19. Local Biodiversity Strategy Action Plan

An example Local Biodiversity Strategy Action Plan is provided in this section. Monitoring and evaluation indicators are included as a component of the Plan.

Data and statistics for the City of Swan have been used to provide an example of how such an Action Plan may be presented. Table 26 provides an example of the information that should be considered when setting representation – retention and protection targets. The example Local Biodiversity Strategy Action Plan provided represents a hypothetical and is by no means intended to be reflective of the biodiversity conservation intentions of the City of Swan.

Table 26: Example Local Biodiversity Strategy Action Plan

Note: The numbering of Management Action Targets and Management Actions relates to the Natural Area Condition target. For example, Natural Area Condition Target 1 is achieved through Management Action Targets 1.1 and 1.2 and aims towards Management Actions 1.1.1 and 1.2.1. To minimise repetition in the table, similar Management Actions and Management Action Targets have been grouped even though they apply to numerous Natural Area Condition targets.

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
Representation - 10% Retention and Pr	otection Targets	•	•
1. Retain and protect all natural areas that contain the following ecological communities (there is currently less than 10% of each of these complexes remaining within the Local Government or the region so all natural areas containing these complexes should be protected)1: Bassendean-Central And\South Beermullah Coonambidgee (L) Forrestfield Guildford (L) Karrakatta-Central And\South (L) Mogumber-South Reagan Southern River Swan Yanga Retain and protect at least 10% of each ecological community occurring within the LG (There is currently more than 10% remaining, but less than 10% of it is protected for conservation within the Local Government):	1.1, 2.1, and 3.1: By 2005, 2008, 2011 and 2014 identify 25, 50, 75 and 100% respectively of those natural areas considered to be locally significant due to the presence of ecological communities outlined in the NAC Targets 1, 2 & 3 and determine which of these will be retained. 1.2, 2.2, and 2.3: By 2008 and 2014; 50 and 100% of those Locally Significant Natural Areas that have been retained to have their protection status formalised.	1.1.1, 2.1.1, and 3.1.1: Through application of Local Planning Policy (LPP), Incentives Strategy and planning for the management of Local Government reserves undertake desktop and field assessment of all Local Natural Areas that contain ecological communities outlined by NAC Targets 1, 2 & 3 1.2.1, 2.2.1, and 3.2.1: Amend TPS to formally recognise the protection of each Locally Significant Natural Area (LSNA) that has been retained	 NAC Targets % of each ecological community remaining in LG % of each ecological community protected in the LG MAT Area and percentage of pre-European extent identified as being locally significant Area and percentage of pre-European extent to retained Area and percentage of pre-European extent formally protected MA Area and percentage of pre-European extent where field assessments have been undertaken. Number of amendments to TPS to formally recognise protection of LSNA.

¹ The zoning of LNA containing these vegetation complexes should be considered as it may not be possible to protect all of these. A target for each vegetation complex may need to be set that is reflective of zoning constraints, see Section 9.2.4.

⁽L) Those vegetation complexes that meet local representation criteria as well as regional representation criteria

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
 Cooke Coolakin Dwellingup 2 Murray 2 Yalanbee 6 Yarragil 1 			
 3. Retain and protect viable natural areas in good or better condition that contain the following ecological communities. (There is currently more than 10% remaining and protected of these vegetation complexes): Bassendean-North Bassendean-North-\Transition Darling Scarp Dwellingup 3 Dwellingup 4 Helena 2 Pindalup 			
Representation - 30% retention and pro	otection targets		
 4. Retain and protect all natural areas that contain the following ecological communities. (there is currently less than 30% of each of these complexes remaining within the Local Government or the region so all natural areas containing these complexes should be protected): Bassendean-Central And\South Beermullah Coonambidgee (L) Forrestfield Guildford (L) 	4.1, 5.2, and 6.2: By 2005, 2008, 2011 and 2014 identify 25, 50, 75 and 100% respectively of those natural areas considered to be locally significant due to the presence of ecological communities outlined in the NAC Targets 4, 5 & 6 and determine which of these will be retained. 4.2, 5.2, and 6.2: By 2008 and 2014; 50 and 100% of those LSNAs that have been retained.	4.1.1, 5.1.1, and 6.1.1: Through application of LPP, Incentives Strategy and planning for the management of Local Government reserves undertake desktop and field assessment of all Local Natural Areas that contain ecological communities outlined by NAC Targets 4, 5 & 6 4.2.2, 5.2.2, and 6.2.2: Amend TPS to formally recognise the	 NAC Targets % of each ecological community remaining in LG % of each ecological community protected in the LG MAT Area and percentage of pre-European extent identified as being locally significant Area and percentage of pre-European extent retained Area and percentage of pre-European

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
 Karrakatta-Central And\South (L) Mogumber-South Reagan Southern River Swan Yanga 5. Retain and protect at least 30% of the pre-European extent across the LG of the following ecological communities (There is currently more than 30% remaining, but less than 30% of it is protected for conservation within the Local Government): Cooke Coolakin Darling Scarp Dwellingup 2 Dwellingup 4 Murray 2 Pindalup Yalanbee 6 Yarragil 1 6. Retain and protect viable natural areas in good or better condition that contain the following ecological communities: Bassendean-North Bassendean-North Helena 2 	to have their protection status formalised.	protection of each LSNA that has been retained.	extent formally protected MA • Area and percentage of pre-European extent where field assessments have been undertaken. • Number of amendments to TPS to formally recognise protection of LSNA.

