the services and levels of service to be provided by the City at natural area parks.
- **Life cycle management** (Section 5) – how the City will manage its existing and future natural area parks to provide the required services.
- **Risk management** (Section 6) – how the City manages the risks associated with natural

area parks.

- **Future demand** (Section 7) – how this will impact on future service delivery within natural area parks and how this will be met.
- **Financial summary** (Section 8) – what funds are required to provide the required services in natural area parks.
- **Improvements, Monitoring and Review** (Section 9) – how the NAAMP will be monitored to ensure the City's objectives are being met and the identification of improvement opportunities for natural area asset management practices within the City.

2.4 Scope of the NAAMP

This AMP considers the following natural area asset portfolio (asset types and components):

- Access tracks;
- Park Equipment;
- Park Structures; and
- Native Vegetation.

A full list of what is included under each asset category is contained in Appendix A (Infrastructure) and B (vegetation).

Native vegetation assets are inherently difficult to integrate into traditional infrastructure based AMPs and asset management practices, due to non-conformance with the recognized 'asset life cycle' stages, asset ratios and lack standard 'renewable costs'.

The City recognizes that native vegetation is the keystone asset of natural area parks, with infrastructure assets at these parks being resultant on the presence of the vegetation and to facilitate the intended use of the natural area park, therefore the inclusion of native vegetation within this AMP is vital to holistic asset management within this asset class.

Due to the above reasons, native vegetation assets will not be discussed in all sections of this AMP.

Other natural area infrastructure assets yet to be included in this AMP, such as certain Signage types will progressively be included in future revisions of this plan. Refer Improvement Action 2.

The natural area infrastructure asset portfolio does not include certain fixed assets which are identified within the portfolios of other Asset Management Plans. These infrastructure asset exclusions are contained in 6 below.

Table 6: Assets excluded from Natural Area Infrastructure Asset Portfolio.

Asset	Description	Responsibility
Land Assets that contain Natural Areas (i.e. remnant native vegetation)	City Freehold owned land Leased Areas (City managed (Crown) land)	Property Services & Finance
Other Infrastructure Assets located within Natural Areas	Carparks, Carpark Lighting, Footpath components of BAW's (concrete and bitumen material), Footpaths (concrete and bitumen material) Road Reserves.	Transport Infrastructure AMP
	Drainage	Drainage AMP
	Water fountains, bench seats, showers, nature play areas	Park AMP[1]
	Beach Access Ways- BAW's (Structures), Boardwalks (coastal) and significant Coastal Infrastructure (Revetment Wall, Groynes, Breakwaters etc).	Coastal Infrastructure AMP
	Buildings/Other structures	Building AMP

Table Notes:

1. *Following data validation, analysis and discussion, the natural area parks infrastructure assets that are currently considered in other AMP's (including the PAMP) may be altered. Any changes will be reported within subsequent NAAMP revisions.*

2.5 Data Systems and Data Confidence

The expenditure and valuation projections for natural area infrastructure assets are based on best available data managed across various data systems. Currency and accuracy of data is critical to effective asset and financial management planning. Limitations on data quality have constrained the NAAMP outcomes.

In the absence of a dedicated Asset Management Information System (AMIS), the City currently utilises the following software systems to manage the natural area asset data (detailed in Table 7 below):

Table 7: Data Systems used to manage Natural Area Asset Data.

Software system	Asset type	Description
MapInfo	Bench seats Bird nesting (Osprey) Boardwalks (non- coastal) Bollards, Fencing and Gates Gazebo's Drink Fountains Lighting (Pole and Luminaires) Pest Equipment Safety rails Signage (various) Steps (non-coastal) Walls	A Geographical Information Systems (GIS) mapping software that is configured to enable the recording of the geographical location of the asset and also stores asset attributes in associated tables.
Various GIS software (ESRI, MapInfo, IntraMap QGIS and LGMap)	Flora and Fauna data Data examples include: Vegetation Complexes, Vegetation Communities, Vegetation Condition, Threatened Ecological Communities (TEC's), Priority Ecological Communities (PEC's), Rare Flora, Rare Fauna etc	Geographical Information Systems (GIS) mapping software that displays and/or records flora and fauna location data as well as data attributes in associated tables.
RAMM (Road Assessment and Maintenance Management)	Emergency and Maintenance Vehicle Access Tracks (EMVATs), Beach Access Ways (BAWs) , Pathways (concrete and bitumen), Signage (BEN signs and SLSWA signs).	A database which stores asset inventory and condition data.
Asset Renewal Funding Demand Modelling Tool	Used for all asset classes	This computing tool (developed in-house over several years) consists of a series of MS Excel spreadsheets that analyse asset data and uses simple built-in computations to model and predict the future deterioration of assets. The outputs of this tool provide a prediction for future asset renewal funding demand and budgetary requirements. This Renewal Modelling tool is loaded with the City's infrastructure asset inventory data together with assumptions and critical modelling parameters with the final computation and resultant output being used to inform the LTFP. The long term asset renewal demand predictions can be applied to all asset classes enabling comparisons to be made and also provides an overall view of all the City's asset classes for informed decision making.

The City is currently implementing a new Asset Management Information System (AMIS), Assetic - Refer Improvement Action 3. It is intended that the City's assets data inventory will be migrated to the AMIS and will be linked to the Finance Management Information System expenditure data and continue to be linked spatially in a GIS system.

Data confidence is classified on a 5 level scale rating[2]. The estimated confidence level for data and reliability of data used in the NAAMP is shown in Table 8.

Table 8: Data Confidence[2] Assessment for Data used in the NAAMP.

Data	Confidence Assessment	Comment
Demand Drivers	Highly Reliable	Based on Australian Bureau of Statistics data
Growth projections	Highly Reliable	Based on Forecast id
Population Age	Highly Reliable	Based on Australian Bureau of Statistics data
Age and useful life	Reliable	Based on current data
Condition ratings for infrastructure assets present within Natural Areas	Uncertain	Based on a 0 to 10 rating system (see Appendix C). Condition rating assessments on natural area infrastructure assets are sporadic and currently considered 'out of date'.
Native Vegetation Condition[3]		Historical assessments[4] on a large portion of the City's Natural Areas (94 reserves) informed the City's 2002/2003 Bushland Assessment document. Vegetation condition data is considered unreliable (by relevant authorities) after 5 years; the data collected for the Bushland Assessment document therefore should not be relied upon to inform planning and management of native vegetation within the City's Natural Areas. Future native vegetation condition assessments within NA Parks will be undertaken utilising the *Keighery* 1994 scale (see Appendix D).
Asset values	Reliable	Natural Area Infrastructure Assets are valued by an external entity every 3 years.
Asset residual values	Reliable	Estimated using straight line depreciation. Reliant on useful life asset data.

[2] Data confidence is classified as per rating in IPWEA's IIMM 2015 – Table 2.4.6 P2 | 71. From a rating of 'A' – Highly reliable; 'B' - Reliable; 'C' – Uncertain; 'D' – Very Uncertain; and, 'E'– Unknown.

3 Vegetation condition means the rating given to native vegetation which refers to the impact of disturbance on each of the layers and the ability of the community to regenerate (*Keighery* 1994).

4 Assessments utilized the PBP's desktop and rapid site assessment guidelines (Natural Area Initial Field Assessment templates (NAIA templates) and incorporation of *Keighery* 1994 (Vegetation Condition Scale) to determine baseline conditions as each site.

2.6 Key Stakeholders

Table 9 below shows the key stakeholders in the preparation and implementation of this AMP.

Table 9: Stakeholders.

Stakeholders	Description and Level of Involvement
Ratepayer Groups and residents	End-user involvement. Stakeholder Consultation including the bi-annual Community Perception Survey, reviews as part of project planning.
Local Environmental Groups, Friends of Groups and Volunteers	Environmental Stewardship by specific natural area end-users. Involvement and participation in scheduled events for natural area on-ground management works (e.g. planting, weeding) or environmental education opportunities (e.g. Guided walks through natural area parks). Volunteer involvement that assists with the management of local natural area parks.
Elected members	Stewardship and Asset Management Leadership. Endorsement of Asset Management Policy, AM Strategy, AM Plan. Adoption of the key AM principles and the approval of Capital Works Budgets that support good Asset Management principles.
Environmental Advisory Committee (EAC)	Environmental Stewardship and Advocacy for Natural Areas. Support and endorsement of plans and proposals that support long-term natural area management.
Executive Leadership Team (ELT)	Provide strategic direction and leadership for asset management practices and decisions within the City. Responsible for the development of AM Policy, AM Strategy and AM Plans.
Tree and Conservation Maintenance (TCM)	Inspect and maintain remnant native vegetation assets to achieve biodiversity outcomes including the determination of technical levels of service and monitoring performance measures. Inspect and maintain natural area infrastructure assets to a safe standard including the determination of technical levels of service and monitoring performance measures. These infrastructure assets assist in providing long-term protection to native vegetation assets within the City's natural areas.
Assets Maintenance (AM)	Assist with the maintenance of certain natural area infrastructure assets to a safe standard.
Building Maintenance (BM)	Assist with the maintenance of certain natural area infrastructure assets to a safe standard.

Infrastructure Capital Works (ICW)	Survey, design (if required) and deliver new, upgrade and renewal projects for natural area parks.
Asset Planning (AP)	Long term planning and management of natural area assets (infrastructure and remnant native vegetation), data collection, condition reports, assets inventory, renewal demand modelling and long term renewal budget analysis. Author and reviewer of this AMP.
Corporate Strategy and Performance Directorate	Long-term strategic and financial planning incorporating asset management principles.
Strategic Land Use Planning and Environment (SLUPE)	Advocates and practices good planning and urban management in future growth areas to enable the retention of significant landform features, vegetation and habitat. Creates and reviews environmental policies and guidelines resulting in optimal biodiversity outcomes, including the retention of significant vegetation and habitat and the provision of appropriate infrastructure assets within proposed natural area parks.
Land Development (LD)	Identifies natural area park infrastructure asset requirements for new developments. Assesses, determines, audits and accepts the handover of new natural area park assets from land developers. Collects all natural area asset data (including O-Spec) and forwards to Asset Planning for validation and input into the Asset Management Information System (AMIS). Manages the review, provision of City feedback and approval of management plans (conservation, foreshore and wetland) proposed by developers for natural areas within new developments. These plans could include areas of in-tact native vegetation, as well as bare areas proposed for revegetation activities. Manages the review and provision of City feedback for land developer monitoring reports for natural area parks with approved management plans.
Community and Place Directorate	Use of City natural area parks to deliver services to the community. Liaison with park users to confirm levels of service and identify opportunities to improve service delivery through pro-active natural area asset management.
Property Services (PS)	Manage the property management requirements of the City's Leased Areas portfolio (includes leased areas that contain native vegetation assets). Granting and monitoring of leases.
Local Government Authorities (LGA's) (e.g. CoJ, CoS and CoS)	Ongoing stakeholder consultation, coordinated maintenance activities and agreed management objectives of natural areas present across Local Government boundaries (e.g. Yellagonga Regional Park). Complimenting LBS Implementation Plan Action # 5.2. Ongoing stakeholder consultation and coordinated maintenance agreements for infrastructure assets that directly impact the City's natural area parks (e.g. Drainage infrastructure and outfalls within Koondoola Regional Reserve, Koondoola). Complimenting LBS Implementation Plan Action # 5.2.
State Government Agencies	Funding assistance and development of relevant standards and legislation for natural areas. Coordinated maintenance and management of abutting natural areas that are managed by State Agencies and the City respectively.

(DBCA, DFES, DPIRD, DPLH, DWER)	DBCA - Works to ensure the natural assets of WA are conserved, protected and valued. DFES – Fire mitigation within natural areas to ensure fire safety can be achieved whilst maintaining protection of biodiversity values. DPIRD – Reducing the impact of pests, weeds and diseases to ensure the protection of WA's agriculture and food sectors. DPLH – Planning and managing the State's land and heritage. DWER - Manages and regulates the State's environmental and water resources (including wetlands, contaminated sites, clearing legislation).
Federal Government (DAWE)	Funding assistance and development of relevant advice, standards, guidelines and legislation for natural areas containing Matters of National Environmental Significance (MNES). DAWE- Protect and manage Australia's natural resources and heritage and help develop agricultural industry.
Contractors / Consultants / Suppliers	External providers of goods and services for the maintenance and management of natural area park assets.

3 CURRENT STATUS OF ASSETS

The natural area infrastructure asset data shown in this AMP provides the baseline for growth and infrastructure asset renewal demand predictions to be generated and is used to inform the City's annual budget and LTFP development. This data is stored in HPE 21/383959. Until such time a major review of the NAAMP is undertaken, this core data and asset performance predictions are updated annually as a new version of HPE 21/383959 to inform and update subsequent capital budgets and the LTFP.

Within the City, Natural area parks encompass 1,672.24 ha of Open Space, provided in bushland, foreshore and wetland habitats. The City manages 137 natural area parks with 111 located in bushland areas, 17 located in foreshore areas and 9 located in wetland areas.

City parks are categorized as nature open space in accordance with the City's Local Planning Policy 4.3: Public Open Space (LPP4.3 - POS). The City's natural areas park asset portfolio, as at 30 June 2020, is shown in Table 10 below. As at 30 June 2020, all natural area parks within the City's natural areas park asset portfolio, is summarized in Appendix B.

Table 10: Number of Natural Area Parks

POS Type	Number	Area (ha)
Nature	**137**	**1,672.24**

Table Note:

1. *POS containing sporting and active recreation areas are considered separately as part of the Park Asset Management Plan (PAMP) and are subject to a variety of differing POS types in accordance with LPP4.3 - POS.*

The type of infrastructure assets a POS contains, reflects the Parks' intended use. The variety and quantity of built infrastructure assets in new development areas, will depend on the POS classification as per the City's LPP 4.3 – POS. Since the establishment and endorsement of LPP4.3 – POS in 2016, Natural Area POS (NA POS) (referred to as 'Nature POS' in LPP4.3 - POS) within new development areas contain a greater variety, and quantity, of built infrastructure assets, than existing NA POS within established areas (e.g. older suburbs).

The types of infrastructure assets present within NA POS, will be consistent with the zoning under the Metropolitan Regional Scheme (MRS), the classification under the District Planning Scheme No. 2 (DPS2), the Management Order purpose of the natural area POS (i.e. 'Passive Recreation and Conservation', 'Conservation' etc) and LPP4.3 – POS.

Natural area infrastructure park assets have been grouped by the following types to ensure streamlined monitoring, maintenance, and renewal:

- Access tracks;
- Park Equipment; and
- Park Structures.

Natural area vegetation assets are currently grouped in the following broad environment types due to similarities in their biological characteristics and management requirements:

- Bushland;
- Foreshore (coastal); and
- Wetland.

Natural area infrastructure assets and their useful life, grouped by Asset Type, is presented in Appendix A. Native vegetation information and data cannot currently be presented for the City's 137 natural area parks. The currently available information is presented in Appendix B. As resourcing becomes available, Table B in Appendix B will be expanded to include key native vegetation and environmental values information and data - Refer Improvement Action 1.

3.1 Age Profile

For the purposes of this AMP, the age profile of the natural area assets is limited to infrastructure assets only, and does not include native vegetation assets.

The City of Wanneroo is a high growth Local Government Authority (LGA) with increasing provision of new natural area parks containing infrastructure assets from Developers in comparison to established suburbs.

The age profile of the City's natural area access tracks, park equipment and park structures are shown in the below Figures.

Figure 3: Age profile of natural area access tracks (EMVATs).

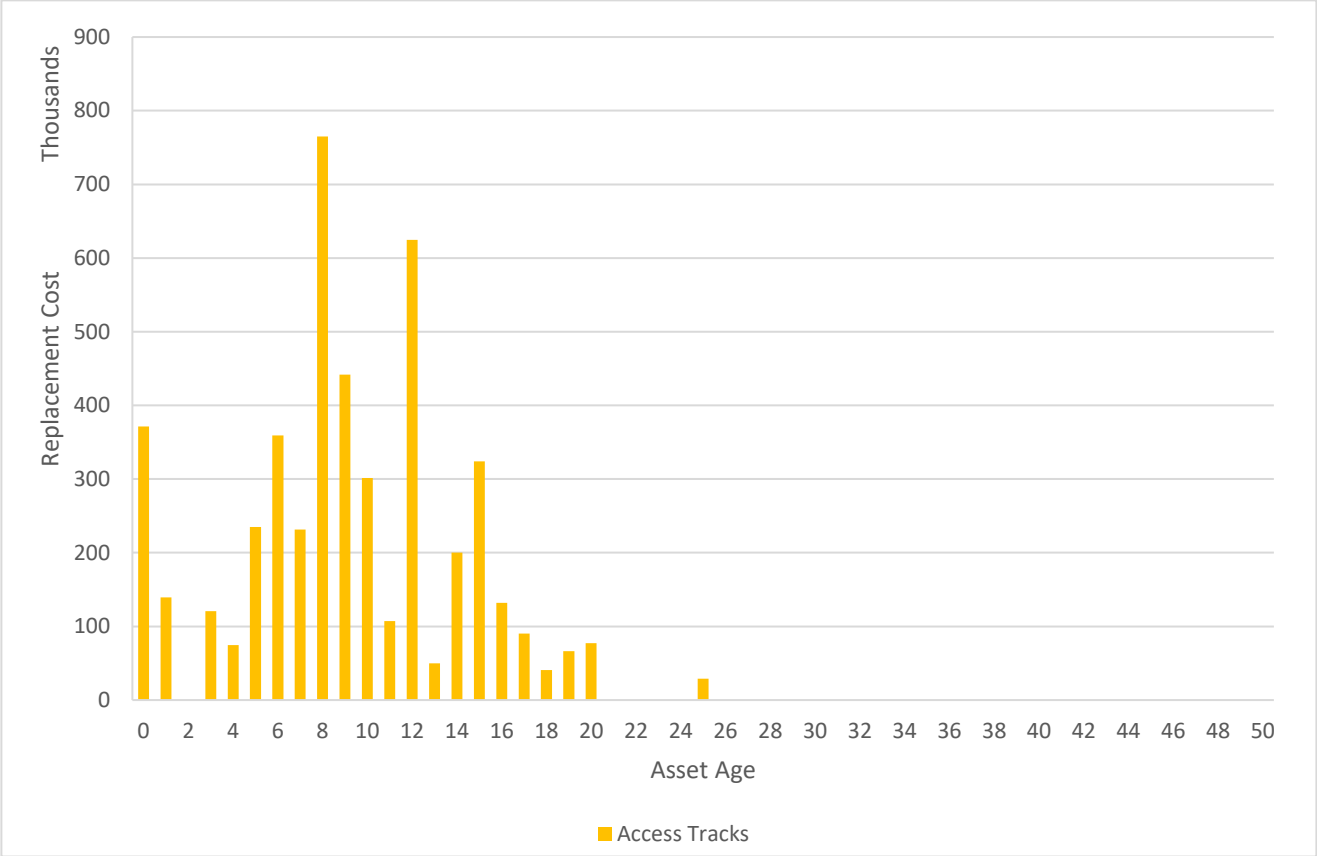


Figure 4: Age profile of natural area park equipment.

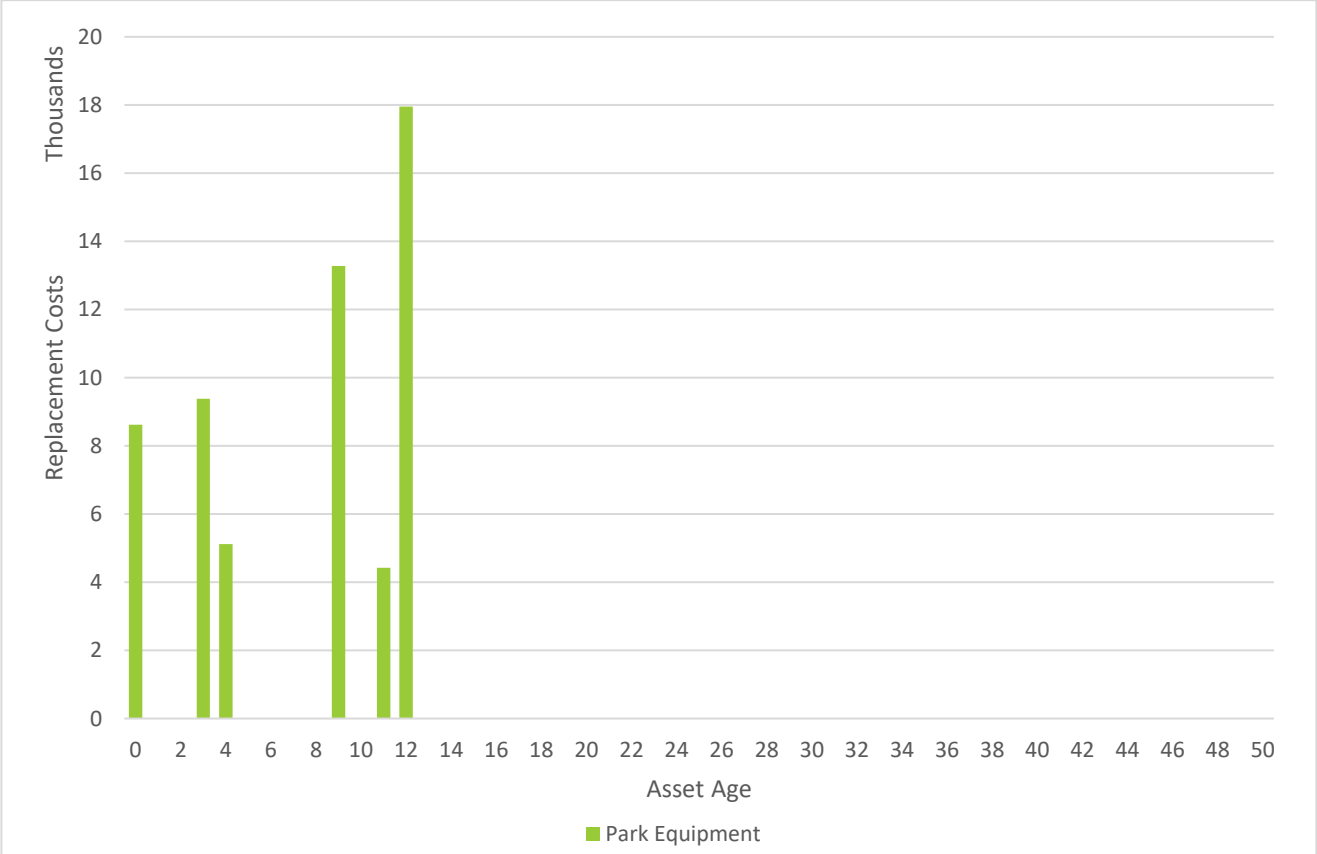
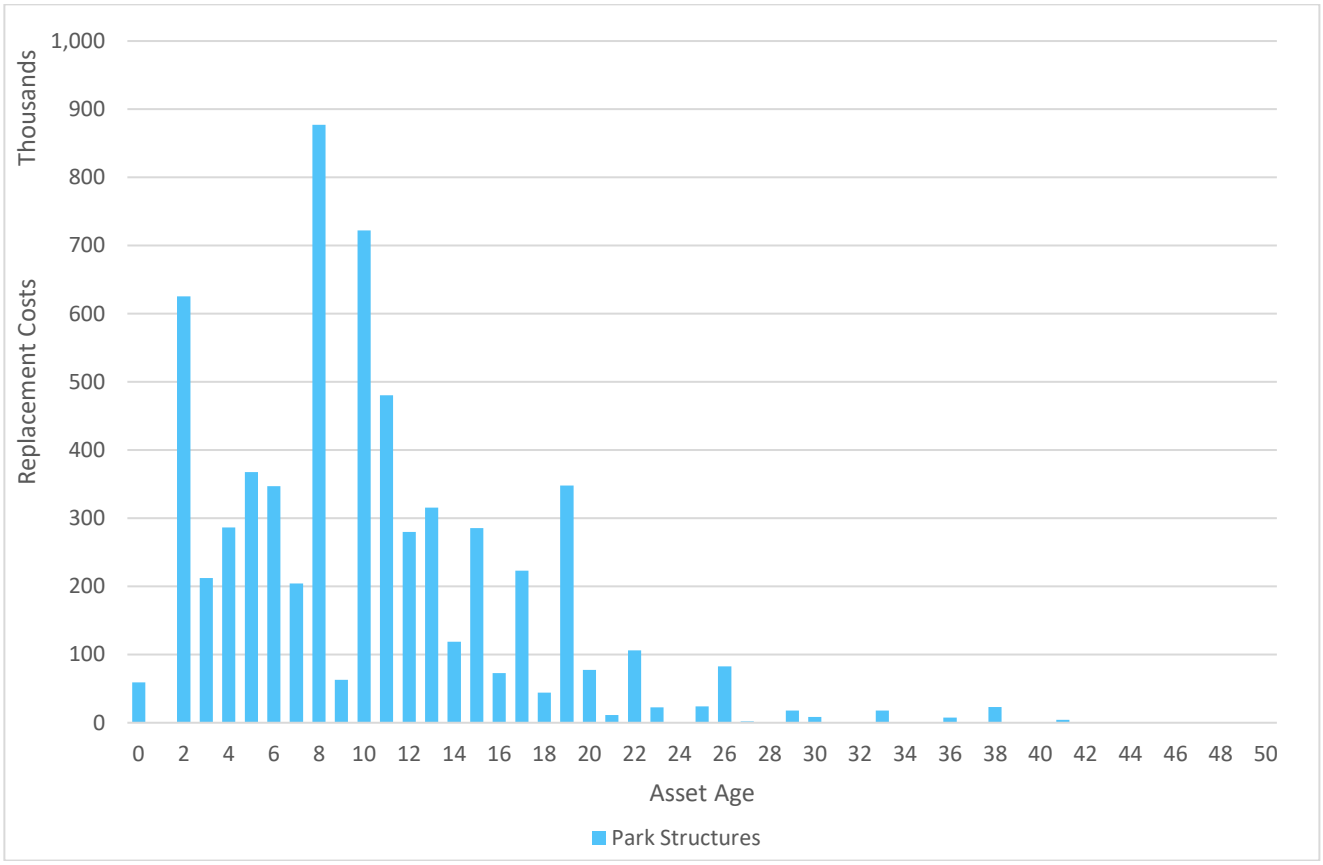


Figure 5: Age profile of natural area park structures.



