

# **Gnangara Land Use and Water Management Strategy (GLUWMS)**

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**Western Australian Planning Commission**

**Advice to the Minister for the Environment prepared under Section  
16(j) of the Environmental Protection Act**

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## **1. Introduction**

### **1.1 Background to Gngangara Land Use and Water Management Study and scope of EPA assessment**

In 1993 the Western Australian Legislative Assembly established a Select Committee to examine issues related to groundwater protection in the metropolitan area. The Select Committee was called "Metropolitan Development and Groundwater Supplies."

The report of the Select Committee was tabled in Parliament in 1995, following release in December 1994, and was given endorsement by the Minister for Planning on 10 May 1995.

One of the key recommendations called for the development of a land use and water management strategy for the Gngangara Mound. The Select Committee recommended that the principal aim of this strategy should be to "*protect the important groundwater and environmental features of the Mound while allowing the maximum development of the land for the benefit of the community.*" The Gngangara Land Use and Water Management Strategy (GLUWMS), prepared by the Western Australian Planning Commission (WAPC) is the government's direct response to this Select Committee recommendation.

The WAPC decided that the overall aim of GLUWMS is to: "*protect the important groundwater and environmental features of the Gngangara Mound while allowing compatible development of the land for the development of the community.*" This aim is marginally different from that set out in the Select Committee with the words "*while allowing the maximum development*" replaced with "*while allowing compatible development*".

In preparing its assessment of GLUWMS the EPA received advice on the proposed Gngangara Park Concept Plan being prepared by the Department of Conservation and Land Management (CALM). The EPA notes that there are strong linkages between these two documents and indeed may be complimentary. Consequently, whilst the advice in this report relates to the environmental aspects of GLUWMS, the important linkages between GLUWMS and the Gngangara Park Concept Plan have been drawn on. The EPA is also cognisant of the imminent review of the Environmental Protection (Gngangara Mound Crown Land) Policy (EPP).

### **1.2 Status and purpose of the advice**

The advice in this report is prepared under Section 16 (j) of the Environmental Protection Act (1986) which enables the EPA "to publish reports on environmental matters generally". This is not a report prepared under Part IV of the Act and does not lead to the setting of legally binding environmental conditions.

### **1.3 Format of this report**

Section 1 provides a background to the EPA's assessment of GLUWMS including the scope of the EPA assessment. Section 2 discusses the key aspects of GLUWMS as they relate to the EPA's assessment, the relationship between GLUWMS and the EPA policy position on important wetlands (EPA Guidance on environmental management areas) and briefly discusses the Gngangara Park Concept. Section 3 is the EPA's assessment of GLUWMS, and Section 4 provides the EPA's advice on the environmental implications of the GLUWMS.

## **2. Overview of the key environmental aspects of GLUWMS**

### **2.1 GLUWMS**

A draft GLUWMS was released for a three month public comment period ending in September 1999. It was prepared for the WAPC primarily by a steering committee comprising officers from the key government agencies in consultation with a Community Advisory Committee.

The key elements proposed in GLUWMS are to:

- identify the priority protection areas of the mound and those areas which would receive less protection;
- identify criteria to be applied to future lands uses so as to meet the key environmental objectives of water resource protection;
- define land uses and management which would be permitted in the area depending on the water resource priority set;
- identify land uses which would either be incompatible and not permitted or permitted but with significant restrictions;
- investigate appropriate implementation measures which would achieve the desired management or land use changes; and
- recommend a whole of government statutory policy approach.

The key outcomes proposed in GLUWMS are to:

- a change in the boundaries of the land included in the underground water pollution control areas (UWPCA);
- some minor changes in Priority allocation for land within the UWPCA;
- a preferred long term land use and zoning allocation for the land within the GLUWMS study area; and
- an implementation strategy is proposed.

The original UWPCA boundaries were set using cadastral boundaries (refer to Figure 1, being Figure 3 of the GLUWMS report). The Select Committee recommended that UWPCA boundaries should be established using scientific (eg. hydrological and catchment) data rather than cadastral. The Government subsequently commissioned a study to determine the groundwater flow patterns on both the Gngangara and the Jandakot mounds. Existing and proposed public water supply wells were then overlain on the flow patterns to determine which land covered the area of the aquifer which would flow directly into the wells and should be given some measure of protection through inclusion in a UWPCA. The new UWPCA for Gngangara is shown in Figure 2 (which is Figure 5 in GLUWMS). These figures show the previous (Figure 1) and proposed (Figure 2) Priority allocation areas.