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
Threatened communities, flora and fau	na		
7. Retain and protect all natural areas that contain Threatened Ecological Communities (TEC)	7.1. By 2005 identify and where possible protect all those natural areas considered to be locally significant due to the known presence of a Threatened Ecological Community and determine the area in addition to the TEC that will be protected to maintain or improve the viability of the TEC. 7.2. By 2014 identify and where possible protect all those remaining natural areas considered to be locally significant due to the presence of a TEC and determine the area in addition to the TEC that will be protected to maintain or improve the viability of the TEC.	7.1.1. Undertake field assessment through application of LPP, Incentives Strategy and planning for the management of Local Government land to identify and confirm those natural areas that are known to contain a TEC. 7.2.1. Liaise with CALM to use existing information to determine those Local Natural Areas likely to contain a TEC. 7.2.2. Undertake field assessment of those natural areas considered likely to contain a TEC and determine the area of additional natural areas to be protected to maintain or improve the viability of TECs. 7.2.3. As opportunities arise through the application of LPP and Incentives Strategy undertake field assessment of all other natural areas to determine presence of TECs. 7.2.4. Amend TPS to formally recognise the protection of each LSNA that has been retained	 NAC Targets Number and area of TEC protected as a proportion (%) of the number and area of TEC identified. MAT Number and area of LSNAs that contain a TEC Number and area of LSNAs containing TECs that are retained Number and area of LSNAs containing TECs that are formally protected MA Number and area of Local Natural Areas that have been assessed for TECs Number and area of Local Natural Areas likely to contain TECs Number, area and portion of Local Natural Areas that are considered likely to have a TEC that have had appropriate field assessment undertaken.

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
8. Retain and protect all natural areas that contain Declared Rare and/or priority flora.	8.1. By 2005 identify and where possible protect all those natural areas considered to be locally significant due to the known presence of Declared Rare Flora (DRF) or Priority Flora and determine the area in addition to the DRF or Priority Flora that will be protected to maintain or improve the viability of the DRF or Priority Flora. 8.2. By 2014 identify and where possible protect all those remaining natural areas considered to be locally significant due to the presence of a DRF and/or Priority Flora.	8.1.1. Undertake field assessment through application of LPP, Incentives Strategy and planning for the management of Local Government land to identify and confirm those natural areas that are known to contain DRF or priority flora. 8.2.2. As opportunities arise through the application of LPP and Incentives Strategy undertake field assessment of all other natural areas to determine presence of DRF and Priority Flora. 8.2.3. Amend TPS to formally recognise the protection of each LSNA that has been retained.	NAC Targets Number and area of DRF and Priority Flora protected as a proportion (%) of the number and area of DRF and Priority Flora identified. MAT Number and area of LSNAs that contain DRF and/or Priority Flora Number and area of LSNAs containing DRF and/or Priority Flora that are retained Number and area of LSNAs containing DRF and/or Priority Flora that are formally protected MA Number and area of Local Natural Areas that have been assessed for DRF and/or Priority Flora
9. Retain and protect all natural areas that contain Specially Protected Fauna and/or Priority Fauna.	9.1. By 2005 identify and where possible protect all those natural areas considered to be locally significant due to the known presence of Specially Protected Fauna and Priority Fauna. 9.2. By 2014 identify and where possible protect all those remaining natural areas considered to be locally significant due to the presence of a Specially Protected Fauna and Priority Fauna.	9.1.1. Undertake field assessment through application of LPP, Incentives Strategy and planning for the management of Local Government land to identify and confirm those natural areas that are known to contain Specially Protected Fauna and Priority Fauna. 9.2.2. As opportunities arise through the application of LPP and Incentives Strategy undertake field assessment of all other natural areas to	NAC Targets Number and area of natural areas protected for Specially Protected Fauna and Priority Fauna as a proportion (%) of the number and area of natural areas identified through field assessment as containing Specially Protected Fauna and/or Priority Fauna. MAT Number and area of LSNAs that contain Specially Protected Fauna and Priority Fauna Number and area of LSNAs containing Specially Protected Fauna and Priority Fauna that are retained

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator			
		determine presence of Specially Protected Fauna and Priority Fauna. 9.2.3. Amend TPS to formally recognise the protection of each LSNA that has been retained.	Number and area of LSNAs containing Specially Protected Fauna and Priority Fauna that are formally protected MA Number and area of Local Natural Areas that have been assessed for Specially Protected Fauna and Priority Fauna			
Maintaining ecological processes						
10. Retain and protect all viable natural areas that occur within Regional or Local Ecological Linkages.	10.1 By 2005, 2008, 2011 and 2014 determine the ecological viability of 25, 50, 75 and 100% of those natural areas considered to be locally significant due to them occurring within Regional or Local Ecological Linkages and where possible retain these natural areas 10.2 By 2008 and 2014, 50 and 100% of those natural areas that have been retained as they were considered to be locally significant due to them occurring within ecological linkages to have their protection status formalised.	10.1.1 Identify Local Ecological Linkages and review Regional Ecological Linkages 10.2.1 Through application of LPP, Incentives Strategy and planning for the management of Local Government reserves undertake desktop and field assessment of all natural areas that are within Regional and Local Ecological Linkages. 10.1.2 & 10.2.2. Amend TPS to formally recognise the protection of each LSNA that has been retained.	 NAC Targets % and area of viable natural areas occurring within regional or local ecological linkages that are protected in the Local Government. MAT % and area of natural areas occurring within regional or local ecological linkages that are viable % and area of viable natural areas occurring within regional or local ecological linkages that have been retained MA Area of natural areas occurring within regional or local ecological linkages % and Area of natural areas occurring within regional or local ecological linkages where field assessments have been undertaken. 			
Protection of wetland, streamline and	Protection of wetland, streamline and estuarine fringing vegetation and coastal vegetation					
11. Retain and protect all natural areas that contain either/or a Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake,	11.1 By 2005, 2008, 2011 and 2014 identify and where possible protect 25, 50, 75 and 100% of natural areas	11.1.1 Through application of LPP, Incentives Strategy and planning for the management of Local Government reserves	NAC Targets Number and area of natural areas protected because they contain Conservation or Resource Enhancement Wetland, Environmental Protection Policy			