The asset age profiles depicted above provide an indication of the growth experienced within the City with relatively high rates of park assets being constructed since 2000.

Increased investment in natural area infrastructure assets has many benefits including; supporting the long-term protection of native vegetation, the increasing community demand for passive recreation pursuits in natural area POS, the expansion of citizen science, increased opportunities for environmental education and community involvement in natural area POS.

3.2 Condition Profile

3.2.1 Native Vegetation Assets

Native vegetation assets are maintained by the City with the focus of perpetual management. Integral to the maintenance and long-term management of native vegetation is vegetation extent, type and condition data, without which, effective natural area conservation management could not occur. The assessment and monitoring of changes to vegetation condition over time, enables comparisons and evaluations of the effectiveness of the City's maintenance and management techniques, the instigation of adaptive management processes and detection of impacts of threatening processes, such as frequent fire, erosion, climate change and disease.

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types (DWER, 2018). Within the South West and Interzone Botanical Province, incorporating the Swan Coastal Plain (SCP) which the City is located on, vegetation condition assessments should be undertaken in accordance with the Keighery (1994) rating scale.

Vegetation condition assessments for native vegetation within the City's natural area parks were previously undertaken for a portion of the City's reserves in 2002/2003 to inform the City's Bushland Assessment document, however these assessments are considered out-dated and also were not undertaken in accordance with current accepted industry standards, (instead the Natural Area Initial Assessment templates (NAIA) by the Perth Biodiversity Project (PBP) were utilised). Therefore, the 2002/2003 data is inappropriate to utilise in the planning and scheduling of maintenance and management activities.

To ensure that native vegetation data accuracy is improved and maintained and to assist in effect conservation management, it is recommended that vegetation condition assessments for identified priority reserves, be undertaken over a (5) year rolling programme utilising qualified and experienced botanists (Refer Improvement Action 4).

Table 11 below describes frequency details of NA asset condition assessments.

Table 11: Natural Area POS Asset Condition Assessment Cycles.

Asset type	Condition assessment cycle (years)	Comments
Access tracks	5	Includes ESL, Limestone and Sand EMVATs
Park Equipment	5	Includes drink fountains and pest equipment*
Park Structures	5	Includes balustrades/handrails, bird nesting (Osprey), non-coastal boardwalks, bollards and fencing, lighting, bench seats, gazebos, signage**, non-coastal steps, walls, showers.
Native Vegetation***	5	#Flora and vegetation surveys should be coordinated and led by botanists

		with experience in systematic sampling and analysis methods. It is essential that survey is led by a botanist with knowledge and experience in the ecology of the flora and vegetation of the biogeographic region (bioregion) to be surveyed. The botanist leading the survey should have at least five years' experience in botanical survey in the bioregion in which the survey is to be conducted (EPA, 2016).

Table Notes:

1. **Pest Equipment will now be included in the NA park infrastructure asset condition monitoring program.*
2. ***Signage will be included in a future revision of the NAAMP subject to data validation.*
3. ****Measuring vegetation condition for the South West and Interzone Botanical Province should be in accordance with the Keighery, 1994 scale (Appendix D) (DWER, 2018)..*
4. *#Source – EPA Technical Guidance, 2016.*

3.2.2 Natural Area Infrastructure Assets

Condition assessments for infrastructure assets within NA POS are undertaken on a periodic basis providing critical information to inform infrastructure asset management. Condition assessment data for NA infrastructure assets is currently used by the City for the following purposes:

- to make predictions on expected renewal timeframes;
- to make predictions on long term financial requirements;
- verifying and/or determining the actual condition of an infrastructure asset;
- ensuring renewals are only considered when necessary; and
- validating the useful life predicted for the various infrastructure asset types.

Condition assessment frequency for natural area infrastructure assets has fallen away over the past five years due to resourcing constraints, leading to data-inaccuracies. Inaccurate data causes errors and inconsistencies for both, renewal modelling and long term financial predictions. To ensure that data accuracy is improved and maintained, condition assessments will be undertaken over a (5) year rolling programme; with structural assessments and data validation to be addressed using external resources (Refer Improvement Action 2).

The asset condition profiles for the various NA infrastructure asset types are shown in the figures below. The condition ratings are based on a combination of visual inspections and the age of the assets. Condition of assets are assessed using a '0' to '10' rating scale, 0 represents

a new asset, and 10, a failed asset that is no longer serviceable. Appendix C defines the 0-10 condition rating scale.

Figure 6: Asset Condition Profile for Natural Area Access Track Assets.

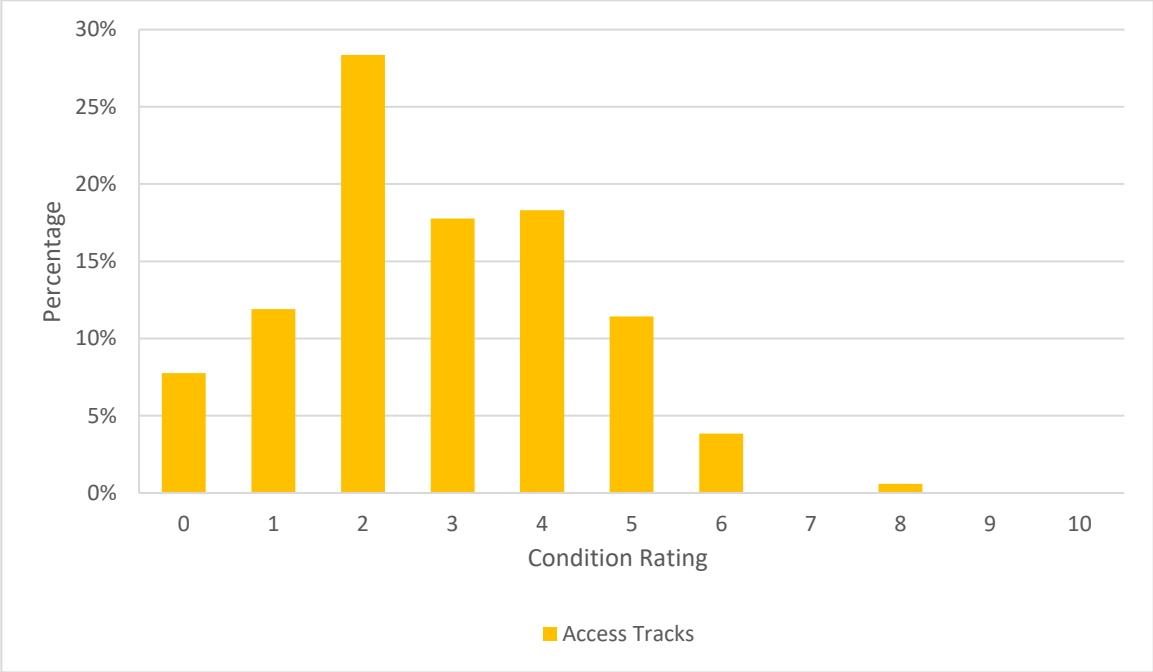
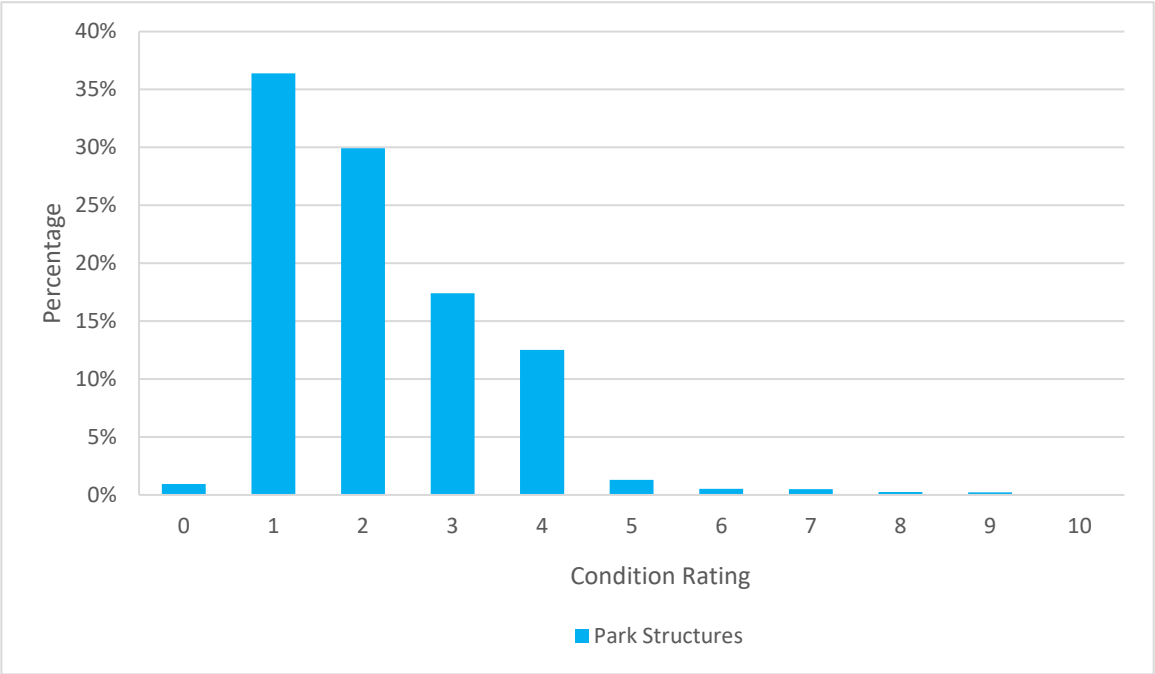


Figure 7: Asset Condition Profile for Natural Area Park Equipment Assets.

Figure 8: Asset Condition Profile for Natural Area Park Structure Assets.



4 LEVELS OF SERVICE

Identification of the current level of service (service levels) provided by the natural area asset portfolio is a key objective of the NAAMP. Service levels are defined in terms of community levels of service and operational (or technical) levels of service, with community service levels supported by operational or technical measures of performance. These service level terms are defined below:

- Community service levels relate to how the community perceives the service in terms of safety, quality, quantity, reliability, responsiveness, cost / efficiency and legislative compliance.
- Operational or technical measures of performance, termed 'Technical Levels of Service' (or technical service levels), relate to the allocation of resources to service activities that Council undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Current natural area service levels will be used by the City to:

- Inform customers of the expected level of service:
- Develop asset management strategies to meet, or continue, current service levels:
- Measure the effectiveness of asset management practices and NAAMP performance:
- Identify costs and benefits of the services offered: and
- Discuss and assess the suitability, affordability and equality of existing service levels

with customers, and to determine the future impact of increasing or decreasing these levels.

The Community Perception Survey (2020) indicates that the City performs on par to the industry average standards in relation to playgrounds, parks and reserves and sport and recreation facilities.

Although the data required to monitor and report on the City's specific performance in some areas is not currently available, it is considered that the current levels of service for parks assets are satisfactory and changes to these are unlikely to be required in the short term. Nevertheless, steps must be taken to measure current performance against the targets set in the Local Planning Policy 4.3 – Public Open Space unless otherwise justified - Refer Improvement Actions 5, 6 and 7.

4.1 Legislative Requirements

The planning, development, management, maintenance and use of City natural areas and the implementation of the NAAMP needs to consider the strategic context in which it operates including: International legislation, Federal legislation and policy, State legislation and policy, Regional policy and Local law and policy. Details of the relevant levels of legislation and policy impacting the City's natural areas are provided in Appendix E.

4.2 Community Levels of Service

The community level of service is currently measured by the Bi-Annual Community Perception Survey. The survey evaluates community priorities and measures Council's performance against key indicators in the Strategic Community Plan to determine the following:

- Overall satisfaction with the City;
- Perceived importance and satisfaction with services and facilities; and,
- Performance strengths, weaknesses and gaps.

Natural area parks are not specifically mentioned in the 2020 or previous year's surveys. Performance of the City's natural area parks are measured via the below individual services. Services are rated by respondents on a five point scale known as the Performance Index Score (PIS):

- Conservation and Environmental Management:

- Management of Local Beaches and Coastline: and Natural disaster education, prevention and relief (for bushfires, flooding, cyclones etc).

The 2020 results of the Performance Index Score, in comparison to the previous surveys, showed a significant improvement for the City's management of local beaches and the coastline as summarised in Table 12 below. Results are on par, or above, industry standards. 2020's complete Community Scorecard can found at 20/130511.

Table 12: Performance Index Scores for Natural Areas.

Community Perception Surveys	2010	2012	2014	2017	2020	Industry Average (2020)
Conservation and Environmental Management	55	55	60	56	59	**58**
Management of Local Beaches and Coastline	NA	NA	NA	58	67	**64**
Natural disaster education, prevention and relief (for bushfires, flooding, cyclones etc)	NA	NA	NA	55	57	**56**

Targeted research on customer expectation and satisfaction for the City's natural areas is limited. This will need to be a key area of work in the future and will be included in future updates of this plan. Without this specific evidence, the City can only maintain natural areas to the City's technical level of service. Investigate the addition of these subjects into future Community Perceptions Surveys: - Refer Improvement Action 5.

- Fire mitigation and prescription burning;
- Conservation and environmental management (including inclusions more clearly defined); and
- Specific service/reference for natural area parks. (Unclear if this subject is combined with 'Parks' but under the name 'reserves').

4.3 Technical Levels of Service

Technical levels of service for the assets of natural area parks (native vegetation and infrastructure) are discussed below.

4.3.1 Native Vegetation Assets

Technical Levels of Services for native vegetation assets are not specifically defined by the

City, however these will be developed as part of the Improvement Plan. Examples of service activities would include:

- Operations and maintenance – the activities necessary to ensure ecological function, vegetation condition and integrity are maintained as near as practical to agreed industry standards and relevant scientific guidelines (e.g. – weed management, revegetation, ground stabilisation, litter removal, removing or reducing the effect(s) of threatening processes etc).
- Renewal – implementation of industry standard revegetation and restoration activities that assist in: promoting the return of ecological function, improving vegetation condition and increasing the robustness and integrity of native vegetation within a natural area park.
- Upgrade/New – this service measure does not apply to native vegetation.

4.3.2 Natural Area Infrastructure Assets

Technical levels of service measures for infrastructure asset are linked to annual budgets covering:

- Operations and maintenance – the activities necessary to retain an infrastructure asset as near as practicable to an appropriate level of service (e.g. repair works, minor structure repairs).
- Renewal – the activities that return the service capability of an infrastructure asset up to that which it had originally (e.g. re-surfacing formalised EMVAT's, replacing fencing wire, replacing interpretative signage plates). An infrastructure asset is renewed when maintenance is no longer able to meet the required level of service.
- Upgrade/New – the activities to provide a higher level-of-service (e.g. increased robustness requirement for fencing/gates, provision of formalised EMVAT's, accessible amenities such as bench seating and drink fountains) to meet a higher usage demand.

Table 13: Technical Measures for NA infrastructure assets.

Service Criteria	Technical measures
Quality/ Condition	Condition of EMVAT surfaces and NA park access points, fencing suitability, and direction or educational signage. Accessibility to natural area infrastructure.
Function	Adequacy of natural area infrastructure to meet user's needs.

Service Criteria	Technical measures
Quantity	Natural Area Parks provided in accordance with Local Planning Policy – 4.3 Public Open Space and Developer's Structure Plans.
Safety	Number of injury complaints associated with natural area park assets.

Table 14: Current Technical Service Levels for NA Infrastructure Assets.

Key Performance Measure	Level of Service	Performance Measure Process	Performance Target
Quality/ Condition	Infrastructure assets renewed at the end of their useful life.	Condition Audits of all infrastructure assets.	Whole of infrastructure asset base condition audits completed once in every 5 years and prioritise for maintenance and renewal
Function	EMVATs to provide accessibility to natural area parks for Emergency and Maintenance Vehicles	Schedule Fire Mitigation works for completion by November 1 annually.	Fire Mitigation requirements for natural area parks to be complied with, and completed, in accordance with Section 33 of the *Bushfires Act 1954*.
Safety	Safe natural area parks	Injury complaints	Target to be set when new (Customer Management System) CMS is implemented - Refer Improvement Action 6.

Technical Level of Service for Natural Area Assets will be further developed over time, including the development of technical levels of service for native vegetation within natural area parks - Refer Improvement Action 7.

4.4 New/Renewal of Assets Level of Service Provision

The current level of service for the provision of new natural area park assets is covered in the Local Planning Policy 4.3 – Public Open Space. For natural area parks (known as Nature POS within the LPP4.3) the policy defines the standard requirements to be addressed, including:

- No earthworks except where it pertains to grading for universally accessible trails;
- Weed control management strategy;
- Tree/bush retention;

- 3m wide vehicle access gates for maintenance, service and emergency vehicles (includes fire access);
- Cement stabilised limestone trail surfacing;
- Benches/Seating (off access track on concrete pad);
- Directional or Interpretative signage;
- Pedestrian access control gates (where appropriate);
- Development and implementation of a management plan; and
- Park sign wall with signage panel and play as per City of Wanneroo signage style guide.

To support LPP4.3, and to provide further clarification for new and renewal works, Community Facilities plan to develop a hierarchy of documents, focusing on policies, strategies, design guidelines and specifications to inform the planning and design of the City's open space (including natural area parks) and community buildings. It will involve the development of evidence based standards that will provide the City with justified benchmarks and other criteria in order to determine facility requirements into the future. These standards will influence the provision of all new infrastructure and will inform the City's asset management plans in terms of renewal, upgrades and maintenance - Refer Improvement Action 8.

4.5 Maintenance of Assets Level of Service

The City's current levels of service specific to the operational maintenance activities for Parks and Reserves are shown in Table 15 below. The level of service for maintenance standards varies dependant on the classification listed below (Bushland, Foreshore, Wetland and Buffers). Levels of Services were adopted by Council in 2011, review is required to ensure they remain relevant - Refer Improvement Action 9.

Table 15: Service Levels – Conservation.

CONSERVATION								
Class	**Description**	**Example**	***Boundaries***	***Fire Mitigation***	***Weed Control***	***Signage***	***Tracks***	***General***
Bushland	Conservation areas with bushland as sole component and bushland components of Passive Parks	Koondoola Regional Bushland, Waldburg Park	Boundaries are to be kept clear of weeds and rubbish at all times. Maintain gates, locks and fences in good repair and working order	Carry out seasonally programmed fire mitigation in conjunction with FESA and the relevant State Fire regulations	Carry out Annual woody, annual and perennial weed control programs as per seasonal requirements. Utilise current industry best practice with control methods	Ensure signs are visible and well maintained. Report graffiti/ vandalism within 24 hours	Maintain in good order, repair erosion to limestone surfaces, maintain hard stands adjacent to entry points	The Work Practice Manual identifies the full task range, staff responsibilities and reporting. All staff are to familiarise themselves with this.
Foreshore	Coastal frontal sand dunes and rocky outcrops	North Mindarie Foreshore, Yanchep lagoon	Boundaries are to be kept clear of weeds and rubbish at all times. Maintain gates, locks and fences in good repair and working order	Carry out seasonally programmed fire mitigation in conjunction with FESA and the relevant State Fire regulations	Carry out Annual woody, annual and perennial weed control programs as per seasonal requirements. Utilise current industry best practice with control methods	Ensure signs are visible and well maintained. Report graffiti/ vandalism within 24 hours	Maintain in good order, repair erosion to limestone surfaces, maintain hard stands adjacent to entry points	The Work Practice Manual identifies the full task range, staff responsibilities and reporting. All staff are to familiarise themselves with this.
Wetlands and Buffers	Conservation category wetlands	Lake Joondalup	Boundaries are to be kept clear of weeds and rubbish at all times. Maintain gates, locks and fences in good repair and working order	Carry out seasonally programmed fire mitigation in conjunction with FESA and the relevant State Fire regulations	Carry out Annual woody, annual and perennial weed control programs as per seasonal requirements. Utilise current industry best practice with control methods	Ensure signs are visible and well maintained. Report graffiti/ vandalism within 24 hours	Maintain in good order, repair erosion to limestone surfaces, maintain hard stands adjacent to entry points	The Work Practice Manual identifies the full task range, staff responsibilities and reporting. All staff are to familiarise themselves with this.

Source: CoW Service Levels Parks, Streetscapes and Conservation, 2011.

Table Notes:

1. *These standards acknowledge the availability of resources to maintain these facilities.*
2. *All defects and repeated maintenance issues (cost of cycle), to be investigated and rectified in appropriate timescale.*
3. *The number and schedules of the maintenance visits may change subject to seasonal requirements and specific needs for each location*

4.6 Asset Levels of Services and Consultation Results

The City conducts community level of service consultation through the Community Perception Survey as outlined in Section 4.2 above. No formal consultation is completed regarding technical levels of service. The technical levels of service have developed and evolved due to policy changes, legislative requirements, industry recognised best practice techniques, scientific literature, safety and precedents established over time.

5 LIFE CYCLE MANAGEMENT

Life cycle management details how the City plans to manage and operate natural area assets at established levels of service, whilst optimising life cycle costs.

The ability to meet the defined levels of service is determined, in part, by how these natural area assets are managed through their life. When assets do not perform as required, they are maintained, renewed, upgraded or disposed of. Recurrent maintenance works, capital works renewals and upgrades, one-off creations and asset disposal form part of the activities required to provide a satisfactory level of service. The parameters used in the estimation of infrastructure assets life-cycle costs such as useful life, deterioration factors, intervention condition are shown in Appendix A.

Figure 9: Asset Life Cycle (Source: IPWEA, 2015).

Responsibility sits across different City business units at each stage of a natural area assets life cycle. A summary for each activity undertaken during the life of a natural area asset and the relevant service unit(s) responsible, is detailed in Table 16 below.

Table 16: Responsibility for natural area asset lifecycle stages.

Lifecycle Stage		Responsibility - Infrastructure	Responsibility – Native vegetation
Create / Build	Determination of need	Collaboration between Asset Planning (AP) and Tree and Conservation Maintenance (TCM) for City built assets Note: depending on the type of asset, other relevant City Service Units will be involved in the planning stages, e.g. Asset Maintenance (AM), Community Safety and Emergency Management (CSEM), Facilities Planning (FP), Place Management (PM) etc.	Not applicable.
		Strategic Land Use Planning and Environment (SLUPE) and/or Land Development (LD) for NA parks resulting from development of new subdivisions (Developers).	
	Construction of asset	Infrastructure Capital Works (ICW) or TCM, managing external contractors for City built assets	Not applicable.
		LD for NA parks resulting from development of new subdivisions (Developers).	
Operate / Maintain	Planning of maintenance requirements	Collaboration between TCM and AM (Engineering and/or Building) for City maintained natural area assets	TCM
		Collaboration between SLUPE or LD and relevant City service units for the review and endorsement of a Developers Environmental Management Plan (EMP) for Developer maintained natural area assets	
	Maintaining assets	TCM or AM (Engineering and/or Building), managing external contractors for City maintained assets	TCM, managing external contractors for City maintained assets
		LD liaising with, and managing the Developer (as required), for Developer maintained natural area assets (until assets are handed over to the City)	
Renew	Planning of renewal requirements	AP	Collaboration between AP and TCM
	Construction of renewal projects	ICW or TCM, managing external contractors	
Dispose	Disposal planning	Collaboration between AP and TCM	Collaboration between Property Services (PS) and

			other relevant City Service Units. Note: although the relinquishment of a NA park is unlikely to occur, it should be noted that these assets are not owned by the City, they are Crown Land with City of Wanneroo management orders. Therefore, in certain instances, it may be necessary for the City to relinquish the management of these assets.
	Disposal of asset(s)	ICW or TCM, managing external contractors	PS
Overall Asset Management		AP	

Lifecycle management for the City's natural area park assets covered by this NAAMP will be discussed separately in further detail below.

Native vegetation assets

Native vegetation assets are maintained by the City with the focus of perpetual management. Integral to the maintenance and long-term management of native vegetation is vegetation extent, type and condition data, without which, effective natural area conservation management could not occur. The assessment and monitoring of changes to vegetation condition over time, enables comparisons and evaluations of the effectiveness of the City's maintenance and management techniques, the instigation of adaptive management processes and detection of impacts of threatening processes, such as frequent fire, erosion, climate change and disease. Surveying for the extent, type and condition of native vegetation – Refer Improvement Action 4.

Infrastructure assets

NA parks infrastructure assets are maintained by the City throughout their useful life and their performance and condition are monitored to ensure that they deliver a satisfactory service to the community at an appropriate cost. In addition to age, varying factors, including usage, climatic conditions and vandalism, can contribute to the decline in the useful life of infrastructure assets within the City's NA parks. Infrastructure asset condition inspections / audits / assessments – Refer Improvement Action 10, 11, 12 and 13.