Natural Area Condition (NAC) Target	Management Action Target (MAT)	Management Action (MA)	Indicator
floodplain area, estuarine fringing vegetation or coastal vegetation.	considered to be locally significant due them being a Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation.	determine which natural areas are locally significant due to being a Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation. 11.1.2. Amend TPS to formally recognise the protection of each LSNA that has been retained.	Lake, floodplain area, estuarine fringing vegetation or coastal vegetation as a proportion (%) of the number and area of natural areas identified through field assessment as containing Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation. MAT Number and area of LSNAs that contain Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation. Number and area of LSNAs containing Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation that are retained. Number and area of LSNAs containing Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation that are formally protected. MA Number and area of Local Natural Areas that have been assessed to determine if they contain Conservation or Resource Enhancement Wetland, Environmental Protection Policy Lake, floodplain area, estuarine fringing vegetation or coastal vegetation.

Local Government Resourcing Target (LGRT)	Management Action Target (MAT)	Management Action (MA)	Indicator
Local Planning Policy	'	'	
12. LPP applied to development proposals to rezone, subdivide and develop land that could potentially impact on natural areas.	12.1 By 2003 establish and formalise LPP as official Council Policy for providing guidance on the information required to assist Council in the assessment of proposals to rezone, subdivide, and develop land that contains natural areas. 12.2 By 2003 determine priorities for field verification by Local Government.	12.1.1 Prepare LPP 12.1.2 Release LPP for public comment 12.1.3 Formal endorsement by Council of LPP 12.1.4. Ensure that each development proposal submitted to Council, that is likely to impact on natural areas has relevant information as per the requirements of the LPP 12.2.1. Where necessary or identified as a priority, field verify the information provided by the development proponent.	■ LPP applied by Council MAT ■ LPP established MA ■ Number of development proposals assessed using LPP ■ Area of Local Natural Area (LNA) assessed, field verified, retained and protected through application of the LPP
Incentives Strategy			
13. Incentives offered to all private landholders that have Locally Significant Natural Areas	13.1. By 2003 establish and formalise an Incentives Strategy for Private Land Conservation. 13.2. Incentives Strategy applied on an annual basis commercing in 2004.	13.1.1. Conduct community survey associated with development of Incentives Strategy. 13.1.2. Prepare Incentives Strategy for Private Land Conservation. 13.1.3. Prioritise those landholders to be targeted by the Incentives Strategy. 13.1.4. Release Incentives Strategy for public comment 13.1.5. Formal Endorsement by Council of Incentives Strategy 13.2.1 Send out EOI's and assist preparation of applications 13.2.2. Assess and prioritise incentives applications 13.2.3. Initiate Council budget item to fund incentives	 LGRT Number of landholders offered incentives as a proportion of the number of landholders having natural areas MAT Incentives Strategy established. MA Number of EOI's and applications received Area of LNA assessed, retained and protected through application of Incentives Strategy \$/ ha invested by Local Government to retain and protect LNA through Incentives Strategy

Local Government Resourcing Target (LGRT)	Management Action Target (MAT)	Management Action (MA)	Indicator
Planning for the manage	ment of Local Government reserves		
14. All Local Government reserves that contain natural areas are appropriately managed to minimise disturbances and threats to the natural areas to maintain its condition in the short term and improve its condition in the long term.	implementation of Management Actions for Local Government reserves that contain natural areas. 14.2. By 2006 bushland management crew established. 14.3. By 2010 management plans prepared for all reserves identified as requiring them. 14.4. By 2014 management plans implemented for all those reserves for which they have been prepared.	14.1.1. Desktop and Field Assessment undertaken for all Local Government reserves that contain natural areas to identify protection measures and Management Actions and priorities. 14.2.1. Establish a works program for undertaking protection measures and Management Actions 14.3.1. Identify those reserves requiring management plans and develop plans based on priorities determined 14.4.1. Implement management plans according to priorities determined	 Number of reserves that have maintained or improved their condition as a portion of the total number of reserves managed by Local Government. MAT Number of reserves for which recommended Management Actions have been implemented as portion of the number of reserves requiring implementation of Management Actions Number of reserves having a vesting purpose that is complimentary to biodiversity conservation Number of reserves for which management plans have been prepared as a portion of the number of reserves requiring preparation of management plans. Number of management plans that have been implemented as a portion of the number of management plans prepared. MA Number of reserves that have had field assessments undertaken and Management Actions identified as a portion of the total number of reserves managed by Local Government.

Local Government Resourcing Target (LGRT)	Management Action Target (MAT)	Management Action (MA)	Indicator
15. To effectively internally administer the LPP,	ity 15.1 By 2005 establish capacity within Council to implement LPP.	15.1.1. Provide training to relevant Local Government officers (including	LGRT • \$ spent by Council on engaging
Incentives Strategy and plan for and manage Local Government lands.	15.2. By 2004 TPS amended or reviewed to include relevant protection mechanisms as new zoning, Special Control Areas and/or text provisions. 15.3. By 2005 develop database/GIS for integrating new information on biodiversity.	planners and environmental officers) on the application of the LPP. 15.2.1. Amend TPS as necessary to formally recognise the protection of Locally Significant Natural Areas 15.3.1. Field assessments regularly inputted into GIS 15.3.2. Protection status of Local Natural Areas tracked through regular update of GIS 15.3.3. Access to biodiversity database/GIS and relevant training provided to all Local Government officers having a role in the protection or management of biodiversity	external consultants to address biodiversity protection and management issues. MAT • \$ spent by Council on engaging external consultants on the implementation of LPP • TPS amended to include protection mechanisms • Biodiversity GIS database developed MA • Number of staff trained in the application of LPP • Number of TPS amendments initiated for the purposes of formalising the protection status of natural areas. • Number of staff having access to and trained in the use of the biodiversity GIS

20. Checklist and draft milestones framework for local biodiversity planning

The Western Australian Local Government Association are developing a Local Biodiversity Milestone Program to recognise and reward Local Governments undertaking local biodiversity planning according to these Guidelines. Although the program is yet to be finalised, Table 27 indicates how activities according to these Guidelines contribute towards the Milestones.

Table 27: Checklist and Milestones for local biodiversity planning

Phase	Task/Activity	✓	Section reference	Milestone
1. Scoping (Council resolution that formalises Council's intent and commitment to local biodiversity	Seek Council resolution to undertake local biodiversity planning.		Sections 8.1 & 8.2 provide background information and a suggested process for obtaining Council support. Section 13.1 provides a sample agenda item to gain Council resolution to support local biodiversity planning.	Milestone One: Scoping, training and resource Identification
planning)	Plan for involvement of the local community, State Government and relevant Local Government staff in the local biodiversity planning process through establishment of a Steering Committee.		Section 13.3 provides a sample Terms of Reference for the formation of a local biodiversity planning Steering Committee.	
	Undertake training and awareness-raising for elected members, staff and members of the Steering Committee.			
	Integrate biodiversity data into Local Government GIS System.		Sections 9.1 and 16.7 briefly outline biodiversity datasets that should be integrated into the existing GIS.	
	Allocate sufficient resources to complete Milestone Two (including biodiversity target-setting activities, preparation of Discussion Paper, consultation).		Section 21 provides cost estimates for various local biodiversity planning activities	

Phase	Task/Activity	V	Section reference	Milestone
2. Local biodiversity planning Discussion Paper (Local biodiversity planning Discussion Paper prepared, released for public comment and adopted by Council)	Identify, map and quantify the extent of natural areas.		Section 18 16.5 briefly outline the datasets that will enable natural areas to be identified and mapped and how they can be displayed. Section 16.3 presents relevant data and statistics that can be used to quantify the extent of natural areas. Perth Biodiversity Project Mapping & Information Instalments 1 & 2 provided to each Local Government will be useful for the mapping and quantification of natural areas.	Milestone Two: Adoption of objectives & targets for biodiversity retention within the Local Government area.
	Develop Vision Local Biodiversity Objective Local Biodiversity Targets Begin identification of local ecological linkages. Identification of 4 key		Section 9.2 provides guidance on setting vision, objectives and targets. Section 19 provides examples of setting targets. Section 6 provides guidance on determining ecological linkages Section 9.3 provides a	
	components of the Strategy.		description of the key components of a Local Biodiversity Strategy with this text being suitable for direct inclusion into the Discussion Paper.	
	Discussion paper released for public comment.		Section 18 provides some guidance on public consultation processes. Section 13.3 outlines the role of the local biodiversity planning Steering Committee in relation to public consultation.	
	Council signs off on Discussion Paper, including objectives and targets and preparation of Local Biodiversity Strategy components.			

Phase	Task/Activity	✓	Section reference	Milestone
3. Local Biodiversity Strategy (all components)	Prepare Local Biodiversity Strategy Action Plan (and cost estimates for forward financial planning).		Section 10.1 outlines a framework for developing an Action Plan with section 19 providing an example of how this framework might be applied. Section 21 provides some cost estimates for the major tasks and activities associated with the 4 Phases of local biodiversity planning.	
	Prepare Local Planning Policy for Biodiversity Conservation.		Section 13.2 provides a sample Local Planning Policy for Biodiversity Conservation. Section 10.2 explains how the Local Planning Policy fits within the local biodiversity planning process, how it is applied and resourced.	Milestone Three: Local Planning Policy for Biodiversity Conservation prepared and adopted.
	Determine priorities for field verification for information collected by proponents.		Section 10.7.3 describes the information that can be used to determine priorities for field verification.	
	Conduct community survey associated with development of Incentives Strategy for Private Land Conservation.		Section 10.3.3 provides the rationale for undertaking a community survey as part of the development of the Incentives Strategy for Private Land Conservation and Appendix 6 provides an example survey.	Milestone Four: Incentives Strategy for Private Land Conservation prepared and adopted.
	Prepare an Incentives Strategy for Private Land Conservation.		Section 10.3.4 outlines the process for developing an Incentives Strategy for Private Land Conservation.	
	Prioritise those landholders to be targeted by the Incentives Strategy for Private Land Conservation.		Section 10.7.3 describes the information that can be used to determine which landholders the Incentives Strategy might target for Private Land Conservation.	
	Send out EOI for Incentives Strategy for Private Land Conservation (year 1).		Section 10.3 provides information relevant to the completion of activities associated with	