Coastal proximity is a factor to consider in NA park infrastructure asset lifecycle management, especially the effect on useful life. Infrastructure assets in proximity to coastal conditions will need to be constructed to a higher standard (including materials), due to accelerated

deterioration as a result of coastal factors. Currently at the City, no standard distance measurement(s) for quantifying the effects of coastal proximity exists across the City's various asset classes. Investigation, definition and agreement of the coastal proximity factor for all City asset classes for both new / upgraded / renewed infrastructure assets and the implications of asset maintenance and management – Refer Improvement Action 14.

Responsibilities need to be further defined and clarified for specific natural area assets, e.g. gazebo upgrades - Refer Improvement Action 2

5.1 Creation / Acquisitions / Upgrades

External factors drive the demand for new, upgraded or renewed natural area assets.

The provision of natural area park assets occurs via the following ways:

- Gifted by developers in new subdivisions as/or within POS (NA parks).
- Required outcomes of conditioned environmental approval(s) due to assessments and decisions under applicable Environmental Law(s). Applications and assessments are instigated due significant impacts of projects or land developments on remnant vegetation and/or matters of national environmental significance.
- New, upgrade or renewal works by the City, for example;
    - Native vegetation assets: rehabilitation projects to improve vegetation condition and structure, increase vegetation cover and to address threatening processes etc.
    - Infrastructure assets: built or upgraded to improve accessibility for emergency and maintenance vehicles and personnel, passive recreation pursuits for community members, or to assist in providing education about, and protection to, native vegetation.

As a growth council, new NA park assets are gifted annually through new developments (primarily residential) as a result of State planning requirements for Public Open Space (POS). A further consequence of these new developments, is the significant impacts they have upon remnant vegetation and/or matters of national environmental significance, due to which initiates the condition(s) of further retention of remnant vegetation and complimentary infrastructure assets within NA parks. Generally, resulting in the over-provision of Nature POS within a development, i.e. over and above the State planning requirements for POS.

As defined in Table 16, Land Development (LD) is responsible for approving and managing the provision of new natural area park assets in development areas (i.e. POS gifted by

Developers) and where an infrastructure asset is created, renewed or upgraded by the City, the areas primarily responsible are Asset Planning (AP), Tree and Conservation Maintenance (TCM) and Infrastructure Capital Works (ICW).

The City's capital works program includes the renewal, upgrade and provision of new natural area assets. This is driven by asset management data, external factors such as community requests (i.e. friends groups, bushcare groups), internal City requests (i.e. CSEM, FP, PM (including TCM)), State agency requests (i.e. DBCA, DFES) and/or endorsed plans such as those listed below (for further plan details see References in Section 10):

- Location specific Environmental Management Plans (e.g. CAMP / WMP / FMP);
- Yellagonga Integrated Catchment Management Plan (YICM);
- Parks Service Levels (adopted in 2011) – see Table 15 (Section 4.5 above);
- Local Planning Policy 4.3 – Public Open Space (LPP 4.3) (adopted April 2021);
- Local and District Structure Plans;
- Strategic Community Plan (SCP); and
- Access and Inclusion Plan (AIP) 2018/19 – 2021/22.

The City's LPP 4.3 defines Council's position on the planning, provision, location, design and development of POS. Specifically, part 2 of this policy outlines the design and provision requirements in section *'3.4 Nature POS*' for natural area parks, and Schedule 5 of the policy describes the compliance criteria required to attain minimum viability of a proposed natural area park (i.e. a scored assessment of size, shape, perimeter to area ratio, vegetation condition and connectivity). All plans submitted by Developers are reviewed against this policy to ensure compliance, in some instances an over-provision is deemed acceptable (i.e. in cases where assets have been conditioned as a part of assessments and decisions made under applicable Environmental Law(s)). In these cases, the City may need to budget for additional renewal in future years.

The City has a capital program of works for:

- new/upgrade of fencing and signage,
- new/upgrade of Emergency and Maintenance Vehicle Access Track's (EMVAT),
- native vegetation rehabilitation projects and
- renewal of infrastructure assets (e.g. fencing and gates, signage – park name sign and interpretative, EMVAT's, gazebos, bench seats, boardwalks and steps (non-coastal), bird nesting structures, pathways, lighting, drink fountains, walls and safety rails).

The capital program of works for natural area parks is instigated in a variety of ways, these

are explained for key infrastructure asset types below.

5.1.1 Access tracks – EMVAT's (ESL, Limestone and Sand)

EMVAT's allow emergency and maintenance vehicles access to the City's natural area parks, these tracks also allow for passive recreation pursuits such as bushwalking and bird watching.

The listing and programming of sand tracks upgraded to limestone, or the renewal of limestone tracks to ESL tracks in the capital works program, is subject to the following:

- Ease of emergency or maintenance vehicle access;
- Risk / safety issue being present;
- Bushfire risk rating of the Natural Area Park that the EMVAT is located.
- Request from internal or external stakeholder; and
- Presence of flora or fauna values within and along the proposed track's alignment.

Once the above factors are known, relevant stakeholders meet to discuss listing and prioritising tracks in the City's program of works. If works are subject to requiring an environmental application and assessment prior to commencement of works, these sites are delayed until the relevant assessments have been completed and decisions have been received.

5.1.2 Park Structures - Fencing, Bollards and Gates

Fencing, bollards and gates provide for managed access via designated access points for the communities passive recreational pursuits, ensuring the flora and fauna values of the natural area reserves are not negatively affected or impacted by unmanaged access. These types of infrastructure also assist in reducing, and preventing, unauthorised access from trail bikes and 4wd vehicles.

The listing and programming of fencing, bollards or gates in the capital works program, is subject to the following:

- Ease of access for emergency or maintenance vehicle;
- Risk / safety issue being present;
- Vandalism issue being present;
- Requirement to define access points and provide managed and safe access;
- Request from internal or external stakeholder; and
- Presence of flora or fauna values requiring protection.

Once the above factors are known, relevant stakeholders meet to discuss listing and prioritising these assets in the City's program of works. If works are subject to requiring an environmental application and assessment prior to commencement of works, these sites are delayed until the relevant assessments have been completed and decisions have been received.

5.1.3 Park Structures - Signage - Park Name, Interpretative etc

Signage provides opportunities for the City to convey Regulatory, Directional or Advisory information to NA park visitors to better inform recreational pursuits. Regulatory information advises NA park visitors of potential risks within the park and/or penalties for inappropriate NA park use. Directional Signage (generally a Park Name Sign) provides NA park users location information about the site they are visiting. Advisory or Informational signage (for example Interpretative Signage) provides park users specific information about the NA park they are visiting, including: flora and/or fauna values, historical land uses, heritage site information, threats to the park etc.

The listing and programming of signage works in the capital works program, is subject to the following:

- Requirement to provide directional or informative signage (City policy, management plan or condition of approval);
- Opportunities for education or citizen science;
- Presence of pedestrian access into, and throughout, the NA park;
- Presence of flora or fauna values;
- Request from internal or external stakeholder; and
- Stakeholder partnerships (schools, bushcare groups, DBCA etc).

Once the above factors are known, relevant stakeholders meet to discuss listing and prioritising signage requirements in the City's program of works. If works are subject to requiring an environmental application and assessment prior to commencement of works, these sites are delayed until the relevant assessments have been completed and decisions have been received.

The Access tracks and Park structures detailed above are all infrastructure assets that are subject the City's Project Management Framework (PMF) process requirements, as well as, the agreed Handover (HO) process between Infrastructure Capital Works (ICW) and Tree and Conservation Maintenance (TCM). This includes but is not limited to:

- completion of relevant project documentation throughout the life of the project,
- a Practical Completion (PC) meeting following completion of construction works between the City and the Contractor;
- a Handover meeting prior to handing over the newly built, upgraded or renewed asset from ICW to TCM for ongoing day to day planned and reactive maintenance;
- Completion of handover memo and provision of relevant document from ICW to TCM; and
- Completion of Asset Records Sheets and provision of relevant document from ICW to AP to update and validate the City's asset database.

Following handover of the infrastructure asset to TCM, ongoing maintenance is required to be scheduled to ensure that the newly created, upgraded or renewed infrastructure asset(s) are maintained in accordance with their specific life cycle requirements. The handover of assets impacts and informs TCM's maintenance schedules, resourcing and funding requirements. Planned maintenance ensures that infrastructure assets do not fail or require early intervention for upgrade or renewal and ensures that the assets attain their useful age requirements.

5.1.4 Native Vegetation - Revegetation/Rehabilitation

Threatening process in bushland, coastal foreshore and wetland environments place pressure on flora and fauna values within natural area parks causing degradation.

Threatening process such as weed invasion, feral animals, the impact of increased fire regimes and climate change, pathogens, unrestricted access (trampling of vegetation) and vandalism etc result in negative impacts to native vegetation and cause the decline of vegetation from an acceptable condition to a degraded condition with a complete loss of ecological function. When this occurs, vegetation cover and species richness is lost with an increase in bare areas, thus resulting in further weed invasion. These degraded sites are a liability to the surrounding native vegetation, increasing pressure on the remainder of the natural area park.

Degraded locations are identified by City staff and mapped for consideration and prioritisation in the annual program of Capital Works (CW). Sites that contain key flora or fauna species are considered to be high priority, whereas in coastal foreshore environments sites that contain 'blowout's' are considered a higher priority than those that don't (blowouts can increase exponentially in size without intervention). Other considerations could include the support and/or presence of bushcare groups /community groups that may assist with ongoing management requirements.

Other revegetation sites, such as those resultant from conditions of environmental approval documents (known as 'environmental offset sites'), are selected due to their proximity to the native vegetation clearing site, large extents of vegetation in a degraded condition and ability to provide large-scale revegetation/rehabilitation opportunities. In addition to revegetation/rehabilitation with existing City natural area parks, there are instances when the City is required to procure new sites/land to vest as natural area parks or vest in State agencies for perpetual management. In the instance of an environmental offset site being a requirement, it is necessary for the City to comply with the conditions stipulated in the approval documentation and is subject to compliance activities and annual reporting regarding the progress and success of the revegetation/rehabilitation site(s).

Revegetation and rehabilitation projects detailed above are subject the City's Project Management Framework (PMF) process requirements, as well as, the agreed Handover (HO) process between Infrastructure Capital Works (ICW) and Tree and Conservation Maintenance (TCM). This includes but is not limited to:

- completion of relevant project documentation throughout the life of the project;
- Monthly inspection meetings between ICW and the City's contractor during the life of the project to discuss project progress, success to date and upcoming works;
- a Practical Completion (PC) meeting following completion of final revegetation/rehabilitation works between the City and the Contractor;
- a Handover meeting prior to handing over the revegetation/rehabilitation site from ICW to TCM for ongoing day to day planned and reactive maintenance at the end of the 2 year project cycle (generally held after June 30th);
- Completion of handover memo and provision of relevant document from ICW to TCM; and
- Completion of Asset Records Sheets and provision of relevant document from ICW to AP to update and validate the City's asset database.

Following handover of the revegetation/rehabilitation site to TCM, ongoing maintenance is required to be scheduled to ensure that the revegetation/rehabilitation site is maintained in perpetuity. The handover of revegetation/rehabilitation assets impacts and informs TCM's maintenance schedules, resourcing and funding requirements. Planned maintenance of these sites ensures that newly revegetated/rehabilitated assets do not fail or require early intervention for capital renewal and ensures that other degraded areas present within the City's natural area parks can be programmed for renewal, instead or re-renewing the CW sites continually. The continual re-listing of previous revegetation sites in capital renewal projects prevents the City actioning threatening processes affecting natural area parks which if left, can

increase the size of degraded areas considerably and negatively affect the flora and fauna values of the site, in addition to impacting NA park aesthetics.

5.1.5 Program of Works

Table 17 below, provides a snapshot of the types of works proposed within natural area parks and summarises the current City program of works. Future years proposed works is included in Appendix F: Natural Area Capital Works Program (includes 3x sub-programs) and is updated on an annual basis dependant on risk and priority.

Table 17: Current Program of City Works (2020-21).

PR Number	Description	Comment	Responsibility
Sub-Program: Environmental Offset			
PR1006	New Sites for Environmental Offset Requirements	Native vegetation rehabilitation requirements and construction of new infrastructure assets within Mather Reserve, Neerabup and Mary Street Park, Wanneroo conditioned under Environmental Law(s) to enable the City's development of the Neerabup Industrial Area, Neerabup.	Advocacy and Economic Development (AED) and Infrastructure Capital Works (ICW)
PR2088	Renewal site for Environmental Offset Various Requirements	Native vegetation rehabilitation requirements and construction of new infrastructure assets within Badgerup Reserve, Wanneroo conditioned under Environmental Law(s) to enable the City's construction works on various major roads (Ocean Reef Road, Hawkins Road, Brazier Road and Franklin Road).	Asset Planning (AP) and ICW
PR2089	Renewal site for Environmental Offset Requirements	Native vegetation rehabilitation requirements and construction of new infrastructure assets within Honeypossum and Boomerang Reserves, Banksia Grove conditioned under Environmental Law(s) to enable the City's construction works on various roads (Wesco Road and Hester Avenue).	AP and ICW
PR4178	Renew Site for Environmental Offset Old Yanchep Road	Native vegetation rehabilitation requirements and construction of new infrastructure assets within Badgerup Reserve, Wanneroo conditioned under Environmental Law(s) to enable the City's construction works on Old Yanchep Road, Neerabup/Pinjar.	AP and ICW
Sub-Program: Conservation Reserves			
PR1101	Recurring program, Upgrade fencing within conservation reserves	Upgrade fencing within bushland and wetland natural area parks under the City's management.	AP, Tree and Conservation Maintenance (TCM) and ICW
PR1567	Recurring program, Renew conservation reserves	Renew/restore bushland and wetland environments within natural area parks under the City's management.	AP, TCM and ICW
PR1680	Recurring program, Upgrade tracks	Upgrade sand tracks to crushed limestone tracks (EMVAT's) in natural area parks under the City's management on an agreed priority basis.	AP, Community Safety and Emergency Management (CSEM), TCM and ICW

PR2658	Recurring Program, Renew Natural Area Assets	Renewal of NA park structures as they reach the end of their useful life	AP and ICW
Sub-Program: Foreshore Management			
PR2016	Recurring program, Renew Foreshore	Restoration of dune environments within coastal foreshore reserves under the City's management, including: Mindarie, Quinns Rocks, Jindalee, Yanchep and Two Rocks.	AP, TCM and ICW
PR2017	Recurring program, Upgrade foreshore fencing at various locations	Upgrade fencing within coastal foreshore reserves under the City's management, including: Mindarie, Quinns Rocks, Jindalee, Yanchep and Two Rocks.	AP, TCM and ICW
As issued	New works including EMVAT's, Fencing, Bird Hides, Signage etc.	Following a project request from an internal or external stakeholder, AP investigates the proposal with relevant stakeholders, undertaking any additional studies required. If the request is approved, the project proposal is finalised and programmed into the Capital Works programme.	Various natural area stakeholders including: AP, TCM, CSEM, ICW etc

5.1.6 Developer contributed assets

Annually, the amount of natural area assets received via developer contribution are low in comparison to the number received via the City's own capital works program. In comparison to the City's other asset types, only a small amount of natural areas assets are received via developer contribution (e.g. 1 to 2 natural area parks every few years, verses 1 to 3 passive parks received annually). Due to the minimal amount of natural area assets received via developer contribution on an annual basis, the City's capture and analysis of the developer contributed natural area parks and infrastructure assets data requires improvement. Improved capture of this data will enable the City to plan for anticipated growth, plan for expenditure within the operating and capital works budgets, undertake comprehensive asset lifecycle planning and assist with the prioritisation of asset upgrade and renewal works – Refer Improvement Action 15.

5.1.7 Improvements

Where development of new, upgraded or renewed assets is proposed (by either Developers or the City), the roles of all stakeholders to be documented to provide clarification of responsibilities - Refer Improvement Action 16.

- ➔ ie Develop a Stakeholder Engagement & Communication Matrix for new, upgrades or renewal of the natural area assets lifecycle.

During a Developers maintenance period for natural area parks, and to ensure compliance with the approved EMP, document procedures/processes to enable the City to ensure assets are adequately maintained to the City's satisfaction throughout the life of the asset prior to acceptance by the City. - Refer Improvement Action 17.

Lifecycle planning should be considered for new assets and major upgrade works. When the Developer constructs or the City plans new natural area assets, the costs associated with the assets should be reported to ensure good asset management. These include costs throughout the life of the asset: maintenance, renewal, replacement, disposal. This provides Council Members, and the City's leadership team a projects true costs - Refer Improvement Action 18.

5.2 Operational and Maintenance Planning

Operations and maintenance is the regular on-going work that is necessary to keep assets at an acceptable level of service, including instances where portions of the asset fail and need

immediate repair to make the asset operational again. Maintenance includes reactive, planned and cyclic maintenance work activities.

The responsibility for maintenance of natural area park assets sits with Parks & Conservation Management service unit, specifically the Tree and Conservation Maintenance (TCM) sub unit. Maintenance works are carried out by both internal City employees and City engaged contractors. In some instances, the City is increasing the utilisation of contractors for maintenance works due to:

- Space constraints within Ashby Operations Depot, preventing growth in team and storage of necessary equipment and vehicles needed to service all City managed natural area parks.
- Specialised maintenance requirements of technical infrastructure assets that are being handed over to the City.
- Specialised maintenance requirements of native vegetation assets, including weed management, rehabilitation works etc.
- The extent of the City. Travel for internal crews from the Ashby Operations Depot to the City's outlying suburbs (i.e. Two Rocks) cuts into the time available to maintain the City's natural area parks.

5.2.1 Maintenance tasks and programmes

Assessment and prioritisation of reactive maintenance is undertaken by the City's TCM team using experience and judgement. Maintenance tasks and activities associated with the maintenance of natural area park assets are both numerous and varied. While a large proportion of TCM task procedures are documented, integration of these activities with a dedicated system is currently lacking.

Current maintenance expenditure levels are considered inadequate to meet certain key service levels, such as response times.

Both maintenance items above will be improved, and evaluated in conjunction with, the development of the Natural Area Maintenance Management Plan (NAMMP) - Refer Improvement Action 19.

While the City currently has various maintenance programs and emergency response mechanisms for natural area park assets, including the 2019 Conservation Maintenance Work Practice Manual, it is recommended to develop and document a formal NAMMP detailing the maintenance, inspection and preventative maintenance activities that are required to meet the

agreed levels of service to ensure that natural area assets meet their full potential. Some examples of what will be included in the NAMMP are:

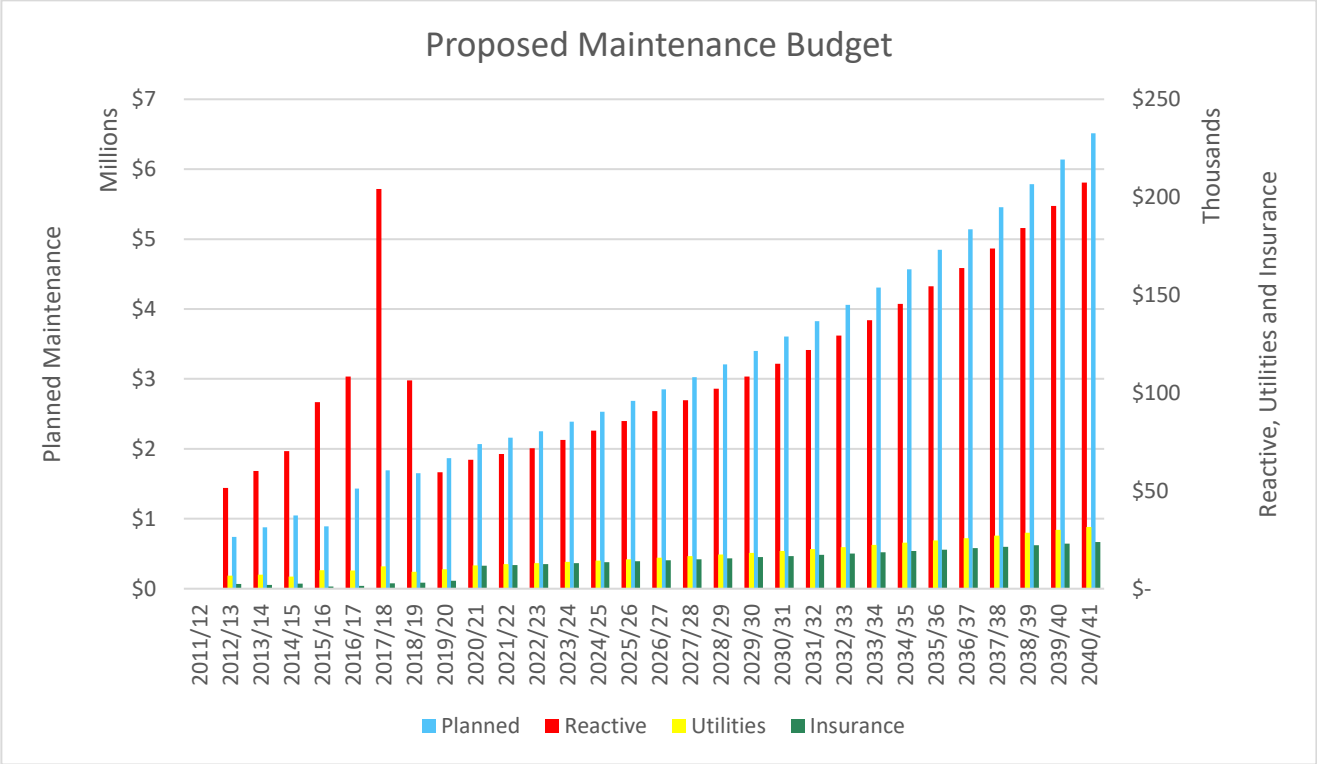
- Asset audits and inspections (infrastructure and native vegetation);
- Community event management;
- EMVAT maintenance clearances, pruning, weed management activities;
- Fauna management;
- Fire mitigation and management;
- Management and maintenance of Aboriginal and European sites of cultural significance;
- Native vegetation pruning and removal (if necessary);
- Natural area infrastructure assets hazard intervention levels and risk assessment;
- Natural area park equipment cleaning and maintenance (e.g. drink fountains and pest equipment);
- Natural area park furniture and structures cleaning and maintenance (e.g. gazebo's, fencing, gates, bench seats, signs etc);
- Nursery services including, seed collection and propagation;
- Pathogen management;
- Pest management;
- Rehabilitation activities including, site preparation and stabilisation, planting, watering etc;
- Waste management;
- Weed management program, including woody weed removal;
- Works procedures;
- Works schedules.

The City's work order and complaints recording system does not provide adequate information on maintenance work types, costs and identification of asset on which the maintenance is carried out. This is a key barrier for maintenance planning and for asset life-cycle costing, with this information needed to identify optimum renewal intervention levels for the renewal of assets. The AMIS (which is in development and testing phase) will assist in addressing shortcomings - Refer Improvement Action 3.

Using 2020/21 maintenance expenditures as the baseline/reference level, future operational and maintenance expenditure are forecasted as shown in Figure 10 below.

Figure 10: Twenty Year Planned Park Maintenance Expenditure.

(based on the 2020/21 Twenty Year LTFP growth projections – does not include inflation).



Source: NAAMP Modelling Spreadsheet, Modelling tab (See HPE: 21/220038).

5.3 Renewal

5.3.1 Native Vegetation Assets

The City has an annual native vegetation rehabilitation (renewal) program in the long term Capital Works Program to progressively rehabilitate and revegetate native vegetation assets within City managed natural area parks that are presenting impacts of threatening processes or have reached a poor or degraded level of vegetation condition. Project costs are dependent on vegetation condition of the proposed project site, impacts of threatening processes (climate change, frequent fires etc) in addition to site specific factors including: grades, vandalism, accessibility etc.

In lieu of up to date and complete vegetation condition scale data for all City managed natural area parks, rehabilitation projects are planned via collaborations of relevant City Service units, ongoing maintenance requirements, similar works located in proximity to a proposed rehabilitation project (economies of scale and greater ecological outcomes) and community and relevant stakeholder requests and concerns (including friends groups). The receipt of accurate vegetation condition data will assist in informing future rehabilitation priorities and programs - Refer Improvement Action 4.

5.3.2 Infrastructure Assets

The City has an annual natural area infrastructure asset renewal program in the long term Capital Works Program to progressively renew or replace natural area infrastructure assets that have reached the end of their useful life. Allowances are made to the total renewal costs to consider improved accessibility and functionality of natural area infrastructure assets.

The long term renewal demand requirement is derived from predictions made using available infrastructure asset condition data and expected useful life of assets using the City's self-developed renewal spreadsheets. Once the AMIS is implemented, it will be used for renewals modelling - Refer Improvement Action 3.

The useful lives of each natural area infrastructure asset component, deterioration rate factors and the corresponding intervention condition level (which is an agreed trigger point at which a renewal of the asset component will be required) used in the renewal prediction model and evaluations are as shown in Appendix A.

The annual infrastructure asset renewal program is developed and prioritised based on the following criteria:

- the overall age and/or condition of the assets and its components:
- the ongoing maintenance demand:
- works being aligned where possible by location or locality (to take advantage of cost efficiencies through economies of scale): and
- community and relevant stakeholder requests and concerns.

Infrastructure assets identified for renewal in the following year's budget are re-inspected to verify the accuracy of their remaining useful life estimate and to confirm if the asset is in fact due for renewal, or if they can continue to provide adequate service prior to renewal. Details of the annual infrastructure asset renewal projects are contained in Appendix F.

5.3.3 Natural Area Assets – renewal responsibility and specifications

The responsibility for the programming of renewals of both native vegetation and infrastructure assets within natural area parks lies with Asset Planning. Construction of renewal works is project managed by Infrastructure Capital Works (ICW) with physical work predominantly undertaken by external contractors.

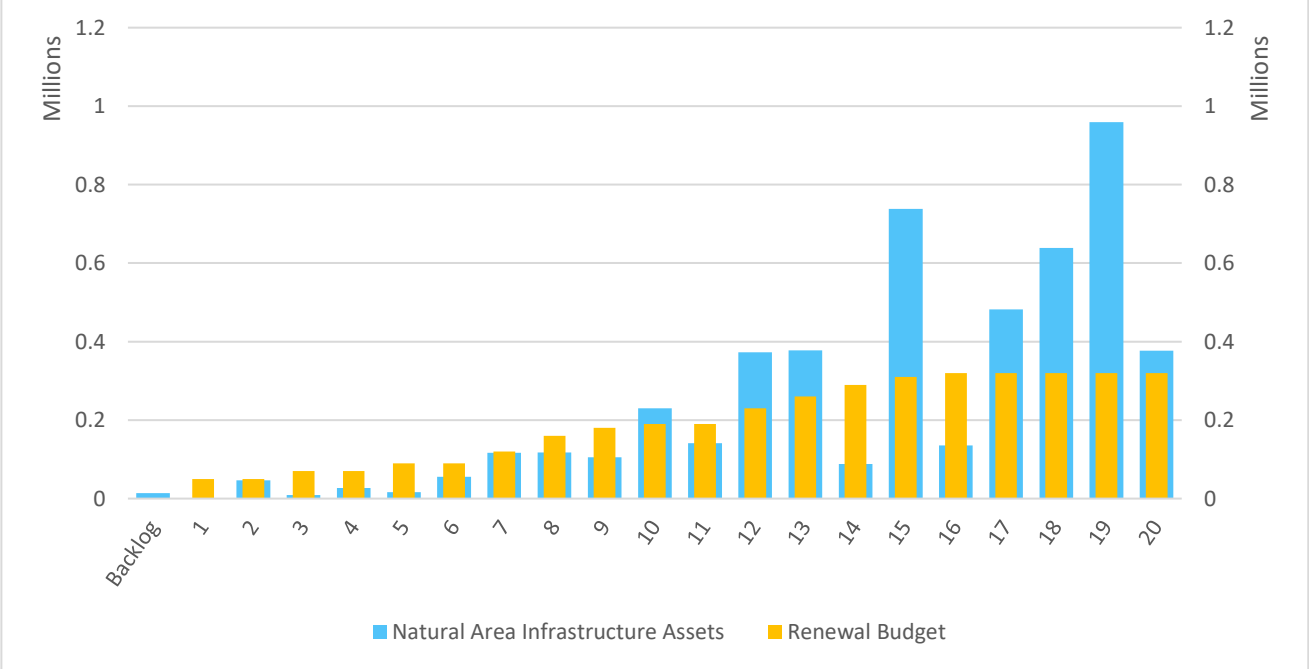
The suite of documents being prepared by Community Facilities will develop design guidelines and specifications to inform the planning and design of open space (natural area parks) and

community buildings within the City. It will involve the development of evidence based standards that will provide the City with justified benchmarks and other criteria in order to determine facility requirements into the future. These standards will influence the provision of all new infrastructure and will inform the asset management plans in terms of renewal, upgrades and maintenance - Refer Improvement Action 8.

5.3.4 Renewal Forecast

The forecast for the renewal of natural area park infrastructure assets and the corresponding renewal funding allocation in the 20 year long term capital renewal budget is as shown in Figure 11 below.

Figure 11: Natural Area Infrastructure Assets – Renewal Forecast v Budget.



The available data recorded indicates that the condition assessments are past due, therefore the condition used in the forecast may not be accurate. In instances where renewal funding requirements are low, it is proposed to transfer surplus funding requirements into renewal reserves until needed.

5.4 Disposal

Disposal requirements are assessed on an individual case-by-case basis. Infrastructure asset disposal is mainly driven by the requirement to replace the asset as it reaches the end of its

useful life. Native vegetation disposal (at a natural area park level), is generally driven by the Department of Planning, Lands and Heritage (DPLH) as the owners of Crown Land under the *Land Administration Act 1997*. As the City manages the land, the City has input into the process, however in some circumstances the land may be relinquished.

Natural area park assets are reported for financial purposes at the time of disposal. There is currently no scheduled plan developed for the disposal of natural area park assets. A needs investigation to be undertaken to determine if a disposal plan is required - Refer Improvement Action 20.

5.5 Standards and Specifications

The standards and guidelines used in building, maintaining and renewing assets based on the three (3) types of environments found within the City's natural area parks are detailed in the table below.

Table 18: Standards and specifications for natural area parks.

Standards and Guidelines	**Environments within the City's natural area parks**		
	Bushland	*Coastal Foreshore*	*Wetlands*
Approved and endorsed Environmental Management Plans (EMP) for specific natural area parks (including, CAMP, FMP and WMP)	*	*	*
Australian Standards	*	*	*
Bushfire Risk Management Plan	*	*	*
Climate Change Adaptation & Mitigation Strategy 2020/21 – 2025/26	*	*	*
City Policy's (e.g. Pesticides Management Policy, Weed Management Policy etc)	*	*	*
City of Wanneroo Guidelines and Standard Drawings	*	*	*
Coastal Assets Policy		*	
Coastal Hazard Risk Management Adaption Plan (CHRMAP)		*	
Coastal Management Plan Part 1 (under review)		*	
Environmental Management Plan (EMP) Guidelines (including FMP guidelines)	*	*	*
Firebreak Location, Construction and Maintenance Guidelines (FESA)	*	*	*

Industry best practice management techniques for the management of natural areas	*	*	*
Local Biodiversity Plan 2018/19-2023/24	*	*	*
Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (WALGA) 2004	*	*	*
Local Environmental Strategy 2019	*	*	*
Local Government Guidelines for Bushland Management (In the Perth and Coastal South-West Natural Resource Management Regions Western Australia)(WALGA) 2009	*	*	*
Local Government Guidelines for Subdivisional Development (IPWEA, 2016).	*	*	*
Local Planning Policy 1.1 – Conservation Reserves	*		*
Local Planning Policy 4.3 – Public Open Space (specifically, 'Nature POS').	*		*
Managing Phytophthora Dieback – Guidelines for Local Government (Dieback Working Group) 2000	*	*	*
Occupational Safety and Health Act 1984 (the OSH Act) and the Occupational Safety and Health Regulations 1996 (the OSH regulations)	*	*	*
State Planning Policy 2.6 – Coastal Planning		*	
Yellagonga Integrated Catchment Management Plan (currently under review)	*		*

TCM utilises the '2019 Conservation Maintenance Work Practice Manual' internal document to inform operational tasks and activities within natural area parks. During the development of the NAMMP (Refer Improvement Action 19), the work practice manual will be reviewed to ensure all procedures and maintenance activities for NA park assets (including inspection requirements, responsibilities etc) are described - Refer Improvement Action 21.

6 RISK MANAGEMENT

The City's Risk Management Policy provides details of the City's Risk Management Framework, procedures and processes for identifying, analysing, assessing and proactively managing risks.

An assessment of risks associated with service delivery from natural area park infrastructure assets has identified critical risks to the City in accordance with the City's Risk Assessment Criteria Matrix. The risks are summarised in Appendix G.

The risk assessment process identifies the following:-

- credible risks:
- the likelihood of the risk event occurring:
- the consequences should the event occur:
- developing a risk rating:
- evaluating the risk: and
- developing a risk treatment plan for non-acceptable risks.

There are no critical risks identified in this plan, assessed as ‘High’ - items prioritised corrective action. Risks identified in this plan include those assessed as ‘Moderate’ - items requiring moderate corrective action and ‘Low’ – items requiring performance monitoring or corrective actions with a low priority rating subject to available resources.

6.1 Asset Criticality

Critical assets are those assets which have a high consequence of failure but not necessarily a high likelihood of failure. By identifying critical assets and critical failure modes, the City can target inspection activities, maintenance plans and capital expenditure plans at the appropriate time and level of importance. A list of critical natural area park assets are included in Table 19.

Table 19: Critical Natural Area Park Assets Types.

Asset Name
Boardwalks, Various Locations
Viewing structures, Various Locations
Assets over or near water

Operational and maintenance activities target critical infrastructure assets to prevent failure and maintain service levels. Critical infrastructure asset failure modes and required operations and maintenance activities are detailed in Table 20. If a natural area infrastructure park asset becomes unsafe it will be secured until repair or renewal.

Table 20: Critical Infrastructure Assets and Risk Treatments.

Critical Assets	Critical Failure Mode	Risk Treatments
Infrastructure assets located within coastal areas	Shorter life span	Regular inspections during maintenance of the natural area park. Maintenance or renewal work if required
High / Raised structures	Collapse or partial collapse	Regular inspections during maintenance of the natural area park. Maintenance or renewal work if required, or if needed a consultant is commissioned to carry out a structural inspection to verify safety and maintenance/renewal required.

7 FUTURE DEMAND

7.1 Demand Drivers

Drivers affecting demand for natural area parks include:

- Population change
- Demographic changes
- Changes in consumer preferences and expectations
- Changes in Cultural practices
- Legislative Changes
- Technological advances
- Climate Change, Sustainability awareness and natural resource management
- Environmental Awareness, citizen science and environmental education
- Economic Changes

Demand for new services with respect to natural area park infrastructure will be in the form of requests associated with:

- Legislative changes regarding the management of natural areas
- Improved accessibility within open space facilities (including natural area parks)
- Climate change and sustainability requirements
- Policy changes e.g: higher levels of service
- Increased use of natural area parks, i.e. above their capacity to cope with passive use
- High community expectations leading to an increase in community consultation
- New Asset Growth in the North Coastal Growth Corridor
- Population growth & urban sprawl and

- Social and technology changes including smart technology.

7.2 Demand Management Plan

The City will need to ensure that the factors associated with future demand are considered in the planning and determination of its Long Term Financial Plan (LTFP). As mentioned in the improvement plan the Community Facilities service unit will prepare a Community Facilities Provision Framework: Open Space and Community Buildings (Refer Improvement Action 8) that will be an over-arching document to develop a sustainable future for POS development.

Demand for new services will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and managing failures.

The present position and projections for demand drivers that may impact future service delivery and utilisation of assets are documented in Table 21 and a Demand Management Summary shown in Table 22.

Table 21: Demand Drivers, Projections and Impact on Services.

Demand Drivers	Present Position	Projection	Impact on Services	Demand Management Plan
Population growth	206,860 (2020)*	348,880 (2041)*	Population increases, combined with above average percentages of children 0-18 years and elderly residents (over 65 year olds) will increase demand for pathways, particularly shared-use paths that are mobility scooter compatible.	City to adapt towards improved design standards for accessibility
			Associated future subdivision development will result in additional new natural area park assets being handed over to Council from developers	Continue to allow for maintenance and renewal costs associated with increasing natural area park asset base.

Demand Drivers	Present Position	Projection	Impact on Services	Demand Management Plan
Increased focus on accessibility	Pathways, playgrounds, Park amenities, moderate level of consideration	Improved application of access considerations	Associated accessible infrastructure	Continue to consider accessible elements during renewal planning.

Table Notes:

1. *Appendix H contains the latest population growth information.*

Table 22: Demand Management Plan Summary.

Service Activity	Demand Management Plan
Demand for facilities in new suburbs	This City's Local Planning Policy 4.3: Public Open Space policy articulates Council's position on the planning, provision, location, design, development and interim maintenance of Public Open Space (POS). The City will prepare a Community Facilities Provision Framework, an over-arching document to develop a sustainable future for park development. Allocation of capital expenditure on creation of new assets and upgrade of existing assets where appropriate. Whole Life Costing evaluations to be undertaken to ensure development of sustainable, flexible and affordable new natural area parks.
Increased demand for local accessible natural area parks	Improving access to all POS, wherever possible, to meet the increasing requirements of the AIP policy. Ensure flexibility of design to allow natural area parks to adapt to changing user needs and to meet AIP objectives wherever possible, without compromise on flora or fauna values.
Customer expectations	Suitability audits and input from natural area park users to better understand expectations. Planned maintenance, good initial design and flexible space will help to mitigate this impact.
Maintenance, renewal and upgrade of ageing natural area infrastructure park assets in	Planned maintenance and minor works programs to ensure natural area park infrastructure assets are fit for purpose. Developing Long Term Financial Management Plans to ensure financial sustainability and adequate allocation of renewal funding

Service Activity	Demand Management Plan
established communities	for the eventual renewal of ageing natural area park infrastructure assets and/or upgrading these to maximise service delivery.

New POS and natural area park assets required to meet growth in new residential developments will be acquired from land developers through the land subdivision and development process. All plans submitted by developers for new nature POS are considered against LPP 4.3 and other relevant City environmental policies. In some instances, the decision is for provision in excess of requirements.

Acquiring new natural area park infrastructure assets from Land Developers will commit Council to fund ongoing operations, maintenance costs and eventual replacement. Natural area park assets, in particular, those located within coastal proximity have short life spans (i.e. estimated useful life of 10 to 15 years). In these cases, the City needs to budget for additional renewal costs in future years.

8 FINANCIAL SUMMARY

This section contains the financial requirements resulting from the information presented in the previous sections of the NAAMP.

8.1 Fair Value

The value of natural area park assets covered by this AMP as at 30 June 2020 is summarised below in Table 23.

Table 23: Value of Infrastructure Assets as at 30 June 2020.

Natural Area Park Infrastructure Assets	Replacement Cost ($)	Depreciated Replacement Cost (Fair Value)	Annual Depreciation
Park Equipment	$58,792	$35,715	$3,297
Park Structures	$6,340,369	$4,579,785	$182,858
Access Tracks	$4,780,397	$3,160,198	$177,052
TOTAL	**$11,179,558**	**$7,775,698**	**$363,206**

8.2 Key Performance Indicators

The City's current Key Asset Performance Ratios for infrastructure assets are shown in table 24 below.

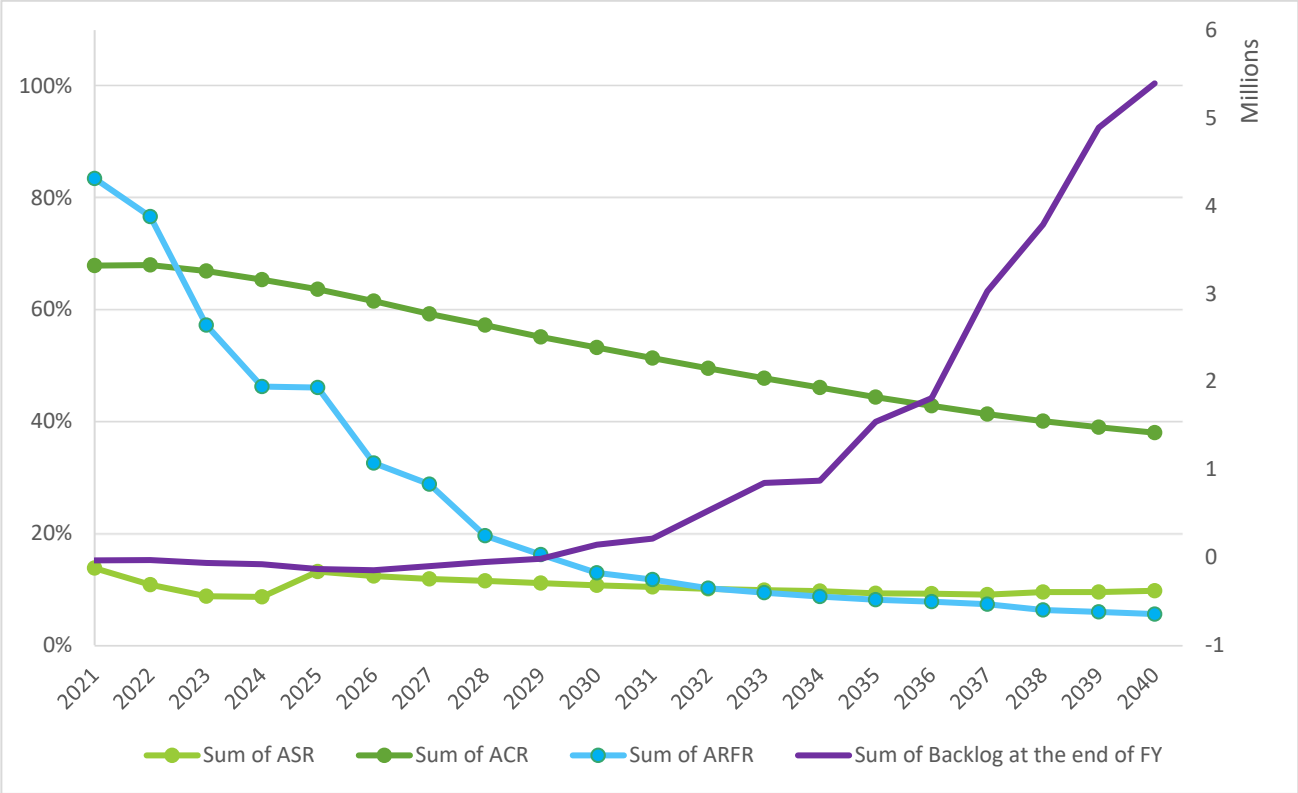
Table 24: Estimated Asset Ratios – Natural Area Park Infrastructure Assets

Key Performance Indicator	Measure	Ratio
Asset Consumption Ratio (ACR)	Written Down Asset Value (WDV) *Divided by* Current Replacement Costs	72%
Asset Sustainability Ratio (ASR)	Capex on Renewal & Replacement *Divided by* Depreciation Expense	13.7%
Asset Renewal Funding Ratio (ARFR)	NPV of Planned 10-year Capex on Renewals *Divided by* NPV of Required 10-year Capex on Renewals	67.9%

The above ratios do not provide very useful output on their own. However, when the ratios are measured over a period of time, they provide valuable data for the City to understand their resource capacity and long term renewal demand obligations.

Figure 12 below details the long term predicted performance of these ratios, using the current 2020/21, 20 Year Planned Capital Works Renewal Expenditure.

Figure 12: Predicted Asset Performance Ratio Indicators – Natural Area Infrastructure Assets.



The predicted performance indicators over the next twenty years are considered fairly good. However, the performance does show a steady decline towards the latter half of the twenty year period.

The City's **Asset Renewal Funding Ratio** is estimated at 83% in 2020/21 and shows a decline over the next twenty years. This is reflective of the increase in renewal backlog due to insufficient renewal funding.

The chart indicates that renewal funding for natural area infrastructure assets in the 20 year plan is insufficient. The data needs to be understood better through validating asset condition ratings to improve data reliability and validate accuracy of the ARFR.

The City's **Asset Consumption Ratio** is estimated at 68% in 2020/21. This ratio, similar to the ARFR, will continue to decline. Assets are deteriorating steadily and due to gaps in asset renewal. This trend will continue unless intervention occurs.

The City's **Asset Sustainability Ratio** is estimated at 14% in 2020/21 with projected ratios, similar to AFCR, will continue to show a decline unless intervention occurs.

The value of asset backlog is not substantial at this time, which is reflected in the asset ratios.

8.3 Current Funding Levels

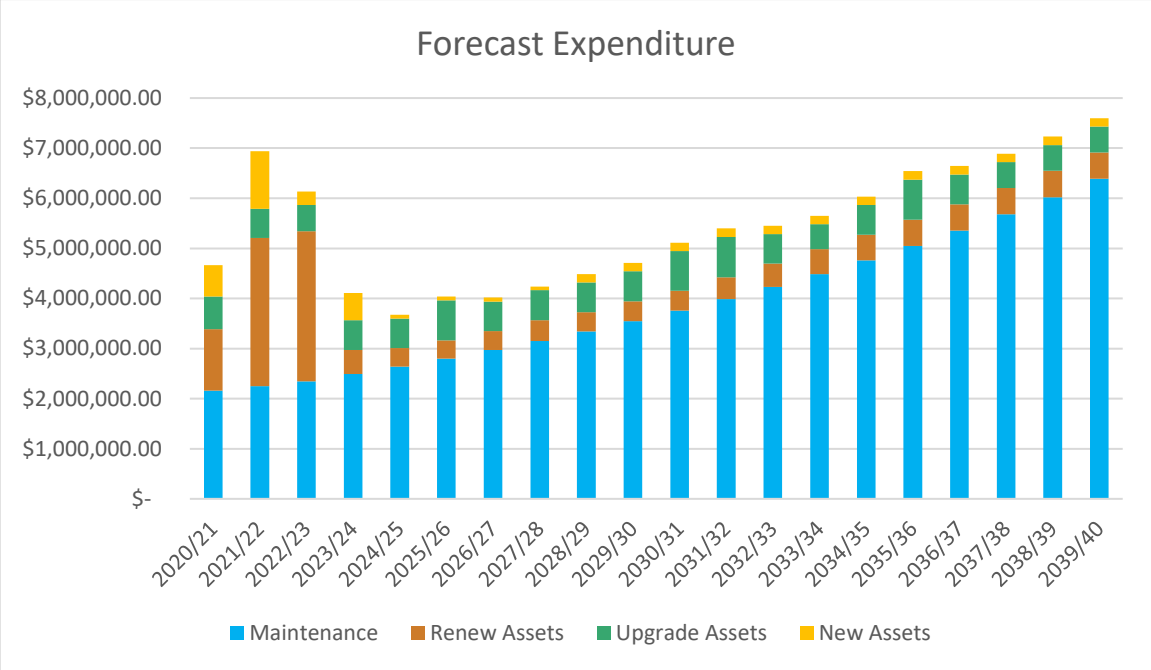
The City's current funding for natural area park assets (native vegetation and infrastructure) is shown in the table below.

Table 25: Current funding for Natural Area Park Assets 2020/2021.

New ($)	Upgrade ($)	Renewals ($)	Maintenance ($)
$624,000.00	**$654,000.00**	**$1,226,000.00**	**$2,158,546.15**

The financial expenditure projections for natural area park assets over the coming 20 years are shown in Figure 13 below.

Figure 13: 20 Year Planned Expenditure for Natural Area Park Infrastructure Assets.

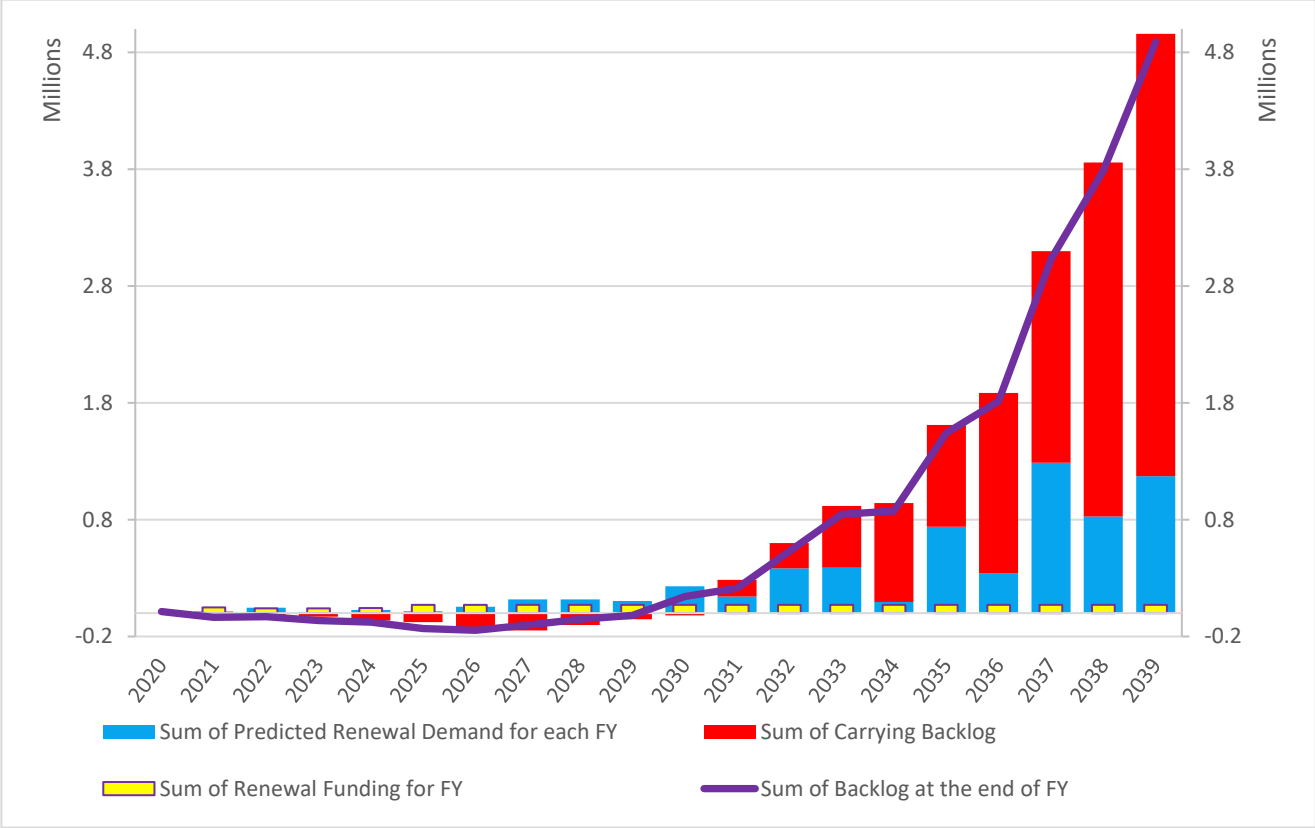


8.4 Funding Gap Analysis

Figure 14 below depicts the predicted impact of the 20 year planned renewal expenditure on the corresponding predicted renewal demand forecast and the resultant unfunded renewals/backlog.