Phase	Task/Activity	V	Section reference	Milestone
	Undertake assessment of EOI's and assist preparation of applications (year 1).		the implementation of an Incentives Strategy for Private Land Conservation.	
	Form assessment panel for assessing applications associated with the Incentives Strategy for Private Land Conservation (year 1).			
	Assess and prioritise incentives applications (year 1).			
	Initiate Council budget item to fund incentives (year 1).			
	Undertake desktop and field assessment of all Local Government lands and unallocated Crown land.		Section 10.6 briefly outlines the desktop and field assessment process. Section 12 provides Natural Area Initial Desktop and field assessment templates and supporting information. A manual to assist in the use of the Natural Area Initial Assessment Templates is currently being prepared.	Milestone Five: Action plan for the protection and management of Local Government lands and unallocated Crown land prepared and adopted.
	Develop management and protection recommendations and estimated costs of implementation for all Local Government lands and unallocated Crown land.		Section 10.4 provides advice on developing and prioritising protection and management recommendations.	
	Determine priorities for protection and management of all Local Government lands and unallocated Crown land.			
	Budget for the protection and management of Local Government lands and unallocated Crown land.		Section 22 provides cost estimates for management activities.	
	Initiate Review or Amendment of TPS to incorporate appropriate protection mechanisms.		Section 10.5 provides some discussion of the circumstances in which a Scheme Review or Amendment may occur.	Milestone Six: TPS amended to incorporate appropriate protection mechanisms.

Phase	Task/Activity	✓	Section reference	Milestone
4. Implement'n of Local Biodiversity Strategy	Ensure that each development proposal submitted to Council that is likely to impact on natural areas has relevant information as per requirements outlined in LPP.		Sections 10.2 & 13.2 provide information relevant to the completion of this activity.	
	Where necessary or identified as a priority, field verify the information provided by the development proponent.			
	Assess development proposals in accordance with the policy measures and assessment process identified in the LPP.		Section 13.2.2 provides a sample Local Planning Policy for Biodiversity Conservation that includes policy measures and procedures.	
	Implement management and protection actions for Local Government lands and unallocated Crown land.			
	Annual implementation of Incentives Strategy for Private Land Conservation (year 2 and beyond).		Section 10.3 provides information relevant to the completion of activities associated with the implementation of an Incentives Strategy for Private Land Conservation.	
	Formalise protection status of natural areas through Scheme Amendment.		Section 11.2 provides information relevant to the completion of this activity.	
	Establish reporting process (2 yearly) based on Local Biodiversity Strategy Action Plan.		Section 11.5 & 10.5.5 provide suggestions on the monitoring and review of the Strategy.	Milestone Seven: Biannual Report released on progress of the Strategy.

21. Cost estimates for local biodiversity planning

21.1. General assumptions

For the purpose of estimating costs, it is assumed that the tasks and activities identified within Table 28 are being undertaken by additional staff to be employed by the Local Government. Additional staff referred to in the costing estimates include a project officer (1 full time equivalent at \$80,000 including on costs) and a contract ecologist (Rates of contract ecologists will vary but likely to be between \$40-90 an hour). In some circumstances the costs of local biodiversity planning may be less as existing staff may already be undertaking some of the tasks or activities listed, or there may be opportunities to redefine the job responsibilities of existing staff to better reflect the activities and tasks associated with the local biodiversity planning process. Costing for the administration of the Incentives Strategy has been provided however the costs associated with the provision of incentives will be variable. More detailed costings for the implementation of management actions are given in Table 29.

In Table 28 cost estimates for tasks and activities have been determined for 3 broad categories (1, 2 or 3) based on the extent of mapped native vegetation occurring within the Local Government. The key below provides a description of the categories according to the 4 Phases of local biodiversity planning. To determine the appropriate category for your Local Government refer to Tables 17 - 19.

21.2. Costing categories for each Phase of the local biodiversity planning process

Phase 1 and 2 (refer to Table 17)

Category 1 - > 1000 ha of vegetated Local Natural Area

Category 2 - > 100 < 1000 ha of vegetated Local Natural Area

Category 3 - < 100 ha of vegetated Local Natural Area

Phase 3, Output 1, 2 & 4 – Local Planning Policy for Biodiversity Conservation, Incentive Strategy for Private Land Conservation (refer to Table 18)

Category 1 - > 1000 ha of native vegetation on private land

Category 2 - > 50 < 1000 ha of native vegetation on private land

Category 3 - < 50 ha of native vegetation on private land

Phase 3, Output 3 – Planning for the management of biodiversity on Local Government lands (refer to Table 19)

Category 1 - > 1000 ha of native vegetation on Local Government land

Category 2 - > 200 < 1000 ha of native vegetation on Local Government land

Category 3 - < 200 ha of native vegetation on Local Government land

Phase 4 - Implementation of Local Biodiversity Strategy (refer to Table 17)

Implementation of the Strategy is ongoing so cost estimates are based on an annual estimate.

Category 1 - > 1000 ha of vegetated Local Natural Area

Category 2 - > 100 < 1000 ha of vegetated Local Natural Area

Category 3 - < 100 ha of vegetated Local Natural Area

Table 28 Cost estimates for the tasks and activities associated with the local biodiversity planning process.

Note: These costs are estimates only; not all tasks/activities apply to all Local Governments.