Instead of funding the spikes in renewal demand, the City's plan is to "smooth" funding to achieve a steady budget. This means that renewals will be addressed on a priority basis and that some assets may need to wait past their predicted renewal date until they are renewed. These assets will be monitored to ensure they remain safe until they are renewed.

Figure 14: Consolidated Natural Area Park Infrastructure Assets Renewal Funding – Forecast v Budget.



When looking at natural area parks assets as a whole, the total 20 year planned renewal expenditure of $1.23M is approximately $4.9M less than the corresponding renewal demand of $6.1M. This figure is considered to be at a manageable level over a 20 year period. It should be noted that the confidence level in the supporting asset data is currently low, particularly with respect to asset condition assessments. As the data is validated and updated through regular condition assessments, the forecast renewals will be more accurate and closely reflect what is required on the ground and better inform the LTFP process – Refer Improvement Action 2.

8.5 Funding Sources

Current funding sources available for natural area park assets include:

- The City's rates;
- Depreciation (collected through rates);
- Grants (including MAF);
- Developer Contributions;
- Loans, and;
- Reserves.

9 IMPROVEMENTS, MONITORING AND REVIEW

9.1 Performance Monitoring

The effectiveness of the NAAMP can be measured in the following ways:

- The degree to which the identified cash flow predictions is incorporated into the LTFP and Strategic Community Plan (SCP).
- The degree to which the 1 to 5 year detailed works programs, budgets, business plans and organisational structures take into account the overall works program trends provided within this plan.
- Delivery of better services as a result of improved efficiencies in the management of natural area park assets.
- Improvements in native vegetation condition scale data across set monitoring periods.
- Reporting results against the Department of Local Government's Integrated Planning Framework and using this information to better inform decision making.
- Achieving the intended outcomes of the improvement plan.

9.2 Improvement Plan

The improvement plan generated from this AMP targets the City's asset management of natural areas and is detailed in Table 26. All tasks aim at improving natural area asset management in the short and longer terms. The task outcomes will be measured and monitored over the next four years and progress reported on in the next NAAMP iteration.

9.3 Review Procedures

The NAAMP has a life of four years whereby a comprehensive review will be undertaken following this period and the resultant document endorsed by the Asset Management Steering Group (AMSG).

The NAAMP is intended to be a live document which is relevant and integral to the daily natural area asset management activities at the City. To ensure the NAAMP remains useful and relevant, the following process of monitoring and review will be undertaken subject to resource availability:

- Annual review of the NAAMP to reflect changes to work programs, outcomes of service level reviews and incorporate new knowledge resulting from the NAAMP improvement program;
- Benchmarking with comparable LGAs: maintain performance of Asset Management practices in comparison to other Local Governments.

Until such time a full review of the NAAMP is undertaken, the core data included in this plan is located in HPE 21/383959* and will be updated as new versions annually to inform the LTFP.

Table 26: NAAMP Improvement Plan actions.

Responsible Area Abbreviations:

AM – Assets Maintenance, BM – Building Maintenance, BS – Business Systems, CD – Cultural Development, CF – Community Facilities, CIS - Customer & Information Services, CSEM - Community Safety and Emergency Management, GL – Governance and Legal, LD – Land Development, ICW – Infrastructure Capital Works, NAWG – Natural Area Working Group, PCM - Parks & Conservation Management, PM – Place Management, PS – Property Services, AP – Asset Planning, SLUPE – Strategic Land Use, Planning & Environment, TCM – Trees and Conservation Maintenance.

Action No	Task	Responsibility	Resources Required	Proposed Completion date	Progress Comment
1	Native Vegetation Data Analysis • Complete GIS analysis of vegetation complex data for the City's natural area parks to allow comparison of the native vegetation within the City's natural area parks within similar locations within the Swan Coastal Plain region and to successfully plan and manage these natural areas in line with Local Biodiversity Plan (LBP) strategies. • Analyse and undertake Vegetation Complex GIS mapping and corresponding attribute table creation for the City's natural area parks to assist with retention, protection and management of natural areas in line with LBS strategies	AP, SLUPE and CIS	Internal	2022/23	Not commenced. Aligns with the City's LBP Implementation Plan (Action number 2.3).
2	Infrastructure asset data Develop & Implement NA infrastructure asset condition assessments and validation of infrastructure data: • Verify existing NA infrastructure asset data. • Condition rate natural area infrastructure park assets. • Define and confirm infrastructure assets to be covered within the PAMP and the NAAMP to ensure no duplications or 'missed' assets between these two (2) AMP's.	AP with identified stakeholders.	Internal and External (consultants). Budget estimate for External Consultants: • $30K for NA parksinfrastru	2021/22 develop program 2022/23 RFQ	Not commenced. A five year program of data validation and condition rating is to be developed 2021/22 and the first year will be put to RFQ 2022/23.

	• Ensure all natural area park asset data is captured and maintained in one platform (AMIS), not across multiple platforms (current state).		cture asset condition assessments.		
3	<u>AMIS</u> Implementation of AMIS to enable asset class data to be stored in one corporate system with integration to other corporate systems, such HR & Finance. Thus enabling the accurate capture of expenditures against natural area assets including maintenance costs. Increased data accuracy and accessibility, assists in analyzing natural area infrastructure asset performance and enables prediction of natural area infrastructure asset funding requirements.	CIS & Assets including AP	Internal	November 2022	Progressed as part of the Enterprise Software Renewal Program.
4	<u>Develop a Standard of Maintenance for Natural Areas</u> 1.Scope what is required • Collation of what's required (to meet LoS or specified 'standard of maintenance') for Bushland, Wetland and Coastal Foreshore environments • Define all tasks, including specialised tasks and their defined locations • Define the required frequencies for each task • Clarifying roles and responsibilities for each task 2.Develop a Reserves Priority List for Natural Areas • Relevant stakeholders to determine how this list is to be determined (e.g. split into different environments Bushland, Coastal Foreshore and Wetland or from entire NA park list of 140 parks). • Should the list be subject to utilisation of Multi Criteria Analysis? If so, what parameters would be used? • Relevance of historical rating used to inform the Bushland Assessment document? Should the prioritisation be based of this? • How should the prioritisation be defined? Size of NA park, Vegetation Condition, presence of TEC/PEC, presence of rare/protected species, community ownership of reserve (i.e. active friends	AP and TCM with relevant stakeholders	Internal and External (environmental consultant) Budget estimate for External Consultants: • $20K for reserve priority list. • $100K annually for baseline survey data.	1) 2021/22 2) 2022/23 Commencing 2022/23 and ongoing	1) Historical information available for review and formal internal agreement (see HPE 15/66332*, 15/139771/*, 15/570826* and 21/97286). 2) Not commenced. Assists with the commencement of LBS Implementation Plan Action # 4.2. 3) Not commenced. Assists with the commencement of LBS Implementation Plan Action # 4.2. Note: Some historical data exists and would need review to determine relevance.

	group, adopt a bushland or volunteers), presence of foraging habitat for BC's, protection at Federal and/or State level, presence of Bush Forever site, presence of Heritage site (European or Aboriginal), Vegetation Community (% remaining at Perth Metro Area values vs % within the CoW boundaries?), etc. • Relevant stakeholders to determine and agree to the frequency of reviewing the reserve priority list (e.g. 5 yearly). 3.Baseline survey data required for the City's natural area parks to inform planning and maintenance works – i.e. review of the flora and fauna for all reserves (137 currently) • Start with priority reserves, then spread across a number of FY's • Review the implications of fauna surveying – what would the data be used for? Determine if fauna surveying is required / justified for all NA's? Or if sites will be determined as part of the reserve prioritisation process. • Need to determine Vegetation condition (critical to reserve management planning and maintenance) • Could NAIA Templates be used? (WALGA) or environmental consultant utilising current best practice techniques (i.e EPA,) • Once data available, TCM can utilise this data to create Action Plans for Reserves (starting with priority reserves – Top 10?) • Relevant stakeholders to determine if certain natural area parks (reserves) should have a full Management Plan (i.e. Koondoola RR, Gnangara Lake, Badgerup (due to offset condition) etc).				
5	Performance Index Score (PIS) • Investigate the potential for targeted research on customer expectation and satisfaction for the City's natural areas, including: 1. Fire mitigation and prescription burning; 2. Conservation and environmental management (including inclusions more clearly defined); and • Specific service/reference for natural area parks.	AP with relevant stakeholders	Internal	2024/25	To be completed by next AMP review

	(Unclear if this subject is combined with 'Parks' but under the name 'reserves').				
6	<u>Customer Management System</u> • Monitor level of complaints through the Customer Management System	CIS	New CRM solution CIS/AP	2024/25	To be completed by next AMP review
7	<u>Technical Levels of Service</u> Further develop Technical Levels of Service for Natural Area Parks: • Define technical levels of service for native vegetation assets contained within Natural Area Parks. • Define across the three (3) differing environmental areas (Bushland, Coastal/Foreshore and Wetland).	AP and TCM	Internal AP / CF/ CSEM / ICW / TCM / AM	2024/25	To be completed by next AMP review. To be completed in conjunction with Action 19 - NAMMP.
8	<u>Community Facilities Provision Framework: Open Space and Community Buildings</u> • Develop the Community Facilities Provision Framework: Open Space and Community Buildings. ➢ Undertaking a hierarchy of documents, focusing on policies, strategies, design guidelines and specifications to inform the planning and design of its open space and community buildings. ➢ It will involve the development of evidence based standards that will provide the City with justified benchmarks and other criteria in order to determine facility requirements into the future. These standards will influence the provision of all new infrastructure and will inform the relevant asset management plans in terms of renewal, upgrades and maintenance.	CF with identified stakeholders.	Internal & External Consultant	2022/23	In progress
9	<u>POS Service Levels</u> • Review of City POS Maintenance service levels from 2011 (11/131671)	PCM (incorporating TCM)	Internal	2024/25	Not commenced. To be completed in conjunction with Action 19 -

					NAMMP. To be completed by next AMP review.
10	<u>Asset Capture and Handover for New/Upgraded/Renewed Assets – ICW and TCM</u> Asset Capture Forms for TCM and ICW (interim requirements before AMIS brought 'online') including: • Review and update current form with stakeholders (refer HPE 13/102299) to clarify data and information requirements. • Document the Natural Area "Asset Capture" process as a flow chart together with all relevant undocumented processes (for TCM (operational) and ICW (capital)); • Develop a Stakeholder Engagement & Communication Matrix for operational and capital Natural Area Asset Capture; • Develop procedures, by agreement with all relevant stakeholders, for documenting, communicating and authorizing requirements for operational and capital Natural Area Asset Capture (When does a form need to be filled in? Who is involved and why – clarification of roles and steps. Why is the form necessary?) • Ensure all necessary information captured within the form is able to also be captured in the new AMIS system. Document the Natural Area 'Handover of ICW NA sites to TCM' process, including: • Investigation and creation of appropriate locations to store relevant project details (including PR #,FY, PMO# etc); • Provision of key HPE references for each project (design, survey, report, contract information etc).	AP and TCM with CIS	Internal	2021/22	In conjunction with AMIS.
11	<u>TCM Asset Inspection / Audit</u> • Review and investigate current TCM inspection/audit process to clarify if captured information can be	AP and TCM	Internal	November 2022.	Not commenced.

	utilised within AMIS system. • Determine short / medium / longer audit goals and if AP or AMIS system can assist in achieving benchmarks? • Consolidate condition and inspection checklists and schedules and Document the Natural Area "Asset Inspection" process as a flow chart together with all relevant undocumented processes (including: Current format for data capture during inspection / audit? For inspections/ audits/ WO's, is it via HPE container, spreadsheet, emails etc? Where is TCM's data capture currently going? Is it being sent back to AP via the asset capture forms? Or another format/procedure?). • Develop a Stakeholder Engagement & Communication Matrix for Natural Area Asset Inspection / Audit; Develop procedures, by agreement with all relevant stakeholders, for documenting, communicating and authorizing requirements for Natural Area Asset Inspection / Audit (including: roles and responsibilities, which assets, where data is captured (form based or electronic, where is data stored).				To be completed in conjunction with Action 3 – AMIS.
12	<u>Infrastructure asset data – Coastal Foreshore Signage</u> • Beach Name Signs/Foreshore Reserve/Coastal Signs – i.e. blue sign plate on limestone plinth ➢ Establish a procedure to clarify when this sign is required? How frequent should these be located along (external boundary of) foreshore reserve? Or should they be located at location of carpark or 'main' BAW entrance? Should each development along a section of coast be required to provide its own Limestone plinth/blue sign plate sign? Need clarity and an agreed City position.	AP with identified stakeholders.	Internal	2023/2024	Not commenced. To be completed in conjunction with Action 2 – Infrastructure Asset Data.
13	<u>Asset Capture Stakeholder Engagement & Communication</u>	AP with identified	Internal	2021/22	Model off 19/435171*

	Matrix • Develop a Stakeholder Engagement & Communication Matrix for Asset Capture.	Natural Area stakeholders			
14	Coastal Proximity Impact of distance to coast on Natural Area Infrastructure Asset Life: • Investigate with other City Asset Classes and (if feasible) together agree and define City boundary/distance location(s) for the effect of coastal conditions on City infrastructure assets (and their life cycle), i.e. assets located closer to the coast experience a marked shorter life cycle and need to be repaired/replaced more frequently than those located further away from the coast. • Develop specifications for new natural area park infrastructure assets and maintenance of existing infrastructure assets located within these defined boundaries.	AP, AM, PCM, ICW, with relevant working groups	Internal	2021/2022	Note: ICW Building Specifications are: Coastal Asset 1 (within 300m) and Coastal 2 within 2km. Work with PCM to develop specifications for infrastructure assets located within these defined boundaries.
15	Asset Capture – Developer to City • Document the Natural Area 'Developer Asset Capture' process as a flow chart together with all undocumented processes.	AP, LD and TCM	Internal	2022/2023	In conjunction with Improvement Actions' 10 and 13.
16	NA Infrastructure Assets – data capture • Develop procedures, by agreement with all relevant stakeholders for recording all changes to natural area infrastructure assets implemented by different Service Units. • Develop a Stakeholder Engagement & Communication Matrix for new, upgrades or renewal of the natural area assets lifecycle.	AP with identified Natural Area stakeholders	Internal	2021/22	In conjunction with Improvement Action 10, 13 and 15 above.
17	Developer Maintenance of NA park assets • Investigate the feasibility of implementing procedures/ processes/ policy to enable the City to ensure natural area assets (infrastructure and native vegetation) are adequately maintained to the City's satisfaction prior to acceptance by the City.	LD, CF AP with relevant stakeholders	Internal	2024/25	To be completed by the next NAAMP review.

	• If deemed feasible, develop documentation by agreement with all relevant stakeholders that ensures natural area assets (infrastructure and native vegetation) are adequately maintained to the City's satisfaction prior to acceptance by the City.				
18	<u>Asset Life cycle – City or Developer works</u> • Investigate the feasibility of implementing the requirement for a developer to provide the City with lifecycle costing plans and maintenance schedules (inspection requirements, preventative maintenance and repair requirements of all asset components and materials) for proposed infrastructure assets within natural areas at submission of detailed design drawings to LD. Updated documentation to also be provided to the City by the developer at the natural area parks practical completion stage. • Investigate the feasibility of the City implementing the requirement for all City proposed major infrastructure assets in NA parks provide lifecycle costing plans and maintenance schedules (inspection requirements, preventative maintenance and repair requirements of all asset components and materials). • The inclusion of detailed asset management supporting documentation will assist the City's decision making for a natural area park's asset provision. Following construction or handover of the agreed asset to the City, the documentation will be utilized to inform financial planning, inspection and maintenance programs.	LD, CF, AM, ICW, AP with relevant stakeholders	Internal	2024/25	To be completed by the next NAAMP review.
19	<u>Natural Areas Maintenance Management Plan</u> Develop a Natural Areas Maintenance Management Plan documenting the requirements for natural area asset maintenance (infrastructure and native vegetation). Examples of what should be included in the Plan: • Maintenance and management tasks and activities for infrastructure assets and native vegetation, for	TCM with relevant stakeholders including BM, AM, CSEM and AP.	Internal	2022/2023	Links with Improvement Action 21.

	example: ○ Asset audits and inspections (infrastructure and native vegetation); ○ Community event management; ○ EMVAT maintenance clearances, pruning, weed management activities; ○ Fauna management; ○ Fire mitigation and management; ○ Management and maintenance of Aboriginal and European sites of cultural significance; ○ Native vegetation pruning and removal (if necessary); ○ Natural area infrastructure assets hazard intervention levels and risk assessment; ○ Natural area park equipment cleaning and maintenance (e.g. drink fountains and pest equipment); ○ Natural area park furniture and structures cleaning and maintenance (e.g. gazebo's, fencing, gates, bench seats, signs etc); ○ Nursery services including, seed collection and propagation; ○ Pathogen management; ○ Pest management; ○ Rehabilitation activities including, site preparation and stabilisation, planting, watering etc; ○ Waste management; ○ Weed management program, including woody weed removal; ○ Works procedures; ○ Works schedules				Model the Natural Area Infrastructure Assets Hazard Intervention Levels and Risk Assessment on Engineering Maintenance Hazard Intervention Levels and Risk Assessment see 19/234182
20	<u>Asset Disposal Plan</u> • Needs investigation to determine if a Natural Area Park Asset Disposal Plan is required.	AP	Internal	2024/25	To be completed by next AMP review.
21	<u>Conservation Maintenance Work Practice Manual</u>	TCM	Internal	2022/2023,	In conjunction with the

	• Review relevance of this document in line with the creation of the NAMMP. WPM may be fully incorporated into NAMMP and therefore no longer required. • If deemed required, review and update the Conservation Maintenance Work Practice Manual to ensure procedures and maintenance activities for Natural Area park assets (including: inspection requirements, responsibilities etc) are clearly described.			following NAMMP finalization.	NAMMP (Improvement Action 19).
22	<u>Natural Area Language</u> All relevant stakeholders to agree on the City's preferred terms and language when communicating information regarding the City's natural areas. • i.e. varied language throughout the City currently exists and to avoid confusion moving forward, agreed terms and language should be determined (e.g. natural areas, natural area parks, reserves, nature POS etc)	NAWG	Internal	2021/22	Not commenced.
23	<u>City Guidelines</u> Develop the following Guidelines for works within the City's Natural Areas (inclusive of NA parks and remnant pockets of native vegetation present throughout the City's POS) for adherence by both the City and the City's Contractor(s): • Feral Animal Management Guidelines • Disease and Pathogen Management Guidelines • Acid Sulphate Soils Guidelines • Revegetation Management Guidelines	AP and TCM with relevant stakeholders	Internal or External environmental consultants Budget estimate for External Consultants: • $10K-30K per guideline, dependent on inclusion of public consultation requirements.	2024/25	Not commenced. To be completed by the next NAAMP review.
24	<u>City Weed Strategy</u>	AP with TCM	Internal	2022/2023	Not commenced.

	Creation of a weed strategy document for the City's Natural Area Parks. Inclusive of: • Development of a priority weed index via the review of relevant industry documentation; • Development of a natural area weed management site prioritisation using Multi-criteria analysis (include fire risk); and • Review of industry best practice to create an internally supported weed management technique(s) guideline.				To complement the City's existing Pesticide Management Policy.
25	<u>Flora and Fauna Data - Developers</u> • Investigate the implementation of an internal procedure / process / flowchart upon handover of new natural area parks that enables the collation of all flora and fauna data funded and obtained by Developers (i.e. undertaken as part of their Statutory planning approvals process OR those surveys or Plans conditioned under EPBC Act approval documents etc). • Embed and link these EMP's, surveys, documents, conditions etc with the AMIS program (e.g. Documents section) and GIS Mapping software to assist and inform the City's planning and maintenance for natural area parks.	LD, SLUPE, TCM with AP	Internal	2021/22	To be completed by the next NAAMP review. Assists with the implementation of LBS Implementation Plan Action # 2.3.
26	<u>Fire Mitigation</u> • Investigate the procurement and use of fire mapping data and resources for fires occurring within the City's managed natural area parks (i.e. DFES, DPAW etc).	CSEM, AP and other relevant stakeholders.	Internal	2021/2022	Initial internal discussions have commenced and stakeholders have confirmed that the receipt of this data would be beneficial for the City's management of natural area parks, including budgeting of funding and resources. Assists with the implementation of LBS Implementation Plan Action #

	• Centralization of current and future fire mitigation data / burn matrix (planning, scheduling, post-fire maintenance etc) in accordance with the City's Bushfire Risk Management Plan (BRMP- HPE 18/442763) for review and use by relevant City stakeholders (providing current and historical context). • Review with relevant stakeholders to determine if historical fire mitigation data / burn matrix information can be incorporated into the centralized spreadsheet. • Review with relevant stakeholders to determine the feasibility of capturing burn matrix and post-fire maintenance works data within the City's AMIS and GIS platform(s). • Document the City's "Burn Matrix and Fire Mitigation Works" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for the City's Burn Matrix and Fire Mitigation works; Develop procedures, by agreement with all relevant stakeholders, for documenting and communicating the requirements for the City's Burn Matrix and Fire Mitigation works • Communicate the approved process to internal stakeholders via the City's internal communication platforms (or similar).			Ongoing	5.1. Spreadsheet created May 2021 (see HPE 21/209051). Input in spreadsheet ongoing. Not commenced.
27	<u>Hazardous substances within natural area parks</u>	SLUPE (via the EMS Working Group) on liaison	Internal	2023/24	Not commenced.

	• Document the City's "hazardous substances within natural area parks" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for hazardous substances within the City's natural area parks (including ACM); • Develop procedures, by agreement with all relevant stakeholders, for documenting and communicating the requirements for hazardous substances within the City's natural area parks (including ACM); • Communicate the approved process to internal stakeholders via the City's internal communication platforms (or similar).	with relevant stakeholders			
28	<u>Seasonal Fauna and Flora Habitat Protection</u> Within City managed POS, the protection of known seasonal fauna and flora habitat sites located in proximity to, active recreation and facility areas and City scheduled maintenance or construction works: • Document the "protection of known seasonal fauna and flora habitat sites" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for the protection of known seasonal fauna and flora habitat sites; • Develop procedures, by agreement with all relevant stakeholders, for documenting and communicating the requirements for the protection of known seasonal fauna and flora habitat sites; • Communicate the approved process to internal stakeholders via the City's internal communication platforms (or similar). Examples include: *Merops ornatus* (Rainbow Bee Eater), *Chelodina colliei* (South-western snake-necked turtle) and Flora such as Orchids.	TCM with relevant stakeholders (including community / environmental groups that utilize the YRP).	Internal	Annually, as required	Not commenced. Formalise historical processes.
29	<u>Heritage</u> Following the completion of the Heritage consultancy works project by Cultural Development: • Review and update the Aboriginal Heritage	CD, CIS, AP and TCM with relevant stakeholders	External Consultant and Internal resourcing	2022/2023	CD has procured a Heritage consultant for the Heritage consultancy works project.

	legislation information and processes due to the enactment of the new 2020 Bill, including the new multi-levelled application process for both AP's EPC requirements and TCM's responsibilities due to maintenance activities occurring in proximity to these sites. • Review and update the European Heritage information and processes for both AP's EPC requirements and TCM's responsibilities due to maintenance activities occurring in proximity to these sites. • Dependant on GIS resources – mapping of Heritage (European and Aboriginal) and CoW Natural Area POS property boundaries and create a summarised table of NA POS sites that contain heritage sites (expand table in relevant heritage sections) to identify locations where CoW maintenance and ICW activities may need to be altered to meet heritage legislation/guidelines. • For the City's Municipal Heritage Inventory, confirm if the City has a prioritised ranking of these Heritage Sites (High, Medium, Low or similar?), thus defining their maintenance requirements? • Confirm if TCM should be maintaining the areas of NA parks surrounding these sites in line with this prioritised ranking system? i.e. should the frequency and no. of visitations / inspections be different dependant on the ranking?				
30	<u>Flora collection in NA parks – External requests</u> External requests for collection of flora (seed and cutting material etc) within City managed natural area parks: • Document the Natural Area "External Flora Collection Requests" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for External Flora Collection Requests; • Develop procedures, by agreement with all relevant	AP, TCM and GL with relevant stakeholders	Internal	2021/2022	Initial discussions with stakeholders (including at NAWG meetings) have commenced.

	stakeholders, for documenting, communicating and authorizing requirements for External Flora Collection Requests; • Communicate approved 'External Flora Collection Requests' process to external stakeholders via the City's website.				
31	<u>Scientific Research in NA parks – External requests</u> External requests to undertake scientific research and /or monitoring programs for flora and fauna within City managed natural area parks: • Document the Natural Area "Scientific Research and Monitoring Programs Requests" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for External Scientific Research and Monitoring Programs Requests; • Develop procedures, by agreement with all relevant stakeholders, for documenting, communicating and authorizing requirements for Scientific Research and Monitoring Programs Requests; • Develop access and indemnity agreement template for External Scientific Research and Monitoring Programs Requests; • Communicate approved 'Scientific Research and Monitoring Programs Requests' process to external stakeholders via the City's website.	AP, TCM and GL with relevant stakeholders	Internal	2021/2022	Initial discussions with stakeholders (including at NAWG meetings) and development of legal template have commenced.