Phase	Task/Activity	Specific Assumptions		Category	
			1	2	3
1. Scoping	Seek Council resolution to undertake local biodiversity planning.	Employment of project officer Category 1 – 2 months Category 2 – 1 month Category 3 – 2 weeks	\$13,300	\$6,600	\$3,300
	Plan for involvement of the local community, State Government and relevant Local Government staff in the local biodiversity planning process through establishment of a Steering Committee.	Category 3 - 2 weeks			
2. Lœal biodiversity planning Discussion	Integrate biodiversity data into Local Government GIS System	Employment of project officer Category 1 – 4 months Category 2 – 2 month	\$13,300	\$6,600	
Paper	Identify, map and quantify the extent of natural areas.	Category 3 – 1 month			
	Develop Vision Local Biodiversity Objective Local Biodiversity Targets Identification of 4 key components of Strategy				
	Discussion paper released for public comment.				
	Seek Council commitment to prepare a Local Biodiversity Strategy.				
	Budget for preparation of Strategy.				
3. Local Biodiversity Strategy	Prepare Local Biodiversity Strategy Action Plan	Employment of project officer Categories 1, 2 & 3 – 2 weeks	\$3,300		
	Prepare Local Planning Policy for Biodiversity Conservation (output 1)	Employment of project officer Categories 1 & 2 – 2	\$3,300	\$3,300	\$0

Phase	Task/Activity	Specific Assumptions		Category	
			1	2	3
3. Local Biodiversity Strategy	Determine priorities for field verification for information collected by proponents (output 1)	weeks Category 3 – 0 weeks			
	Conduct community survey associated with development of Incentives Strategy (output 2)	Employment of project officer Category 1 – 3 months Category 2 – 1 months Category 3 – 0 months	\$20,000	\$6,600	\$0
	Prepare an Incentives Strategy for Private Land Conservation (output 2)	Category 3 – 6 months			
	Prioritise those landholders to be targeted by the Incentives Strategy for Private Land Conservation (output 2)				
	Undertake desktop and	Employment of	\$51,200	\$25,600	\$12,800
	field assessment of all Local Government lands and unallocated Crown land (output 3)	contract Ecologist It is estimated that 3 days should be allocated for every two natural areas to be assessed	\$115,200	\$57,600	\$28,800
		Category 1 – 8 months Category 2 – 4 months Category 3 – 2 months			
	Develop management and protection recommendations and estimated costs of implementation for all Local Government lands and unallocated Crown land (output 3)	Employment of project officer Category 1 – 2 months Category 2 – 1 months Category 3 – 2 weeks	\$13,300	\$6,600	\$3,300
	Determine priorities for protection and management of all Local Government lands and unallocated Crown land (output 3)	Employment of project officer Category 1 – 1 months Category 2 – 2 weeks Category 3 – 1 week	\$6,600	\$3,300	\$1,600
	Budget for the protection and management of Local Government lands and unallocated Crown land (output 3)	Employment of project officer Category 1 – 1 week Category 2 – 1 week Category 3 – 1 week	\$1,600	\$1,600	\$1,600

Phase	Task/Activity	Specific Assumptions		Category	
			1	2	3
	Initiate Review or Amendment of TPS to incorporate appropriate protection mechanisms. (Output 4)	Employment of project officer Category 1 – 1 month Category 2 – 1 month Category 3 – 0 month	\$6,600	\$6,600	\$0
	Ensure that public comments and feedback received on the Discussion Paper are incorporated into the Strategy	Employment of project officer Categories 1, 2 & 3 – 2 weeks	\$3,300		
	Seek Council endorsement of the Strategy	Employment of project officer Categories 1, 2 & 3 – 2 weeks	\$3,300		
	Release Strategy for public comment	Employment of project officer Categories 1, 2 & 3 – 2 weeks	\$3,300		
4. Implement 'n of Local Biodiversity Strategy	Establish reporting process (2 yearly) based on Local Biodiversity Strategy Action Plan. Include maps indicating the protection status of Local Natural Areas	Employment of project officer Category 1 – 1 months Category 2 – 2 weeks Category 3 – 1 weeks	\$6,600	\$3,300	\$1,600
	Ensure that each development proposal submitted to Council, that is likely to impact on natural areas has relevant information as per requirements outlined in LPP	Employment of project officer Category 1 – 3 months Category 2 – 1 month Category 3 – 0 month	\$20,000	\$6,600	0
	Where necessary or identified as a priority, field verify the information provided by the development proponent	Employment of contract Ecologist Category 1 – 1 month Category 2 – 2 weeks Category 3 – 0 month	\$6,400 - \$14,400	\$3,200 - \$7,200	0
	Send out EOI for Incentives Strategy for Private Land Conservation	Employment of project officer Category 1 – 1 week Category 2 – 1 week Category 3 – 0 weeks	\$1,600	\$1,600	0

Phase	Task/Activity	Specific Assumptions		Category		
			1	2	3	
4. Implementati on of Local Biodiversity Strategy	Undertake assessment of EOI's and assist preparation of applications	Employment of contract Ecologist No cost estimate is provided as the cost estimate will be dependent on the number of EOI's received. It is estimated that 2 EOI's could be assessed and an application developed for each in 1 day.				
	Form assessment panel for assessing applications associated with the Incentives Strategy for Private Land Conservation	Employment of project officer Category 1 – 1 week Category 2 – 1 week Category 3 – 0 weeks	\$1,600	\$1,600	0	
	Assess and prioritise incentives applications					
	Initiate Council budget item to fund incentives	Employment of project officer Category 1 – 1 week Category 2 – 1 week Category 3 – 0 weeks	\$1,600	\$1,600	0	
	Implement Management Actions for Government Reserves	See Table 29 for cost estimates of various Management Actions	-			
	Formalise protection status of natural areas through Scheme Amendment	Employment of project officer Category 1 – 1 month Category 2 – 2 weeks Category 3 – 0 weeks	\$6,600	\$3,300	0	

22. Management activities and estimated cost ranges

This section provides estimates of the costs associated with undertaking certain Management Actions. In each case, the source of the costing estimate has been supplied. These have been provided to give detail and validity to each cost estimate. It is not the intention of PBP to give the impression that these sources are necessarily preferred suppliers or that the sources are bound by the cost estimates. This table should be used as an indicative guide only.