32	<u>Online Forms</u>
	Investigate the creation and use of Online Forms to assist with AP workflow and processes:
	• Examples on Intranet could include:
	  • Requesting a Vegetation Assessment
	  • Requesting a Flora and Fauna Survey or BC Habitat Survey
	  • Requesting Fauna release into City NA parks
	  • Requesting if a Clearing Permit (CP) is required
		AP and BS	Internal	2021/22 and 2022/23 (resource dependent)	Model off Planning Approvals recent development of 'Online Forms' for planning approvals within the City.

	• Collecting CP information from the PM
	• Examples on City website could include:
	  • Requesting to undertake a research project within a City managed Natural Area
	  • Requesting to undertake seed or cutting collection within a City managed Natural Area
	  • Requesting Fauna release into City NA parks				

33	<u>Development and works adjacent to existing City NA parks</u> Review existing process(es) for when external entities (e.g. Public Utilities, Developers, Government Agencies and Authorities etc) carry out works adjacent to City facilities prior to, during, and when completing works, ensuring City stakeholders inspect and sign off on reinstatement works. Ensure consistency with Application Signing by Landowner / Land Manager Management Procedure.	AP with PS and relevant stakeholders	Internal	2022/2023 (per BAMP timing)	NAAMP Action 33 is incorporated in the works the Building AMP (BAMP) is undertaking as part of Action 5-21 of the BAMP. The outcome of the BAMP Action will be incorporated to works adjacent to NA parks.

34	<u>Leased Areas and NA parks</u>
	City Leased Areas that contain Natural Area Parks and/or 'pockets' of remnant native vegetation:
	• Review and document all leased areas containing 'Natural Area Parks and/or 'pockets' of remnant native vegetation', noting:
	  ➢ Roles and responsibilities of the City and the Lessee regarding native vegetation (inspection, maintenance, funding, works approval etc).
	  ➢ Vegetation type and condition present (if known).
	  ➢ Any further pertinent information.
	• Document the Natural Area "Leased Area Requests containing Natural Area Parks and/or 'pockets' of remnant native vegetation" process as a flow chart together with all relevant undocumented processes;
		AP, PS, TCM and relevant stakeholders	Internal	2022/2023	Initial discussions have commenced between relevant stakeholders regarding issues being experienced within leased areas containing Natural Area Parks and/or 'pockets' of remnant native vegetation'. Subsequent actions listed for completion are resultant from these initial discussions between stakeholders.

	• Develop a Stakeholder Engagement & Communication Matrix for Leased Area Requests containing Natural Area Parks and/or 'pockets' of remnant native vegetation; • Develop procedures, by agreement with all relevant stakeholders, for documenting, communicating and authorizing requirements for Leased Area Requests containing Natural Area Parks and/or 'pockets' of remnant native vegetation; • Review and develop leased area contract terms relating to the management of natural area assets within leased areas (for both infrastructure and native vegetation) including roles and responsibilities, inspection, maintenance, timing/scheduling, funding, and works permissions and approvals. • Review and discuss the City's approach for leased areas containing native vegetation that are not subject to contract renewal at this time.				
35	<u>Infrastructure Asset Data – Signage Database</u> • Rationalise natural area park signage database including: ➢ Integration and maintenance of data in one platform – AMIS ➢ Signage classification to be validated and defined (in line with RSPEC, Aust Stnds and City Stnds) ➢ Review of Naming on Coastal Signage in similar proximities (e.g. BEN signs, CoW Park Name Signs etc) ➢ Signage classification to be agreed with other City asset classes (suggest via Working Groups) E.g./Suggestion for signage classification: PARENT – SIGN CHILD – Regulatory, Directional or Advisory (Informational). COW COLUMN1 – Description of sign	AP with identified stakeholders.	Internal	2023/2024	Not commenced. To be completed in conjunction with Action 2 – Infrastructure Asset Data.

	type, i.e. Park Name Sign, Interp Sign, BEN etc COW COLUMN2 – Further description if needed, ie if an interp sign, may want to distinguish title of the sign, e.g – Flora Calender, Threats, Welcome Sign, Beach Name etc.				
36	<u>Infrastructure Asset Data – Signage Inspections</u> • Define signage inspection frequency (this should be agreed with relevant stakeholders) – may be impacted on by 'priority' of sign, ie BEN sign, or SLS risk sign? AND should also determine inspection requirements, clarify roles and responsibilities	AP with identified stakeholders.	Internal	2023/2024	Not commenced. To be completed in conjunction with Action 35 – Signage Database.
37	<u>Remnant bushland vegetation in Active POS</u> • Review Recreation and Sport POS to identify areas of remnant bushland and determine with relevant stakeholders: ➢ biological value; ➢ the maintenance status; ➢ inspection responsibilities; ➢ management actions; and ➢ budget requirements.	AP, PCM and relevant stakeholders	Internal	2024/25	To be completed by next AMP review. Refer to outcomes of Action 34 – Leased Areas and NA parks.
38	<u>Fauna relocation / reintroduction in NA parks – External requests</u> External requests for relocation / reintroduction of fauna (e.g. from Developers, State Authorities) within City managed natural area parks: • Document the Natural Area "External Fauna relocation/reintroduction Requests" process as a flow chart together with all relevant undocumented processes; • Develop a Stakeholder Engagement & Communication Matrix for External Fauna relocation / reintroduction Requests; • Develop procedures, by agreement with all relevant stakeholders, for documenting, communicating and	AP, TCM and GL with relevant stakeholders	Internal	2021/2022	Initial discussions with stakeholders have commenced.

	authorizing requirements for External Fauna relocation / reintroduction Requests; • Communicate approved 'External Fauna Relocation / reintroduction Requests' process to external stakeholders via the City's website.				
39	EMP Guidelines • To be updated as a result of relevant Improvement Actions (including: Levels of Service, Developer Flora and Fauna Data, Signage Standard, Provision of Signage Proofs (Name and Interpretative Signage etc)	SLUPE, LD and relevant stakeholders	Internal	2024/2025	Not commenced. To be completed by the next NAAMP review.
40	Native Title • Review native title determination outcomes and how these outcomes impact the City's management of Natural Areas.	AP, TCM and relevant stakeholders.	Internal	2022/2023	Not commenced
41	Signage Proofs • Request Developers provide the City Signage proofs for Natural Areas (e.g. Park Name Signage, Interpretative Signage etc)	AP, LD and relevant stakeholders	Internal	2021/2022	Not commenced
42	Signage Standard • Review, and if warranted develop a signage standard for natural area interpretative signage.	AP, TCM, LD and relevant stakeholders	Internal	2022/2023	Not commenced

10 REFERENCES

10.1 City of Wanneroo Asset Management Related Documents

Asset Management Policy (HPE #16/106984)
https://www.wanneroo.wa.gov.au/downloads/file/80/asset_management_policy

Asset Management Strategy (HPE #16/279441)
https://www.wanneroo.wa.gov.au/downloads/file/3254/asset_management_strategy_-_2018

Corporate Business Plan (CBP) (HPE #19/377777)
https://www.wanneroo.wa.gov.au/downloads/file/2643/corporate_business_plan_201718_-_202021

Long Term Financial Plan (LTFP) (HPE#18/512338)
https://www.wanneroo.wa.gov.au/downloads/file/3265/long_term_financial_plan_201920%E2%80%93203839

Strategic Community Plan (SCP) (HPE #17/361793)
https://www.wanneroo.wa.gov.au/strategiccommunityplan

10.2 City of Wanneroo Planning and Operational Documents

City of Wanneroo, Disability Access and Inclusion Plan 2016-2019 (DAIP) (Source: HPE 15/555335)

Community Satisfaction Survey 2020 - City of Wanneroo (Source: HPE 20/130511)

City of Wanneroo, Bushfire Risk Management Plan 2019-2024 (BRMP) (Source: HPE 18/442763)

City of Wanneroo, Climate Change Adaptation and Mitigation Strategy 2020/21-2025/26 (CCAMS) adopted in May 2021 – REPORT # PS01-05/21 (Source: HPE 21/135841).

City of Wanneroo, Coastal Hazard Risk Management Adaptation Plan Part 1 (2018) (Source: HPE 19/258820).

City of Wanneroo, Coastal Hazard Risk Management Adaptation Plan Part 2 (2018) (Source: HPE 19/258836).

City of Wanneroo, Coastal Management Plan Part 1 (2012) (Source: HPE 12/86957)

City of Wanneroo, Community Engagement Policy adopted in July 2017 – REPORT# CP02-07/17 (Source: HPE 12/148824*)

City of Wanneroo, Environment Policy adopted in September 2019 – REPORT# PS02-09/19 (Source: HPE 19/225669)

City of Wanneroo, Environmental Management Plan Guidelines (2019) (EMP) (Source: HPE 19/276786)

City of Wanneroo, Foreshore Management Plan Guidelines (2021) (FMP) (Source: HPE 19/496543)

City of Wanneroo, Local Biodiversity Plan 2018/19-2023/24 (Source: HPE 19/53215)

City of Wanneroo, Local Environment Strategy (LES) 2019 (Source: HPE 19/102123)

City of Wanneroo, Local Planning Policy 1.1 Conservation Reserves adopted in April 2021 – REPORT# PS02-04/21 (Source: HPE 21/163930)

City of Wanneroo, Local Planning Policy 3.3 Fauna Management adopted in March 2020 – REPORT# PS02-03/20 (Source: HPE 19/393948)

City of Wanneroo, Local Planning Policy 4.1: Wetlands adopted in October 2010 – REPORT# PS02-10/18 (Source: HPE 18/498470)

City of Wanneroo, Local Planning Policy 4.12 Heritage Places adopted in August 2016 – REPORT#PS04-08/16 (Source: HPE 21/284274) (Currently, under review)

City of Wanneroo, Local Planning Policy 4.13 Caves and Karstic Features adopted in October 2018 – REPORT# PS02-10/18 (Source: HPE 18/498418)

City of Wanneroo, Local Planning Policy 4.21 Coastal Assets adopted in August 2016 – REPORT# PS01-08/16 (Source: HPE 16/329946)

City of Wanneroo, Local Planning Policy 4.3 Public Open Space adopted in April 2021 – REPORT# PS05-04/21 (Source: HPE 21/171243)

City of Wanneroo, Local Planning Policy 4.8: Tree Preservation Policy adopted in August 2006 – REPORT # GS01-08/06 (Source: HPE 12/89797)

City of Wanneroo, Northern Coastal Growth Corridor - Community Facilities Plan (Source: HPE 20/131624)

City of Wanneroo, Occupational Safety and Health Policy adopted in October 2019 – REPORT # CS01-10/19 (Source: HPE 19/307809)

City of Wanneroo, Parks (including Natural Area Parks) Service Levels adopted in 2011 – IN03-02- (Source: HPE 11/131671 and 11/111905).

City of Wanneroo, Pathway Policy (adopted in June 2021 – REPORT# AS03-06/21 (Source: HPE 21/145380)

City of Wanneroo, Pesticide Management Policy adopted in April 2019 - AS-04/19 (Source: HPE 16/299514)

City of Wanneroo, Smart Growth Strategy (2005) (Source: HPE 13/6265)

City of Wanneroo, Street Tree Policy adopted in December 2018 AS02-12/18 (Source: HPE 18/550071)

City of Wanneroo, Yellagonga Integrated Catchment Management Plan 2014-2019 (YICM) (Source: HPE 15/510395). *Note: YICM Plan 2021-2026 is currently subject to community consultation prior to being adopted by both the Cities of Joondalup and Wanneroo.*

Population Forecast - City of Wanneroo Community Profile (.id population website - http://profile.id.com.au/wanneroo/population)

10.3 Natural Area Related Documents

Heddle EM, Loneragan OW and Havel JJ. (1980). *Vegetation of the Darling System. IN: DCE 1980 Atlas of Natural Resources, Darling System, Western Australia*. Department of Conservation and Environment, Perth, Western Australia.

Keighery, B. (1994). *Bushland plant survey: a guide to plant community survey for the community*. Wildflower Society of Western Australia (Inc.).

Western Australia. Department of Environment and Conservation. (DEC) (2007). *A guide to the assessment of applications to clear native vegetation: under Part V of the Environmental Protection Act 1986*. https://library.dbca.wa.gov.au/static/FullTextFiles/925226.pdf

Western Australia. Department of Water and Environmental Regulation. (DWER) (2018). *A Guide to Preparing Revegetation Plans for Clearing Permits under Part V of the Environmental Protection Act 1986*. https://www.der.wa.gov.au/images/documents/our-work/consultation/Revegetation-plan/A_Guide_to_Preparing_Revegetation_Plans_for_Clearing_Permits.pdf

Western Australia. Western Australian Planning Commission. (WAPC). (2009) *Liveable Neighbourhoods Operational Policy (Liveable Neighbourhoods).*

Western Australia. Environmental Protection Authority.(EPA). (2016). *Technical Guidance Flora and Vegetation Surveys for Environmental Impact Assessment*.

https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf

11 GLOSSARY

11.1 Terms

The following terms are used in this AMP and have been split between the following areas:

- General – terms specific to asset management.
- Natural Area – terms specific to the natural environment within the City.
- Natural Area Infrastructure –terms specific to built infrastructure which allows for recreational pursuits within natural areas and may assist in providing protection to natural areas within the City.

11.1.1 General

Assets are future economic benefits controlled by the City as a result of a past transaction or event whereby:

- Its value can be measured reliably, and;
- Its value must exceed a stated materiality threshold being $5,000 or form part of a network asset group, and;
- It must be probable that future economic benefits of the asset will eventuate (i.e. the asset acquired supports the delivery of City's services to the community in line with its objectives).

Asset condition assessment The process of continuous or periodic inspection, assessment, measurement and interpretation of the resultant data to indicate the condition of a specific infrastructure asset so as to determine the need for some preventative or remedial action.

Asset management refers to the combination of management, financial, economic, engineering and other practices applied to assets from their planning, acquisition, operation, maintenance, replacement and disposal, to ensure that the assets meet the priorities of the Strategic Community Plan with the objective of providing the required level of service in the most cost-effective manner.

AM Information System or **AMIS** refers to a dedicated AM Computer Software program and associated systems to support effective and efficient data management that is integrated with other key property and finance management software systems of the organisation.

AM Plan (Asset Management Plan or AMP) refers to documented information that specifies

the long term plan, activities, program, time scales and resources applied to specific individual major, critical assets or a grouping of assets to provide a defined level of service over the lifecycle of the asset. An AMP covering a grouping of assets (or asset classes) is referred also as an **Asset Class Plan**.

AM Strategy means a strategy or approach for asset management.

Asset Sustainability Index A ratio of infrastructure asset replacement expenditure relative to depreciation for a specific period, generally long term (whole of life) or medium term (10 years). It measures whether infrastructure assets are being replaced at the rate they are wearing out.

Average annual asset consumption (AAAC)* The amount of a local government's asset base consumed during a year. This may be calculated by dividing the Depreciable Amount (DA) by the Useful Life and totalled for each and every asset OR by dividing the Fair Value (Depreciated Replacement Cost) by the Remaining Life and totalled for each and every asset in an infrastructure asset category or class.

Building Asset Management Plan (**BAMP**) refers to documented information that specifies the long term plan, activities, program, time scales and resources applied to specific individual major, critical assets or a grouping of assets to provide a defined level of service over the lifecycle of the asset (BAMP, 2021).

Capital expenditure Relatively large (material) expenditure, which has benefits, expected to last for more than 12 months. Capital expenditure includes renewal, expansion and upgrade. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Capital funding Funding to pay for capital expenditure.

Capital grants Monies received generally tied to the specific projects for which they are granted, which are often upgrade and/or expansion or new investment proposals.

Coastal Infrastructure Asset Management Plan (CIAMP) provides information on coastal infrastructure assets owned and maintained by the City, both now and into the future. (CIAMP, 2021).

Cost of an asset The amount of cash or cash equivalents paid or the fair value of the consideration given to acquire an asset at the time of its acquisition or construction, plus any costs necessary to place the asset into service. This includes one-off design and project management costs.

Council means the elected council (comprising Councillors) of the City.

Current replacement cost (CRC) The cost the entity would incur to acquire the asset on the

reporting date. The cost is measured by reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business or the minimum it would cost, to replace the existing asset with a technologically modern equivalent new asset (not a second hand one) with the APe economic benefits (gross service potential) allowing for any differences in the quantity and quality of output and in operating costs.

Current replacement cost "As New" (CRC) The current cost of replacing the original service potential of an existing asset, with a similar modern equivalent asset, i.e. the total cost of replacing an existing asset with an as NEW or similar asset expressed in current dollar values.

Depreciable amount (DA) The cost of an asset, or other amount substituted for its cost, less its residual value (AASB 116.6)

Depreciated replacement cost (DRC) The current replacement cost (CRC) of an asset less, where applicable, accumulated depreciation calculated on the basis of such cost to reflect the already consumed or expired future economic benefits of the asset

Depreciation / amortisation The systematic allocation of the depreciable amount (service potential) of an asset over its useful life.

District Planning Scheme No. 2 (DPS2) is a statutory document which provides the framework for the planning and development of land. DPS 2 sets out the way land is to be used and developed by classifying various land uses into appropriate zones, for example residential and commercial. DPS 2 also includes controls to ensure long-term planning objectives are achieved.

Expenditure The spending of money on goods and services. Expenditure includes recurrent and capital.

Fair value The amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arm's length transaction.

Infrastructure comprises the asset sub-classes defined in section 5 of the AMS and Guidelines issued by the Department of Local Government..

Level of Service describes the outputs or objectives of the activity the City intends to deliver to the customer. Service levels usually relate to quality, quantity, reliability, responsiveness, statutory functional requirements, environment, acceptability and cost.

Life Cycle means the phases of activities that an asset goes through, including Identification of Need, acquisition, operation, maintenance, renewal or upgrade and disposal.

Life Cycle Cost The life cycle cost (LCC) is the total cost to provide the service over the longest asset life cycle. It comprises annual maintenance and asset consumption expense,

represented by depreciation expense. The Life Cycle Cost does not indicate the funds required to provide the service in a particular year.

Maintenance Management Plan (MMP or MP Plan) refers to documented information that specifies the lifecycle activities and processes that are required on a day to day, periodical or annual basis to ensure the safe and intended function of the assets is maintained.

Maintenance and renewal gap Difference between estimated budgets and projected expenditures for maintenance and renewal of assets, totalled over a defined time (eg 5, 10 and 15 years).

Maintenance and renewal sustainability index Ratio of estimated budget to projected expenditure for maintenance and renewal of assets over a defined time (eg 5, 10 and 15 years).

Maintenance expenditure Recurrent expenditure, which is periodically or regularly required as part of the anticipated schedule of works required to ensure that the infrastructure asset achieves its useful life and provides the required level of service. It is expenditure, which was anticipated in determining the infrastructure asset's useful life.

Management Order is a statutory right to manage and control Crown land in accordance with the Management Order granted under the Land Administration Act, 1997. A reserve is Crown land that has been set aside for a particular purpose in the public interest, for example for natural area POS, reserve purposes include 'Passive Recreation and Conservation', 'Conservation'.

Metropolitan Regional Scheme (MRS) defines the future use of land and provides the legal basis for planning in the Perth metropolitan region, dividing it into broad zones and reservations.

Nature POS means land for which the primary function is the retention and ongoing management of indigenous flora and fauna. These sites may be modified from their original condition in line with best practice environmental management and to facilitate public access for recreational purposes (LPP 4.3 - POS).

Operating expenditure Recurrent expenditure, which is continuously required excluding maintenance and depreciation, eg power, fuel, staff, plant equipment, on-costs and overheads.

Park Asset Management Plan (PAMP) details how the City of Wanneroo (City) intends to develop a robust approach to Asset Management of the City's Parks to ensure the City can provide spaces which meet the needs of the community, especially as the population grows (PAMP, 2020).

Public Open Space (POS) means land used or intended for use for recreational purposes by the public and includes parks, public gardens, playgrounds and sports fields but does not include regional open space and foreshore reserves (Liveable Neighbourhoods, 2007).

Rate of annual asset consumption A measure of average annual consumption of assets (AAAC) expressed as a percentage of the depreciable amount (AAAC/DA). Depreciation may be used for AAAC.

Rate of annual asset renewal A measure of the rate at which assets are being renewed per annum expressed as a percentage of depreciable amount (capital renewal expenditure/DA).

Rate of annual asset upgrade A measure of the rate at which assets are being upgraded and expanded per annum expressed as a percentage of depreciable amount (capital upgrade/expansion expenditure/DA).

Reactive maintenance Unplanned repair work that carried out in response to service requests and management/supervisory directions.

Restricted public open space means those spaces that are constrained in way that restricts the use of the space for recreational purposes by the general public (e.g. wetlands, certain drainage swales, power easements, cultural heritage sites, significant topographical features) (LPP 4.3 - POS).

Risk management The application of a formal process to the range of possible values relating to key factors associated with a risk in order to determine the resultant ranges of outcomes and their probability of occurrence (refer also to ISO 31000).

Service Levels are defined in terms of:

- **Community service** levels relate to how the community perceives the service in terms of safety, quality, quantity, reliability, responsiveness, cost / efficiency and legislative compliance.
- Operational or technical measures of performance, termed '**Technical Levels of Service'** (or technical service levels), relate to the allocation of resources to service activities that Council undertakes to best achieve the desired community outcomes and demonstrate effective organisational performance.

Stakeholders are those people/sectors of the community that have an interest or reliance upon an asset and who may be affected by changes in the level of service of an asset.

Stormwater Asset Management Plan (SWAMP) provides information on stormwater assets owned and maintained by the City, both now and into the future. (SWAMP, 2021).

Transport Infrastructure Asset Management Plan (TIAMP) details how the City intends to operate and maintain the transport infrastructure network to achieve its strategic objectives (TIAMP, 2020).

Unrestricted public open space means those spaces that are free from constraints or encumbrances (e.g. wetlands, certain drainage swales, power easements, cultural heritage sites, significant topographical features) and are available at all times for recreational purposes by the general public. This includes conservation areas that are accessible by the public (LPP 4.3 - POS).

11.1.2 Natural Area

Abiotic factors refers to all the non-living factors present in an ecosystem, typically comprising physical and chemical components (e.g. climate, humidity, precipitation, wind, altitude, type of soil, light penetration, water depth, oxygen content, turbidity etc).

Biotic factors relate to all the living things in the ecosystem. More specifically, it includes all flora and fauna (e.g. plants, animals, fungi, bacteria etc).

Bushland is defined as land on which there is vegetation which is either a remainder of the natural vegetation of the land, or, if altered, is still representative of the structure and floristics of the natural vegetation, and provides the necessary habitat for native fauna.

Bush Forever Policy aims to ensure bushland protection and management issues are addressed and integrated with broader land use management and decision-making.

Coastal (Foreshore) the land and sea areas bordering the shoreline.

Ecological Linkage is a network of native vegetation that maintains some ecological functions of natural areas and counters the effects of habitat fragmentation (EPA, 2008).

Regional Ecological Linkages are a network of natural areas that provide “stepping stones” for species to migrate and disperse between patches of remnant vegetation (WALGA, 2021).

Natural Area Maintenance means regular ongoing day to day work, including the seasonal and annual tasks necessary to support and assist an ecosystems functionality and resilience to changing external pressures.

Management Plans:

- **CAMP – Conservation Area Management Plan** provides a framework and implementation plan for the management of designated conservation areas during

construction, and provides detail on the ongoing maintenance activities to be undertaken.

- **FMP – Foreshore Management Plan** provide more detailed direction on management regimes, infrastructure requirements and approval processes for coastal areas within the boundary of the FMP.
- **WMP – Wetland Management Plan** details the rehabilitation measures and management responsibilities to maintain and enhance the health of wetlands and associated vegetation during and post construction.

Regenerate/ion means the re-establishment of vegetation from in-situ seed banks and propagating material (such as lignotubers, bulbs, rhizomes) contained either within the topsoil or seed-bearing mulch (DWER, 2018).

Rehabilitation means actively managing an area containing native vegetation in order to improve the ecological function of that area (DWER, 2018).

Restoration The return of a community to its pre-disturbance or natural state in terms of abiotic (non-living) conditions, community structure and species composition (English and Blythe 1999). https://walga.asn.au/getattachment/6a447a85-3bc7-47be-8cfa-a5ff991ed428/20-PartB15-Restor-Rehab.pdf

Revegetate/ion means the re-establishment of a cover of local provenance native vegetation in an area using methods such as natural regeneration, direct seeding and/or planting, so that the species composition, structure and density is similar to pre-clearing vegetation types in that area (DWER, 2018).

Vegetation condition means the rating given to native vegetation which refers to the impact of disturbance on each of the layers and the ability of the community to regenerate (Keighery 1994). The Keighery scale (1994) is used for the South West and Interzone Botanical Province (DWER, 2018).

Wetlands are areas that are permanently, seasonally or intermittently waterlogged or inundated with water. This water can be fresh or salty, flowing or still. Wetlands occur naturally however some may be artificially created (DBCA, 2021).

11.1.3 Natural Area Infrastructure

Component An individual part of an asset which contributes to the composition of the whole and can be separated from or attached to an asset or a system.

Infrastructure assets Physical assets of the entity or of another entity that contribute to meeting the public's need for access to major economic and social facilities and services, e.g.

roads, drainage, footpaths and cycle ways. These are typically large, interconnected networks or portfolios of composite assets. The components of these assets may be separately maintained, renewed or replaced individually so that the required level and standard of service from the network of assets is continuously sustained. Generally the components and hence the assets have long lives. They are fixed in place and are often have no market value.

Maintenance means regular ongoing day-to-day work necessary to keep an infrastructure asset operating to achieve its optimum life expectancy.

Renewal means works to restore, rehabilitate or replace an infrastructure asset to its original capacity.

Replacement means the complete replacement of an infrastructure asset that has reached the end of its life, to provide a similar or agreed alternative, level of service.

Replacement Cost means the cost of replacing an existing asset with an identical new infrastructure asset.

Upgrade means enhancing an existing infrastructure asset to provide higher level of service and capacity.

Whole of Life Cost refers to the total cost of an infrastructure asset throughout its life cycle.

Remaining life The time remaining until an infrastructure asset ceases to provide the required service level or economic usefulness. Age plus remaining life is economic life.

Renewal Expenditure on an existing infrastructure asset, which returns the service potential or the life of the asset up to that which it had originally. It is periodically required expenditure, relatively large (material) in value compared with the value of the components or sub-components of the asset being renewed. As it reinstates existing service potential, it has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time, e.g. resurfacing or resheeting a material part of a road network, replacing a material section of a drainage network with pipes of the same capacity, resurfacing an oval. Where capital projects involve a combination of renewal, expansion and/or upgrade expenditures, the total project cost needs to be allocated accordingly.

Residual value The net amount which an entity expects to obtain for an infrastructure asset at the end of its useful life after deducting the expected costs of disposal.

Sub-component Smaller individual parts that make up a component part.

Useful life (infrastructure)

Either:

(a) the period over which an infrastructure asset is expected to be available for use by an entity, or

(b) the number of production or similar units expected to be obtained from the infrastructure asset by the entity.

It is estimated or expected time between placing the infrastructure asset into service and removing it from service, or the estimated period of time over which the future economic benefits embodied in a depreciable infrastructure asset, are expected to be consumed by the council. It is the same as the economic life.

11.2 Abbreviations

The following abbreviations are used in this AMP and have been split between the following areas:

- General – abbreviations specific to asset management and other commonly used abbreviations.
- City of Wanneroo – abbreviations specific to the City, including relating to asset management at the City, City documentation and City Service units.
- Natural Area – abbreviations specific to the natural environment.

11.2.1 General

11.2.1.1 Asset Management

ACP – Asset Class Plan
AM – Asset Management
AMP – Asset Management Plan
AM Policy – Asset Management Policy
AM Strategy – Asset Management Strategy
AM Framework – Asset Management Framework
AMS – Asset Management System
AMIS – Asset Management Information System
CAPEX – Capital Expenditure
DLGSCI – Department of Local Government, Sport and Cultural Industries
GIS – Geographical Information System
IIMM – International Infrastructure Management Manual
IPR – Integrated Planning Framework
IPWEA – Institute of Public Works Engineering Australia

LTFP – Long Term Financial Plan

MMS – Maintenance Management Plan

OPEX – Operational Expenditure

WALGA – West Australian Local Government Association

11.2.1.2 Other

DAWE – Department of Agriculture, Water and Environment (Federal)

DFES – Department of Fire and Emergency Services (State)

DPLH – Department of Planning Lands and Heritage (State)

DPS2 – District Planning Scheme No.2

DWER – Department of Water and Environment Regulation (State)

MRS – Metropolitan Regional Scheme

NA POS – Natural Area Public Open Space

PBP – Perth Biodiversity Project (WALGA)

POS – Public Open Space

WAPC – Western Australia Planning Commission (State)

11.2.2 City of Wanneroo

11.2.2.1 Asset Management

AMSG – Asset Management Steering Group

NAWG – Natural Area Working Group

11.2.2.2 Documents

AIP – Access and Inclusion Plan

BAMP – Building Asset Management Plan

CAMP – Conservation Area Management Plan

CHRMAP – Coastal Hazard Risk Management and Adaptation Planning

CIAMP – Coastal Infrastructure Asset Management Plan

CMP – Coastal Management Plan

FMP – Foreshore Management Plan

LBP – Local Biodiversity Plan

LES – Local Environment Strategy

NAIA Template - Natural Area Initial Assessment Template

PAMP – Parks Asset Management Plan

RAP – Reconciliation Action Plan

TIAMP – Transport Infrastructure Asset Management Plan

WMP – Wetland Management Plan

YICM – Yellagonga Integrated Catchment Management Plan 2021-2026###

###Note - draft Yellagonga Integrated Catchment Management Plan 2021–2026 is currently available for Public consultation until mid-2021, it is anticipated to be endorsed once consultation has been undertaken.

11.2.2.3 Service Units

AM - Assets Maintenance

AP - Asset Planning

BM - Building Maintenance

CD - Community Development

CD - Cultural Development (Heritage)

CFO - Community Facilities Operations

CFP - Community Facilities Planning

CIS - Customer & Information Services

CP - Contracts and Procurement

CS - Cultural Services

CSEM - Community Safety and Emergency Management

EM - Engineering Maintenance

GL – Governance and Legal

ICW - Infrastructure Capital Works

LD - Land Development

LS - Library Services

PM - Parks Maintenance

PM - Place Management

PM - Project Management

PS - Property Services

SLUPE - Strategic Land Use, Planning & Environment

TCM - Trees and Conservation Maintenance

WS - Waste Services

11.2.3 Natural Area

ACM – Asbestos Containing Material

ASS – Acid Sulphate Soils

BAW – Beach Access Way

BF – Bush Forever

CCW – Conservation Category Wetland

EMVAT – Emergency and Maintenance Vehicle Access Track

ESA – Environmentally Sensitive Area

ESL – Emulsion Stabilised Limestone

MNES – Matters of National Environmental Significance (see *EPBC Act 1999*)

PEC – Priority Ecological Community

SCP - Swan Coastal Plain

TEC – Threatened Ecological Community

APPENDIX A: NATURAL AREA INFRASTRUCTURE LIFECYCLE COST PARAMETERS

The following is a summary of the natural area infrastructure assets included in each category in the existing asset data as well as their useful life. These will be validated during the conditioning and validation exercise - Refer Improvement Action 2.

Table A: Infrastructure lifecycle cost parameters for Natural Area Parks.

Asset Group	Asset Name	Unit of Measure	Intervention Condition	Asset Useful Life
Access tracks	EMVAT's (ESL, Limestone)	Metres^2	9	27
	EMVAT's (Sand)	Metres^2	9	N/A (100)
Park Equipment	Drink Fountain	Item	9	17
	Pest Equipment	Unit	9	22
Park Structures	Balustrade / Handrail	Metres	9	22
	Bird Nesting (Osprey)	Unit	9	22
	Bollards - Non Standard	Metres	9	53
	Bollards - Standard	Metres	9	74
	Fencing - Chainmesh	Metres	9	38
	Fencing – Coastal Foreshore	Metres	9	22
	Fencing - Conservation (Non Standard)	Metres	9	38
	Fencing - Conservation (Standard)	Item	9	38
	Fencing - Panel Fence	Metres	9	38
	Fencing - Post and Rail	Metres	9	38
	Fencing - Post and Wire	Metres	9	38

	Fencing - Post and Wire mesh	Metres	9	38
	Fencing - Rural	Metres	9	38
	Fencing – Security	Metres	9	30
	Park Furniture – Composite (Bench seats)	Unit	9	11
	Gate	Item	9	30
	Lighting - Luminaire	Unit	9	17
	Lighting - Pole	Unit	9	38
	Outdoor Shower	Unit	9	11
	Safety rails	Unit	9	30
	Park Shelters – Gazebo (Large)	Item	9	38
	Park Shelters – Gazebo (Medium)	Item	9	38
	Park Shelters – Gazebo (Small)	Item	9	38
	Park Shelters - Metal	Item	9	38
	Park Shelters - Wood/Metal	Item	9	38
	Steps - not coastal	Metres^2	9	82
	Walls	Metres	9	82

APPENDIX B: NATURAL AREA PARK ASSETS CONTAINING NATIVE VEGETATION

Table B: Summary of the City's Natural Area Park's containing native vegetation assets.

Natural Area Park Name	Location (Suburb)	Environmental Category (Bushland, Coastal Foreshore or Wetland)	Park Size (Hectares)
Alkimos foreshore	Alkimos	Coastal Foreshore	305,754
Allanbi park	Carramar	Bushland	2,841
Alvarez park	Tapping	Bushland	15,662
Amstel park	Madeley	Bushland	42,964
Anchors park	Yanchep	Bushland	16,322
Appleby park	Darch	Bushland	14,554
Aquinita park	Wanneroo	Bushland	5,220
Asche park	Two Rocks	Bushland	8,042
Ashbrook park	Pearsall	Bushland	31,364
Ashley park	Tapping	Bushland	41,328
Badgerup reserve	Wanneroo	Wetlands	804,376
Beachhaven park	Yanchep	Bushland	2,002
Belgrade park	Wanneroo	Bushland	40,770
Benmuni park	Wanneroo	Bushland	139,275
Bernard park	Carabooda	Bushland	184,435
Bewick park	Yanchep	Bushland	40,317
Blenny park	Yanchep	Bushland	36,195
Boyagin park	Sinagra	Bushland	7,344
Brazier park	Yanchep	Bushland	9,045
Brockwell park	Landsdale	Bushland	6,623
Burbanks park	Wanneroo	Bushland	8,304
Caporn park	Mariginiup	Bushland	102,874
Carabooda quarry reserve	Carabooda	Bushland	621,172
Caraway park	Two Rocks	Bushland	32,558
Cassilda park	Two Rocks	Bushland	40,954
Celadon park	Banksia Grove	Bushland	21,853
Cheltondale park	Madeley	Bushland	9,547
Chicquita park	Wanneroo	Bushland	46,854
Cinnamon park	Two Rocks	Bushland	23,734
Compass park	Yanchep	Coastal Foreshore	53,879
Conti park (reserve 27366)	Wanneroo	Bushland	44,312
Conti park (reserve 8121)	Wanneroo	Bushland	145,099

Conti park (reserve 834)	Ashby	Bushland	28,460
Coogee park	Mariginiup	Bushland	32,006
Coopers park	Mindarie	Bushland	8,878
Countryside park	Two Rocks	Bushland	143,018
Da vinci park	Tapping	Bushland	60,161
Damian park	Jandabup	Bushland	61,330
Delamare park	Banksia Grove	Bushland	11,085
Discovery park	Banksia GRove	Bushland	31,469
Doogarch park	Carabooda	Bushland	40,082
Edgar griffiths park	Wanneroo	Bushland	58,671
Eglinton foreshore	Eglinton	Coastal Foreshore	288,063
Emerald park	Carabooda	Bushland	44,288
Estrel park	Wanneroo	Bushland	120,914
Flynn park	Neerabup	Bushland	18,198
Forrest grove park	Two Rocks	Bushland	31,160
Frangipani park	Marangaroo	Bushland	6,059
Franklin park	Jandabup	Bushland	81,033
Galleon park	Yanchep	Bushland	24,363
Golfview park	Gnangara	Bushland	41,981
Government purposes	Two Rocks	Coastal Foreshore	11,214
Gumblossom park	Quinns Rocks	Bushland	34,728
Gungurru park	Hocking	Bushland	5,457
Hackney park	Yanchep	Bushland	6,476
Hardcastle park	Landsdale	Bushland	11,577
Harvest park	Two Rocks	Bushland	98,884
Hepburn park	Landsdale	Bushland	104,342
Hidden valley park	Clarkson	Bushland	8,941
Highview park	Alexander Heights	Bushland	28,184
Honey possum park	Banksia Grove	Bushland	70,369
Honeymyrtle park	Butler	Bushland	9,183
Huntington park	Landsdale	Bushland	9,686
Jambanis park	Wanneroo	Bushland	31,780
James cook park	Quinns Rocks	Bushland	12,775
Jindalee foreshore	Jindalee	Coastal Foreshore	586,948
Kahana park	Butler	Bushland	48,451
Kaiber park	Yanchep	Bushland	14,197
Kennerton park	Landsdale	Bushland	6,155
Kinsale conservation park	Mindarie	Bushland	58,448
Koondoola bushland	Koondoola	Bushland	1,342,239
Lake adams	Mariginiup	Wetlands	321,282
Lake gnangara reserve	Gnangara	Bushland	477,379
Lake gnangara reserve	Gnangara	Wetlands	1,464,862

Lake joondalup foreshore	Wanneroo	Wetlands	1,709,595
Lake mariginiup foreshore	Mariginiup	Wetlands	67,354
Lake neerabup foreshore	Neerabup	Wetlands	28,495
Landsdale park	Darch	Bushland	162,297
Manningtree park	Butler	Bushland	28,249
Marangaroo golf course	Marangaroo	Bushland	236,580
Mary park	Wanneroo	Bushland	64,596
Mary street park (west)	Wanneroo	Bushland	40,595
Maurice lachberg park	Gnangara	Bushland	45,025
Merchant park	Alkimos	Bushland	10,398
Middleton park	Alexander Heights	Bushland	28,127
Mindarie park	Quinns Rocks	Bushland	14,368
Montana park (proposed)	Alkimos	Bushland	12,810
Montrose park	Girrawheen	Bushland	64,794
Nanovich park	Wanneroo	Bushland	41,324
Newlyn park	Yanchep	Bushland	11,179
Newman park (north)	Yanchep	Coastal Foreshore	106,434
Newman park (south)	Yanchep	Bushland	88,617
North mindarie foreshore	Mindarie	Coastal Foreshore	136,579
North quinns rocks foreshore	Quinns Rocks	Coastal Foreshore	154,162
North two rocks foreshore	Two Rocks	Coastal Foreshore	599,550
North yanchep foreshore	Yanchep	Coastal Foreshore	553,734
North yanchep foreshore - club capricorn	Yanchep	Coastal Foreshore	28,138
Oban park	Butler	Bushland	1,874
Oldham park	Yanchep	Bushland	31,136
Orchestra shell cave	Neerabup	Bushland	60,734
Paloma park	Marangaroo	Bushland	52,898
Panzano park	Woodvale	Wetlands	7,114
Peridot park	Banksia Grove	Bushland	7,532
Pinjar park	Neerabup	Bushland	593,077
Quinns caravan park reserve	Mindarie	Bushland	75,060
Ridgewood park	Ridgewood	Bushland	34,424
Royal james park	Quinns Rocks	Bushland	12,298
Royal james park	Quinns Rocks	Bushland	11,904
Rufus park	Madeley	Bushland	21,251
San teodoro park	Sinagra	Bushland	22,692
Sarre park	Marangaroo	Bushland	5,999
Shamrock park	Two Rocks	Bushland	22,609
Skysail park	Alkimos	Bushland	6,004
Smith park	Yanchep	Bushland	2,657
South mindarie foreshore	Mindarie	Coastal Foreshore	447,100

South quinns rocks foreshore	Quinns Rocks	Coastal Foreshore	35,433
South two rocks foreshore	Two Rocks	Coastal Foreshore	744,545
South yanchep foreshore	Yanchep	Coastal Foreshore	289,315
Sovereign park	Two Rocks	Coastal Foreshore	51,965
Spring park	Tapping	Bushland	26,320
Susan park	Madeley	Bushland	50,478
Talara park	Mindarie	Bushland	5,783
Tamala park foreshore	Tamala Park	Coastal Foreshore	731,425
Thaxter park	Landsdale	Bushland	39,429
Tranquil park	Carramar	Bushland	37,758
Treeside park	Yanchep	Bushland	5,614
Tuscan park	Gnangara	Wetlands	33,354
Vintage park	Gnangara	Wetlands	20,815
Viridian park	Banksia Grove	Bushland	34,999
Voyager park	Pearsall	Bushland	5,330
Waddington park	Koondoola	Bushland	23,929
Waitj dreaming reserve	Two Rocks	Bushland	31,171
Waldburg park	Tapping	Bushland	30,040
Wattle park	Neerabup	Bushland	34,474
Whitfield park	Two Rocks	Bushland	48,776
Windlass park	Alkimos	Bushland	4,520

APPENDIX C: GENERALISED GENERIC DESCRIPTIONS OF ASSET CONDITION RATINGS USED TO CONDITION NATURAL AREA PARK INFRASTRUCTURE ASSETS

Table C: Infrastructure Asset Condition Rating Scale.

Condition Rating	Generic Description of asset condition
0	A new asset or an asset recently rehabilitated back to new condition.
1	A near new asset with no visible signs of deterioration often moved to condition 1 based upon the time since construction rather than observed condition decline.
2	An asset in excellent overall condition. There would be only very slight condition decline but it would be obvious that the asset was no longer in new condition.
3	An asset in very good overall condition but with some early stages of deterioration evident, but the deterioration still minor in nature and causing no serviceability problems.
4	An asset in good overall condition but with some obvious deterioration evident, serviceability would be impaired very slightly.
5	An asset in fair overall condition deterioration in condition would be obvious and there would be some serviceability loss.
6	An asset in Fair to poor overall condition. The condition deterioration would be quite obvious. Asset serviceability would now be affected and maintenance cost would be rising.
7	An asset in poor overall condition deterioration would be quite severe and would be starting to limit the serviceability of the asset. Maintenance cost would be high
8	An asset in very poor overall condition with serviceability now being heavily impacted upon by the poor condition. Maintenance cost would be very high and the asset would at a point where it needed to be rehabilitated.
9	An asset in extremely poor condition with severe serviceability problems and needing rehabilitation immediately. Could also be a risk to remain in service
10	An asset that has failed which is no longer serviceable and should not remain in service. There would be an extreme risk in leaving the asset in service.

APPENDIX D: KEIGHERY (1994) VEGETATION CONDITION SCALE

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types (DWER, 2018).

Table D: Keighery (1994) Vegetation condition scale ratings.

Condition	Description
Pristine	Pristine or nearly so, with no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, and/or grazing, dieback and logging.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by regeneration but not to a state approaching good condition without disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance of vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely, or almost completely, without native species. These areas are often described as "parkland cleared" with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Keighery, 1994.

APPENDIX E: LEGISLATIVE AND OTHER REQUIREMENTS

Table E: Strategic Context for the Management of the City's Natural Area Parks.

Local context (City of Wanneroo)	
Title	**Requirements / Description**
Access and Inclusion Plan (AIP) 2018/19 – 2021/22	The Access and Inclusion Plan outlines how the City will work to eliminate barriers to access and inclusion and to advocate for equity of access for all abilities and cultures in our community.
Asset Management Policy (2018)	This Policy defines the key principles and requirements which the City will apply to its planning and management, including long term financial sustainability, of assets to ensure that these are effective and safe to meet the needs of its community, customers and stakeholders.
Asset Management Strategy (2018)	The AM Strategy adds detail to the AM Policy, focusing on what the City plans to do to build its AM capability and capacity necessary to sustainably meet the challenges into the future. The AM Strategy sets out the high level AM objectives and outcomes to ensure that AM practises and the management of its assets is consistent with the AM Policy and are aligned to the SCP and CBP objectives. It also ensures that improvements also meet the requirements of the IPF and are in alignment with ISO 55001 asset management system standards.
Bushfire Risk Management Plan 2019-2024 (BRMP)	The BRMP is a strategic document that identifies assets at risk from bushfire and their priority for treatment. The Treatment Schedule sets out a broad program of coordinated multi-agency treatments to address risks identified in the BRMP. Government agencies and other land managers responsible for implementing treatments participate in developing the BRMP to ensure treatment strategies are collaborative and efficient, regardless of land tenure.
Cats Local Law (2016) and Dogs Local Law (2016)	Provide for the regulation, control and management of the keeping of animals within the City of Wanneroo. The effect of this local law is to establish the requirements with which owners and occupiers of land within the district must comply in order to keep animals and provides the means of enforcing the local law.
Coastal Hazard Risk Management Adaptation Plan Part 1 (2012) Part 2 – pending.	Part 1 of the CMP comprises a 'data capture' of the City's coastline, describes a number of issues related to use of the coastline, documents existing and proposed facilities along the coast and discusses the potential ways in which known issues can be resolved. Part 2 of the CMP will follow the adoption of Part 1 and is intended to address previous commitments made in existing foreshore management plans, as well as the potential impacts of climate change, and future community needs, including recommendations for future coastal uses.
City of Wanneroo Local Government and Public Property Local Law (1999)	Provides the regulation, control, management and use of public property in the City

Local context (City of Wanneroo) cont.	
Title	**Requirements / Description**
City of Wanneroo Occupational Safety and Health Policy (2019) and relevant Procedures	The Policy covers all occupational aspects of the City's activities, business and operations.
Climate Change Adaptation and Mitigation Strategy 2020/21-2025/26 (CCAMS)	The purpose of the CCAMS is to identify areas where the City and the community it represents, are exposed to the effects of climate change and provide risk management adaptation measures to reduce the risk, as well as to identify practical mitigation measures that would aid with the mitigation of the impacts of climate change.
Community Engagement Policy (2017)	The purpose of this Policy is to provide guiding principles for community engagement to ensure consistent, meaningful and best practice engagement is carried out within the City.
Environmental Management Plan Guidelines (2018) (EMP)	Applies to the following management plans: vegetation and fauna, conservation area, wetland, karstic features, dieback and revegetation. Outlines the format and content that the City requires for EMP's lodged with the City for approval, together with the assessment process the City will follow, in order to better streamline the EM) approval process and ensure consistent decision-making within the City.
Environment Policy (2019)	The purpose of this policy is to demonstrate the City's commitment to protecting and enhancing its natural environment and incorporating the principles of ecologically sustainable development throughout its operations and business activities to benefit current and future generations taking into account environmental, economic and social impacts (Triple Bottom Line).
Feral Animal Control Program	The feral animal control program aims to improve and protect biodiversity within the City with a focus on feral rabbits and foxes. The program is undertaken in line with relevant legislation and is carried out in strategically selected City-managed conservation areas.
Foreshore Management Plan Guidelines (2021)	Outlines the format and content that the City of Wanneroo requires for FMP's lodged with the City for approval, together with the assessment process the City will follow, in order to better streamline the FMP approval process and ensure consistent decision-making within the City.
Local Biodiversity Plan 2018/19-2023/24	Implementation of the Local Biodiversity Plan will help integrate biodiversity protection into land use planning, commit to ongoing action and new projects to improve biodiversity conservation.
Local Environment Strategy (LES) 2019	The LES sets out the high level framework for all of the City's strategic environmental planning initiatives and promotes a balance between growth and the protection and enhancement of the natural and built environments.
Local Government Insurance Scheme (LGIS)	Sets out City responsibilities for managing risks and liabilities including within natural areas under the care and control of the City.
Local Planning Policy 1.1 Conservation Reserves (2021)	The objectives of the Policy are to provide guidance on the classification of Public Open Space (POS) as 'Conservation' under District Planning Scheme No. 2 (DPS 2).

Local context (City of Wanneroo) cont.	
Title	**Requirements / Description**
Local Planning Policy 3.3 Fauna Management (2020)	The objectives of the Policy are to ensure the effective management of macro-fauna by landowners and/or developers of land proposed for urban development and to avoid the unwanted impacts of displaced macro-fauna due to habitat disturbance. Macro fauna are defined as Kangaroo's and Emu's for the purposes of this policy.
Local Planning Policy 4.1: Wetlands (2010)	The objectives of the Policy are to ensure development within the City of Wanneroo appropriately protects and manages the environmental attributes of wetlands and also recognises the value and benefit of wetlands to the local environment and community.
Local Planning Policy 4.12 Heritage Place (2016)	The objectives of the Policy are to provide an appropriate level of protection for heritage places identified on the City's Local Heritage Survey.
Local Planning Policy 4.13 Caves and Karstic Features (2018)	The objectives of the Policy are to conserve caves and significant karstic features for their geological, cultural and environmental values and to minimise risks to people and property in karst hazard areas.
Local Planning Policy 4.21 Coastal Assets (2016)	The purpose of the Policy is to Provide guidance to land developers, consultants, the community and contractors as to the type of permanent and temporary assets that the City will consider within the foreshore reserve and to guide the location of proposed assets relative to the projected onset of coastal processes as calculated in accordance with State Coastal Planning Policy 2.6 (SPP 2.6).
Local Planning Policy 4.3 Public Open Space (2021) (including Park Sign specification)	The policy provides for Council's position on the planning, provision, location, design, development and interim maintenance of Public Open Space (POS).
Local Planning Policy 4.8: Tree Preservation Policy (2006)	To provide a mechanism to protect significant trees of the City within the following specified areas: vacant land and bushland which will be subject to future development; and existing and proposed public open space reserves.
Pathway Policy (2016)	Provides direction to the provision of a safe and accessible pathway network to improve the walking and cycling environment to enable the community to walk and cycle for transport, health and recreation as well as reduce car dependency.
Pesticide Management Policy (2019)	The objective of the Policy is to ensure that the City meets it environmental, legal and community obligations for pesticide use on land it administers in a manner that is environmentally, socially and economically responsible. It also ensures that pesticides are applied in the City's parks, streetscapes and conservation reserves in accordance with the relevant state government Acts and guidelines and industry best practice. The Policy applies to the application of pesticides to all City managed land.
Site Erosion & Sand Drift Prevention Local Law (2016)	Provides for the regulation, control and management of site erosion, sand and dust on land within the district.
Smart Growth Strategy (2005)	Developed to more effectively manage growth in the City, in both new and existing suburbs. The strategy has six key principles, one of which is Long Term Health of the Environment.