Table 29. Management activities and associated estimated cost ranges.	Table 29.	Management	activities	and associated	estimated cost	ranges.
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Activity	Source of costing estimate	Cost/unit: lower range	Cost/unit: upper range	Notes
Management plan development (emphasising required on-ground actions, methods relevant to site, costings and appropriate timelines)	Perth Biodiversity Project	\$5000	\$30,000	Varies depending on site characteristics (eg size, complexity of ecological communities, disturbances), and quantity and quality of data and information already available for the site.
Botanical survey: species list (natives and weeds); vegetation map and description of plant communities; site specific prioritisation of weed species for control; significance of native species and communities present	(David Hancock, pers comm. Nov 2003, Natural Area Management and Services)	\$30/hr 2-3hr/ha	\$60/ha 2-3hr/ha	Varies depending on site characteristics (see above) and client brief.
Fauna survey: species list (natives and ferals); site specific prioritisation of feral species for control; significance of native species present	(David Hancock, pers comm. Nov 2003, Natural Area Management and Services)	\$40/hr, 2 -3 hr/ha	\$60/ha	Varies depending on site characteristics (see above) and client brief.
Vegetation condition mapping	(David Hancock, pers comm. Nov 2003, Natural Area Management and Services)	\$30/hr 2-3hr/ha	\$60/ha 2-3hr/ha	Varies depending on site characteristics (see above) and client brief.
Weed mapping (site specific priority weed species)	(David Hancock, pers comm. Nov 2003, Natural Area Management and Services)	\$30/hr 2-3hr/ha	\$60/ha 2-3hr/ha	Varies depending on site characteristics (see above) and client brief.

Activity	Source of costing estimate	Cost/unit: lower range	Cost/unit: upper range	Notes
Phytophthora Dieback mapping	(Glenn Tuffnell, pers comm. Sept 2003, Glevan Dieback Consulting Services)	Cost Reserve size \$1000 < 10 ha \$1500 10-20 ha \$2000 20-30 ha \$2500 30-50 ha \$3000 50-100 ha Additionally samples may need to be taken to confirm the presence of phytophthora at a cost of \$70 per sample. 1-5 samples may be required per reserve.		
Phytophthora Dieback control (Phosphite spraying/stem injection)	(Glenn Tuffnell, pers comm. Sept 2003, Glevan Dieback Consulting Services)	reserve. Stem injection 50c - \$1 (injection required every 200 mm around base of tree at waist height. Effective for approximately 4 years) Spray per m2 = \$0.75 - \$1.40 (effective for approximately 2 years)		It may not be necessary to treat an entire area to protect flora from Phytophthora Dieback. It is recommended that a buffer of approximately 10 m either side of the active disease front be treated, as well as 10 m parallel to any vector (track, creek) and as much of the infested area as is possible. Alternatively, native vegetation of high value may be the main focus for treatment to keep costs down. Areas of vegetation that are disease free and have no vectors for disease introduction do not need to be treated. Treatment rates are based

Activity	Source of costing estimate	Cost/unit: lower range	Cost/unit: upper range	Notes
				on standard treatment of 0.5 acre hills block (pers. comm. Glenn Tuffnell, Glevan Dieback Consultants, August 2003)
Reconstruction: upland	Ecoscape Australia Pty Ltd (unpub. 2003)	\$10.50/m2		This would include weed control, seedling establishment, plant guards, watering in & replacement plantings over a 5 year period
Reconstruction: wetland	Ecoscape Australia Pty Ltd (unpub. 2003)	\$20.10/m2		This would weed control, seedling establishment, mulching, plant guards, 1st summer watering & replacement plantings over a 5 year period
Assisted Natural Regeneration: few grass and herbaceous weeds	Ecoscape Australia Pty Ltd (unpub. 2003)	\$1.05/m2		Can include herbicide spray and follow up hand weeding, dieback control, fencing, track closure & rubbish removal over a 5 year period
Assisted Natural Regeneration: grass, bulbous, small woody weeds and minor tracks	Ecoscape Australia Pty Ltd (unpub. 2003)	\$2.00/m2		Can include hand wiping herbicide, herbicide spray and follow up hand weeding, dieback control, fencing, track closure, ripping compacted soils & rubbish removal over a 5 year period
Weed control spray	Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.05/m2		Varies depending on site characteristics. Rate of progress is dependant upon the presence and density of native plants and the rate of material use is dependant upon size, wettability and density of weeds. Many sites require multiple sprays.
Weed control: spot spray-glyphosate	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$400/ha		Varies depending on site characteristics (see above)