Local context (City of Wanneroo) cont.	
Title	**Requirements / Description**
Strategic Community Plan 2017/18 – 2026/27	The City's long-term vision capturing the aspirations of the community and describing the City's objectives. It provides strategic guidance to the City regarding priority focus areas and direction and informs the City's Corporate Business Plan. This is also the key document for Council to track and report back to the community on progress. The Plan includes four pillars, one of which is 'Environment'. The aspiration identified for the Environment pillar is for 'A healthy and sustainable natural and built environment'.
Street Tree Policy (2018)	The objectives of the Policy are to Provide guidance for the care, control, management, protection and preservation of City trees; to increase the City's canopy cover; to enhance the amenity of the City's streetscapes and reserves through the planting of new trees and to define the circumstances under which the City's trees may be removed or pruned.
Yellagonga Integrated Catchment Management Plan 2015-2019 (YICM) *Note - draft Yellagonga Integrated Catchment Management Plan 2021–2026 is currently available for Public consultation until mid-2021, it is anticipated to be endorsed once consultation has been undertaken.*	The Plan is a collaborative approach between the Cities of Joondalup and Wanneroo that aims to monitor and improve the health of the Yellagonga wetlands and has been developed to ensure an integrated approach to the ongoing management of the Yellagonga Catchment. It provides a strategic direction for the implementation of key projects and aims to improve the ecological functions and overall health of Yellagonga Regional Park.
Regional Context	
Title	**Requirements / Description**
Bush Forever (2000) Department of Planning	The aim is to provide a policy and implementation framework that will ensure bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision-making. Yellagonga Regional Park is designated a Bush Forever site (299).
Bushland Policy for the Perth Metropolitan Region (State Planning Policy No.2.8) (2010)	The aim of the policy is to provide a policy and implementation framework that will ensure bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision-making.
Draft Gnangara Sustainability Strategy (2009)	A cross-government initiative working on an action plan that will ensure the sustainable use of water for drinking and commercial purposes and to protect the environment.
State Context	
Title	**Requirements / Description**
Aboriginal Heritage Act 1972	Conserves registered places and provides protection for Aboriginal Sites and objects.
Agriculture and Related Resources Protection Act 1976 and Regulations 2006	The Act lists, and categorises, declared plants and animals that local government authorities are required to control. The Act also identifies methods to prevent the introduction of declared plants and animals into an area. The regulations highlight specific declared plants or animals and their particular management requirements (e.g. European House Borer).

State Context cont.	
Title	**Requirements / Description**
Better Urban Water Management Framework (2008)	Facilitates better management of urban water resources by ensuring an appropriate level of consideration is given to the total water cycle at each stage of the planning system and provides guidance on the implementation of State Planning Policy 2.9 Water Resources.
Biodiversity Conservation Act 2016	Provides for the conservation and protection of Western Australian biodiversity (inclusive of flora and fauna) and biodiversity components and the ecological sustainable use of biodiversity components. Replaces the *Wildlife Conservation Act 1950* and the *Sandalwood Act 1929*.
Biological Control Act 1986	The Act makes provision for the biological control of pests in Western Australia.
Biosecurity and Agriculture Management Act 2007 (BAM Act) and Regulations 2013	Provision for effective biosecurity and agriculture management for Western Australia. Declared plants and animals listed on the WAOL (Western Australian Organism List) can be controlled; if located on, and in relation to, land under the City's control. City Local Laws can be made regarding pest plants.
Building Act 2011 and relevant Regulations	Legislates the Building Approvals process. A building approval is required for the construction of certain types of infrastructure assets within natural areas including retaining walls, boardwalks, staircases, lookouts etc.
Bushfires Act 1954	Provision for diminishing the dangers resulting from bushfires and for the prevention, control, and extinguishment of bushfires.
Cat Act 2011	The Act makes provision for the control and management of cats and promotes and encourages the responsible ownership of cats.
Conservation and Land Management Act 1984	Provisions for the use, protection and management of certain public lands and waters and the flora and fauna therein. For example National Parks, Nature Reserves, Marine Protected , lands under the management of Conservation Commission etc.
Construction Contracts Act 2004	Provides protections to contractors and suppliers.
Contaminated Sites Act 2003 and relevant Regulations 2006	Provision for the remediation and treatment of sites affected by contamination. Outlines the reporting of known or suspected contaminated sites.
Dog Act 1976	The Act makes provisions for the control of dogs in public and private spaces and promotes responsible dog ownership.
Dividing Fences Act 1961	Local government exempt from 50/50 contribution for dividing fences abutting public open space (including natural area parks).
Emergency Management Act 2005	Provides for prompt and coordinated organisation of emergency management in the State (including functional response to community public emergencies).
Environmental Protection Act 1986 and relevant Regulations 2004	The Act provides for the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing.
Environmental Protection (Noise) Regulations 1997	Regulates noise from public places and provides standards for noise emissions.
Fire & Emergency Services Act 1998	Provides for functions relating to the provision and management of emergency services.
Firebreak Location, Construction and Maintenance Guidelines (FESA)	Assists with the location, construction and maintenance of fire breaks within natural areas.

State Context cont.	
Title	**Requirements / Description**
Fish Resources Management Act 1994	The Act is the primary State legislation regulating the management of, and utilisations and conservation of fish (which includes all aquatic organisms except reptiles, birds, mammals, and amphibians) and their habitat.
Health Act 1911	The Act deals with certain matters concerning public health, including the discharge of material(s) causing pollution to waterways
Health (Asbestos) Regulations 1992	Regulates asbestos to ensure proper management of potential public health risks from exposure to asbestos.
Health (Pesticides) Regulations 2011	Regulates the storage, use and transport of pesticides.
Heritage Act 2018	Recognises the importance and promotes understanding and appreciation of WA cultural heritage. Identifies and documents places of cultural heritage significance and for the conservation, use, development and adaptation of such places. Repealed and replaced the *Heritage of Western Australia Act 1990.*
Land Administration Act 1997	Provision for dealing with the management of the State's Crown Land, including the creation, administration and management of reserves over Crown land/waters.
Litter Act 1979	Provision for the abatement of litter, to establish, incorporate and confer powers upon the Keep Australia Beautiful Council (W.A.).
Local Government Act 1995 and associated Regulations	Sets out role, purpose, responsibilities and legal powers of local governments including the requirement for the preparation of a long term financial plan supported by asset management plans for sustainable service delivery. The Act also regulates the disposal of property by a local government by lease or sale.
Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region (WALGA) 2004	Guidelines providing strategic approaches to Local Government to conserve biodiversity.
Local Government Guidelines for Bushland Management (In the Perth and Coastal South-West Natural Resource Management Regions Western Australia)(WALGA) 2009	Provides local government officers direction in prioritising management actions for natural areas and to ensure that management of these areas is in line with biodiversity principles.
*Occupational, Safety and Health Act 1984*** and relevant Regulations 1996	The Act promotes and improves standards for occupational safety and health, including setting out roles and responsibilities to secure health, safety and welfare of a person at work. ** Australia is in the final stages of finalising a harmonized Workplace Health and Safety (WHS) Act (expected to be 2021). This would supersede the OSH Act and Regulations (and will modify/expand some of the existing obligations) and require all the topical Code of Practices to be updated for WA.
Planning & Development Act 2005 and relevant Regulations.	Provides for the planning regime in WA, including zoning and development approval processes. Setting aside land for open space or payment in lieu as conditions of subdivision.

State Context cont.	
Title	**Requirements / Description**
Managing Phytophthora Dieback – Guidelines for Local Government (Dieback Working Group) 2000	Identifies methods to identify phytophthora dieback and subsequent management techniques. Identifies cleaning and sterilising techniques in order to undertake natural area maintenance activities. In addition, a joint publication by the Threatened Species Network and the Dieback Working group was released in 2008 'Managing Phyphthora Dieback in Bushland – a Guide for Landholders and Community Conservation Groups'.
Rights in Water and Irrigation Act 1914	The Act relates to rights in water resources, making provision for the regulation, management, use and protection of water resources.
Soil and Land Conservation Act 1945 or *Soil Conservation Act 1945*	Provides for and regulates the conservation of soil and land resources and for the mitigation of the effects of erosion, salinity and flooding.
State Planning Policy 2.0 Environmental and Natural Resources (2003)	Protection, conservation and enhancement of the natural environment. Integration of environment and natural resource management with broader land use planning and decision-making.
State Planning Policy 2.2 Gnangara Groundwater Protection (2005)	To prevent, control or manage development and land use changes in the policy area that are likely to cause detrimental effects to the groundwater resource.
State Planning Policy 2.6 State Coastal Planning and Policy Guidelines (2013)	Provides for the long term sustainability of WA's coast.
State Planning Policy 2.7 Public Drinking Water Source (2003)	Provides provisions for land use and development in public drinking water supply areas.
State Planning Policy 2.8 Bushland Policy for the Perth Metropolitan Region (2010)	Provides provisions to ensure bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision-making.
State Planning Policy 2.9 Water Resources (2006)	Provides clarification and additional guidance to planning decision-makers for consideration of water resources in land use planning strategy.
Securing Western Australia's water future	A position paper (2013) Sets out a proposed legislative and policy framework to help deliver new water management solutions in Western Australia.
Waste Avoidance and Resource Recovery Act 2007	Provision for waste avoidance and resource recovery and waste services by Local Governments. Includes the protection of human health and the environment through the reduction in environmental harm, including pollution through waste materials.
National Context	
Title	**Requirements / Description**
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	Protects areas and objects that are of particular significance to Aboriginal people.
Australian Accounting Standards Board	Accounting rules setting out City requirements for the financial reporting of assets.
Australian Standards	Local government duty of care to ensure that the minimum established industry standards are met.

National Context cont.	
Title	**Requirements / Description**
Australia's Biodiversity and Climate Change. A strategic assessment of the vulnerability of Australia's biodiversity to climate change. Commonwealth of Australia (2009)	Is an assessment of the vulnerability of Australia's biodiversity to climate change, commissioned by the Australian Government to help increase our understanding of how to help Australia's rich biodiversity adapt to climate change.
Australia's Biodiversity Conservation Strategy 2010 – 2030, Commonwealth of Australia (2010)	The Strategy is a guiding framework for biodiversity conservation for all sectors - government, business and the community. The Strategy sets out priorities which will direct efforts to achieve healthy and resilient biodiversity and provide us with a basis for living sustainably.
Australia's Native Vegetation Framework, COAG (2012)	This Framework is a joint initiative of the Australian, state and territory governments and outlines a coordinated national approach to native vegetation management and provides a mechanism through which the native vegetation management commitments agreed to by all Australian governments can be progressed.
Disability Discrimination Act 1992	Provides protection against discrimination based on disability, in this case POS facilities.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999) and relevant Regulations 2000	The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as matters of national environmental significance. Regulates activities that are likely to have a significant impact on nationally protected matters, including bushfire management activities (firefighting and fire prevention) carried out by the City and other authorities, including fire and emergency services and individuals. Establishes the National Heritage List which includes natural, indigenous and historical places on Commonwealth lands and waters or under Australian Government control that are of outstanding heritage value to the nation.
National Construction Code of Australia (NCC) and Building Code of Australia (BCA)	Code of practice for providing safe buildings and developing and managing a uniform, national approach to building standards.
National Environmental Standards (pending)	Recommendations following independent review of the EPBC Act 1999 included the creation of NES, making existing rules under the EPBC Act 1999 clear. Implementation of the Standards by Commonwealth or State governments will ensure strong environmental protection will be provided to matters of national environmental significance regardless of the authorising entity.
Native Title Act 1993	Provides for the recognition and protection of native title.
Threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi*, Commonwealth of Australia (2014)	This national threat abatement plan came into force on 31 January 2014 and addresses the key threatening process 'Dieback caused by the root-rot fungus *Phytophthora cinnamomi*, which is listed under the Commonwealth EPBC Act.

International Context	
Title	**Requirements / Description**
Japan Australia Migratory Birds Agreement (Australia Treaty Series 1981 No.6) (JAMBA)	The JAMBA agreement lists terrestrial, water and shorebird species which migrate between Australia and Japan. The agreement requires the parties to protect migratory birds and includes provisions for cooperation on the conservation of threatened birds.
China Australia Birds Agreement (Australian Treaty Series 1988 No.22) (CAMBA)	The CAMBA agreement lists terrestrial, water and shorebird species which migrate between Australia and China. The agreement requires the parties to protect migratory birds.
Republic of Korea-Australia Migratory Bird Agreement 2007 (ROKAMBA)	The ROKAMBA formalises Australia's relationship with the Republic of Korea in respect to migratory bird conservation and provides a basis for collaboration on the protection of migratory shorebirds and their habitat.
The Convention on the Conservation of Migratory Species of Wild Animals (1983) (Bonn Convention)	Is an intergovernmental treaty that aims to conserve terrestrial, aquatic and avian migratory species throughout their range. Migratory species which are native to Australia and are included in the appendices to the Bonn Convention.
The Convention on Wetlands of International Importance (1971) (Ramsar Convention)	Is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Australia currently has 65 wetlands of international importance listed under the Ramsar Conventions.

APPENDIX F: NATURAL AREA PARK ASSETS – CAPITAL WORKS (SUBPROGRAMS) AND OPERATIONAL WORKS LTFP

Capital Works – New Upgrade and Renewal Projects (3x Sub-programs)

Table F.1: Conservation Reserves Capital Works Program

(Figures reported in $'000)

Project No	Asset Location	New Upgrade Renew	Vegetation or Infrastructure Asset	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	TOTAL
PR-1101	Various Locations	Upgrade	Infrastructure	40	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	1,560
PR-1567	Various Locations	Renew	Vegetation	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	1,600
PR-1680	Various Locations	Upgrade	Infrastructure	127	163	104	96	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	2,090
PR-2658	Various Locations	Renew	Infrastructure	50	50	70	70	90	90	120	160	180	190	190	230	260	290	310	320	320	320	320	320	3,950
PR-1563	Various Locations	Upgrade	Infrastructure				10		10		10		10		10		10		10					70
TOTAL				297	373	334	336	350	360	380	430	440	460	450	500	520	560	570	590	580	580	580	580	9,270

Table F.2: Foreshore Management Capital Works Program

(Figures reported in $'000)

Project No	Asset Location	New Upgrade Renew	Vegetation or Infrastructure Asset	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	TOTAL
PR-2016	Foreshore Reserves, Various Locations	Renew	Vegetation	100	103	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	2,453
PR-2017	Foreshore Reserves, Various Locations	Upgrade	Infrastructure	40	50	50	125	125	125	125	125	125	125	125	125	125	125	125	125	125	50	50	50	2,040
PR-2561	Coastal Protection Works, Quinns Rocks	Renew	Infrastructure	400																				400
PR-2672	Beach Access Way - Various Locations	Upgrade	Infrastructure	447	287	287	287	287	487	287	287	287	287	487	287	287	287	287	487	287	287	287	287	6,500

PR-4169	**Mindarie Breakwater**	**Renew**	**Infrastructure**	260	2,500	2,500																	**5,260**
PR-4210	**Various Locations**	**New**	**Infrastructure**	30																			**30**
PR-4221	**Yanchep Foreshore Reserve**	**New**	**Infrastructure**	32	440	180	120																**772**
PR-4281	**Capricorn Coastal Node, Yanchep**	**New**	**Infrastructure**	45	604																		**650**
PRFM05	**Yanchep Beach**	**New**	**NA**				150																**150**
PR-4234	**Two Rocks (South)**	**New**	**Infrastructure**	346																			**346**
TOTAL				**1,700**	**3,984**	**3,142**	**807**	**537**	**737**	**537**	**537**	**537**	**537**	**737**	**537**	**537**	**537**	**537**	**737**	**537**	**462**	**462**	**462**	**18,601**

Table F.3: Environmental Offset Capital Works Program

(Figures reported in $'000)

Project No	Asset Location	New Upgrade Renew	Vegetation or Infrastructure Asset	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2039/40	TOTAL
PR-1006	**Mather Reserve, Neerabup**	**New**	**Vegetation**	171	108	88	88	74	73	83	68	67	67	67	77	67	67	67	67	77	67	67	67	**1,578**
PR-2088	**Badgerup Reserve, Wanneroo**	**Renew**	**Vegetation**	132	107	139	122																	**500**
PR-2089	**Honeypossum and Boomerang Reserves, Banksia Grove**	**Renew**	**Vegetation**	75	70	50	50	50	50	50	50													**445**
PR-2091	**Caporn, San Teodoro, Spring and Alvarez Parks, Tapping**	**Renew**	**Vegetation**	64																				**64**
PR-2092	**Appleby Park, Darch**	**Renew**	**Vegetation**	27																				**27**
PR-4178	**Badgerup Reserve, Wanneroo**	**Renew**	**Vegetation**	38	48	31	33	22	15															**188**
PR-EO901	**Various Locations**	**New**	**Vegetation**									100	100	100	100	100	100	100	100	100	100	100	100	**1,200**
TOTAL				**507**	**333**	**308**	**293**	**146**	**138**	**133**	**118**	**167**	**167**	**167**	**177**	**167**	**167**	**167**	**167**	**177**	**167**	**167**	**167**	**4,002**

Table F.4: Operation and Maintenance Costs for Natural Area Parks

(Figures reported in $'000)

Type	Op or Maint	Vegetation or Infrastructure Asset	20/21	21/22	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	23/34	34/35	35/36	36/37	37/38	38/39	39/40	40/41	TOTAL
Planned	Maint	Both	2,069	2,157	2,250	2,387	2,532	2,686	2,849	3,023	3,206	3,401	3,608	3,828	4,060	4,307	4,569	4,847	5,142	5,455	5,786	6,138	6,511	**80,823**
Reactive	Maint	Both	65	68	71	76	80	85	90	96	102	108	114	121	129	137	145	154	163	173	184	195	207	**2,574**
Utilities	Op	Infrastructure	11	12	13	13	14	15	15	16	17	18	19	20	21	22	23	24	25	27	28	29	31	**422**
Insurance	Op	Infrastructure	11	12	12	12	13	13	14	14	15	16	16	17	17	18	19	19	20	21	22	23	23	**358**
TOTAL			**2,158**	**2,251**	**2,347**	**2,490**	**2,641**	**2,801**	**2,970**	**3,151**	**3,342**	**3,544**	**3,759**	**3,987**	**4,229**	**4,485**	**4,758**	**5,046**	**5,352**	**5,677**	**6,021**	**6,387**	**6,774**	**84,179**

APPENDIX G: NATURAL AREA PARK ASSET RISKS AND TREATMENT PLANS

Figure G: City of Wanneroo Risk Rating Matrix

Risk Rating Table						
CONSEQUENCE	Catastrophic	Moderate	High	High	Extreme	Extreme
	Major	Low	Moderate	High	High	Extreme
	Moderate	Low	Moderate	Moderate	High	High
	Minor	Low	Low	Moderate	Moderate	High
	Low	Low	Low	Low	Low	Moderate
		Rare	Unlikely	Moderate	Likely	Almost Certain
		LIKELIHOOD				

Risk Ratings (Extreme, High, Moderate, Low)

Table G: Credible Risk Ratings for Natural Areas

Asset at Risk	Risk	Consequence	Likelihood	Risk Rating	Risk Treatment Plan	ECA
All natural area parks assets	Fire destroying assets including native vegetation	Minor	Moderate	Moderate	Provision of firebreaks and fire mitigation activities. Implementation of the City's Bushfire Risk Management Plan.	Satisfactory
Asset Register Data	Inaccurate information in the asset register (attributes, conditions, etc.) may cause financial shock to the organisation	Minor	Moderate	Moderate	A five year programme of data validation and condition rating is to be developed 2020/21 and the first year will be put to RFQ 2022/23 Refer Improvement Action 2.	To be addressed
Bridges/Boardwalks and viewing structures	Failure generally slow and progressive in nature. Left unchecked, there is potential of continued gradual failure of structure/ components causing damage to the infrastructure that sits below and eventually resulting in catastrophic failure.	Moderate	Rare	Low	Regular inspections will prevent catastrophic failure. The City has commenced independent structural assessments to assist with the condition inspections of structures. A program will be developed to assess all these structures on a five yearly rotation. Details of the type of structures will be developed as part of the asset condition assessment and validation program. Refer Improvement Action 2.	To be addressed.
Emergency and Maintenance Vehicle Access Tracks - EMVAT's (limestone, ESL)	Edge breaks and erosion (including fines erosion) loss of surface integrity, pot-holing - potential trip hazards.	Low	Likely	Low	Schedule routine inspections of EMVATs by TCM (regular inspections of highly trafficked EMVATs) as part of preventative maintenance programs and undertake repairs to damaged sections of EMVATS. Undertake	Satisfactory

Asset at Risk	Risk	Consequence	Likelihood	Risk Rating	Risk Treatment Plan	ECA
					EMVAT renewal and upgrade when necessary.	
Infrastructure assets in coastal environments	Infrastructure assets are deteriorating at a higher rate, the closer they are to the coast.	Minor	Moderate	Moderate	Investigate and define the Coastal Assets boundary and specifications for new infrastructure assets and maintenance of existing infrastructure assets. Refer Improvement Action 14.	To be addressed
Impacts on the Natural Areas (including Native Vegetation)	Operational activities causing environmental impact(s) i.e. pollution	Moderate	Unlikely	Moderate	Early identification and forward planning including completion of Environmental Planning Considerations Report (EPCR). Training and communication on environmental legislation and policies.	Satisfactory / Ongoing
Native Vegetation	Native Vegetation Clearing	Adequate	Unlikely	Low	Early identification and forward planning including completion of Environmental Planning Considerations Report (EPCR). Internal technical expertise available for advice / assistance. Training and communication on environmental legislation and policies.	Satisfactory / Ongoing
Pathways (concrete, bitumen)	Edge breaks and erosion, vertical displacement and cracking can occur - potential trip hazards.	Low	Likely	Low	Schedule routine inspections of pathways by TCM (regular inspections of highly trafficked pathways) as part of preventative maintenance programs and undertake repairs to damaged sections of pathways. Undertake pathways renewal.	Satisfactory

Asset at Risk	Risk	Consequence	Likelihood	Risk Rating	Risk Treatment Plan	ECA
Structures	Collapse of structure or structure becomes unsound	Moderate	Unlikely	Moderate	Regular inspections will prevent catastrophic failure. The City has commenced independent structural assessments to assist with the condition inspections of structures. A program will be developed to assess all structures on a five yearly rotation. Details of the type of structures will be developed as part of the asset condition assessment and validation program. Refer Improvement Action 2.	To be addressed

APPENDIX H: POPULATION FORECASTS / DEMOGRAPHICS

The City's demographic information and analysis is provided by .id are based on results from the 2020, 2016, 2011, 2006, 2001, 1996 and 1991 Australian Bureau of Statistics Censuses of Population and Housing (https://forecast.id.com.au/wanneroo).

Figure H.1: Population forecast to 2041

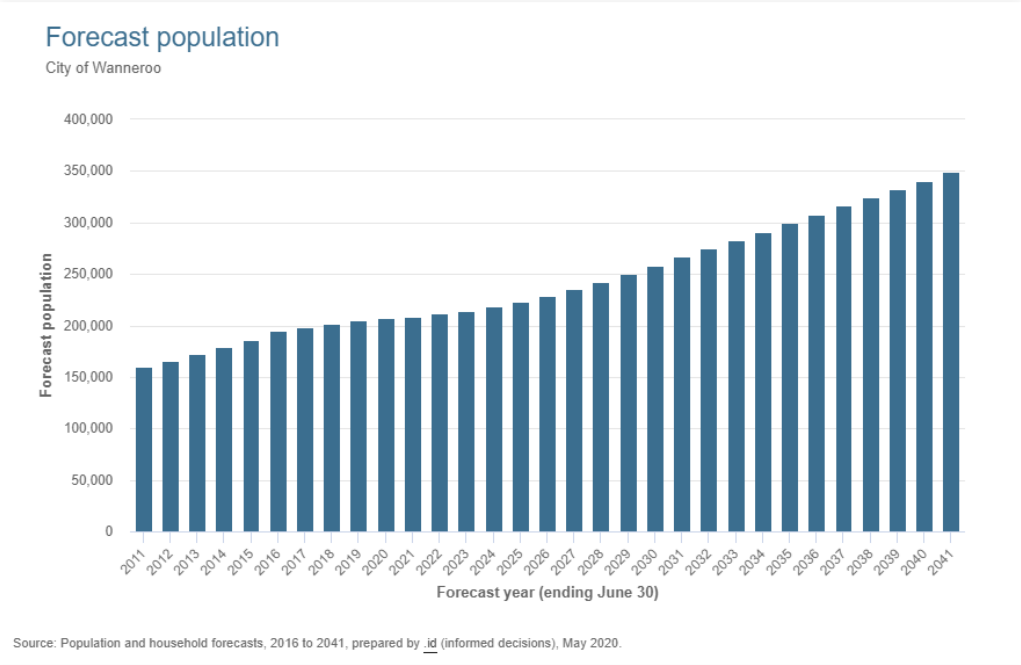


Figure H.2: Age structure forecast to 2041