Activity	Source of costing estimate	Cost/unit:	Cost/unit:	Notes
		lower range	upper range	
Weed control: spot spray – Fusilade	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services); (Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$250/ha	\$1000/ha	Varies depending on site characteristics (see above)
Weed control: spot spray-metsulfuron methyl.	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$250/ha	\$600/ha	Varies depending on site characteristics (see above)
Weed control: manual large woody weeds (cut & paint, drag, stack & remove)	Ecoscape Australia Pty Ltd (unpub. 2003); (Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$10/m2	\$100/4m high tree	Rate of felling and removing is dependant upon access to the trunk, difficulty of the terrain and the number of branches.
Hand wiping of bulbs: low-medium densities. (eg. Gladioli among bushland)	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$0.1/m2	\$0.3/m2	Varies depending on site & species characteristics
Hand wiping of bulbs: high densities (eg. Watsonia along creeklines among native vegetation	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$3/m2		Rate of progress dependant upon density of target species and density of native plants
Hand weeding: high density herbaceous & woody weeds.	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services); Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.3/m2	\$3/m2	Varies depending on site & species characteristics
Hand weeding: low-medium density of woody weeds	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services); Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.2/m2	\$1/m2	Varies depending on site & species characteristics
Hand weeding: low-medium density of herbaceous weeds	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services); Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.4/m2	\$1.50/m2	Varies depending on site & species characteristics

Activity	Source of costing estimate	Cost/unit: lower range	Cost/unit: upper range	Notes
Hand weeding: very low density, follow up weeding	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services); Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.1/m2	\$0.3/m2	Varies depending on site & species characteristics
Hand cutting of Typha underwater. Does not include removal	(Michael MacShane, pers comm. Nov 2003, Bennett Brook Environmental Services)	\$0.3/m2		Low densities only
Brush cutting Typha. Does not include removal	(David Hancock, pers comm. Nov 2003, Natural Area Management and Services)	\$33.50/hr		Medium – high densities.
Contract provenance seed collection	(Tony Freeman, pers comm. Nov 2003, APACE)	\$1350/day Team of 4 including supervisor		Reserve specific, provenance seed collection. Includes 1 day of collection plus all equipment, processing, reporting and storage in seed bank. To obtain species diversity collection would be spread over a number of days within the peak period in November – January or at an otherwise stated time for particular species.
Translocation of herbaceous perennials, sedges and rushes (Bush Salvage)	(Tony Freeman, pers comm. Nov 2003, APACE)	\$1000/day Team of 4 including supervisor		Immediate translocation to a suitable site of perennial, understory native vegetation about to undergo destruction. Can only occur during the appropriate season.
Contract provenance collection of vegetative material (rhizomes or cuttings)	(Tony Freeman, pers comm. Nov 2003, APACE)	\$275/ half day Team of 2		Provenance collection of vegetative material for nursery propagation. Clients would need to buy back larger size tube stock at \$1.25 ea. This price includes all propagation costs.
Direct seeding	Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.80/m2	\$2.50/m2	Depends on seed type and ground conditions
Seed viability testing	Perth Biodiversity Project	\$50/test		

Activity	Source of costing estimate	Cost/unit:	Cost/unit:	Notes
		lower range	upper range	
Tube stock	Ecoscape Australia Pty Ltd (unpub. 2003); (Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$0.35/plant	\$1.40/plant	
Planting wetland	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$0.35/plant	\$0.7/plant	Wetland sedges and rushes with no fertiliser, watering, mulching or guards
Planting upland	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$1.85/plant	\$2.55	Includes planting, fertiliser, watering, mulching & guards
Fertiliser tablets	Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.06/tablet	\$0.15/tablet	
Rabbit proof plant guards + bamboo stakes: materials & installation	Ecoscape Australia Pty Ltd (unpub. 2003)	\$1.50/guard		
Rabbit proof plant guards + bamboo stakes: materials only	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$0.39ea	\$0.54ea	Thicker guards are more expensive but can be used up to 3 times.
Mulch: materials & labour (wetland areas)	Ecoscape Australia Pty Ltd (unpub. 2003)		\$3.00/m2	
Mulch: materials only	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$0.45	\$0.65	10 litres mulch/ plant
Watering of plantings	Ecoscape Australia Pty Ltd (unpub. 2003)	\$0.17/plant	\$0.25/plant	5 litres water/ plant
Removal of plant guards	Ecoscape Australia Pty Ltd (unpub. 2003); City of Cockburn 2003	\$0.15/guard	\$0.35/guard	
Fencing	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$10/m2	\$15/m2	Depends on type of fence
Fence maintenance	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$15/hr	\$20/hr	
Path construction		\$40/m2		Crushed limestone
Path maintenance	(Paddy Strano, pers comm. Nov 2003, City of Cockburn 2003)	\$50/hr	\$70/hr	
Rubbish removal	Perth Biodiversity Project	\$25/h labour plus \$45 per ton		(dumping cost)

Activity	Source of costing estimate	Cost/unit: lower range	Cost/unit: upper range	Notes
Interpretative signage preparation- Artwork	(Sarah Dawson, pers comm. Nov 2003, Town of Victoria Park)	\$50/illustration \$500	\$100/illustration \$1200	For black/white illustrations. (There would usually be several on one large panel and one on a trailside sign.) Large full colour (for 800 x 1200 panel)
Interpretative signage preparation- Estat vinyl	(Sarah Dawson, pers comm. Nov 2003, Town of Victoria Park)	\$300 \$180 \$60	\$350 \$200 \$80	800 x 1200 mm (shelter) 600 x 800 mm (trailhead) 300 x 400 mm (trailside)
Interpretative signage preparation- Anodised aluminium	(Sarah Dawson, pers comm. Nov 2003, Town of Victoria Park)	\$840 \$450 \$145		800 x 1200 mm (shelter) 600 x 800 mm (trailhead) 300 x 400 mm (trailside) Anodised aluminium tends to be used in areas subject to vandalism, harsh weather conditions or fire. Anodised signs require the creation of a 'film positive' which is used like a stencil during sign production.
Interpretative signage installation	Perth Biodiversity Project	\$400 per sign		