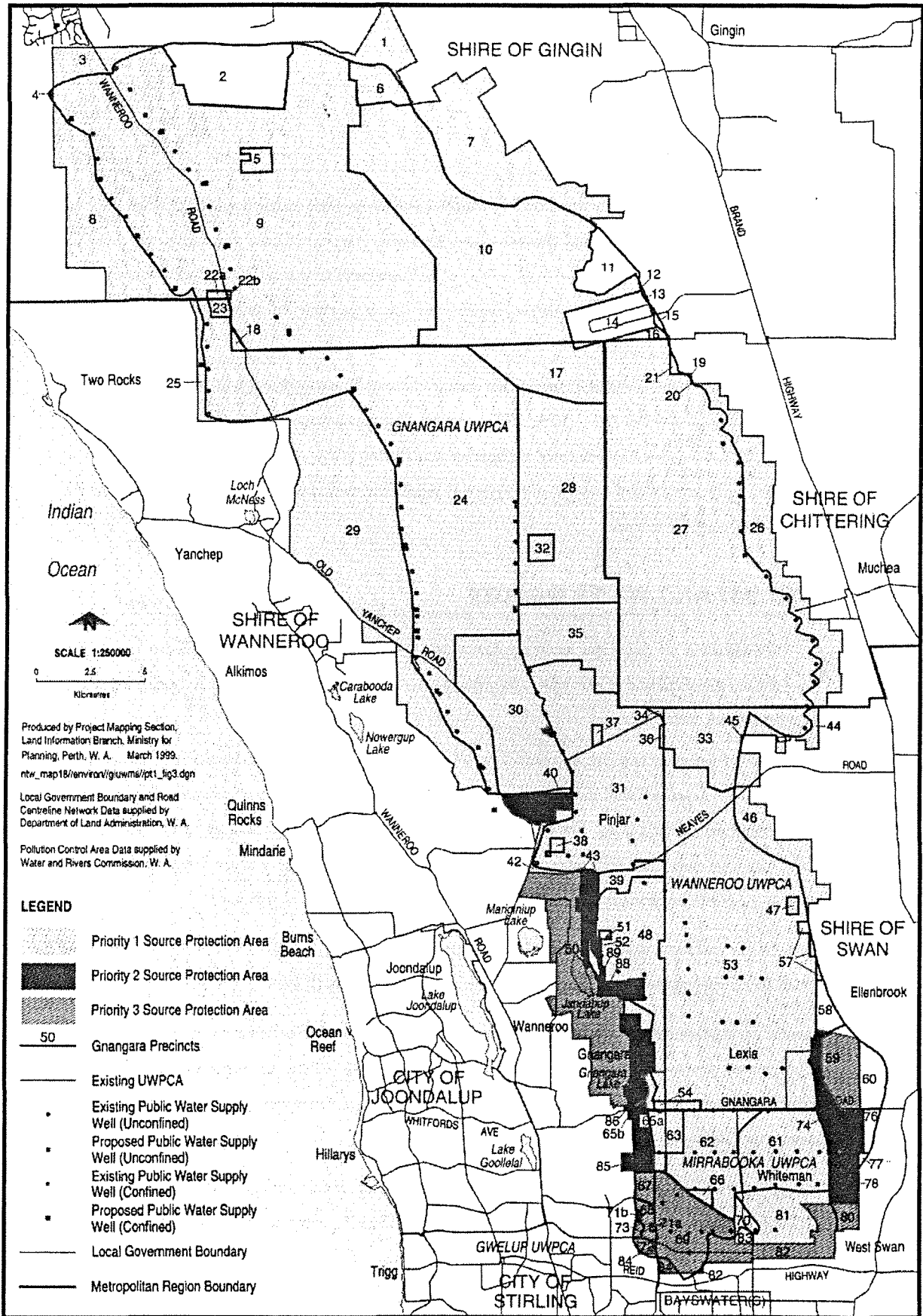


Figure 1: Existing UWPCA & Priority Source Areas (Source WAPC, 1999 - Figure 3)

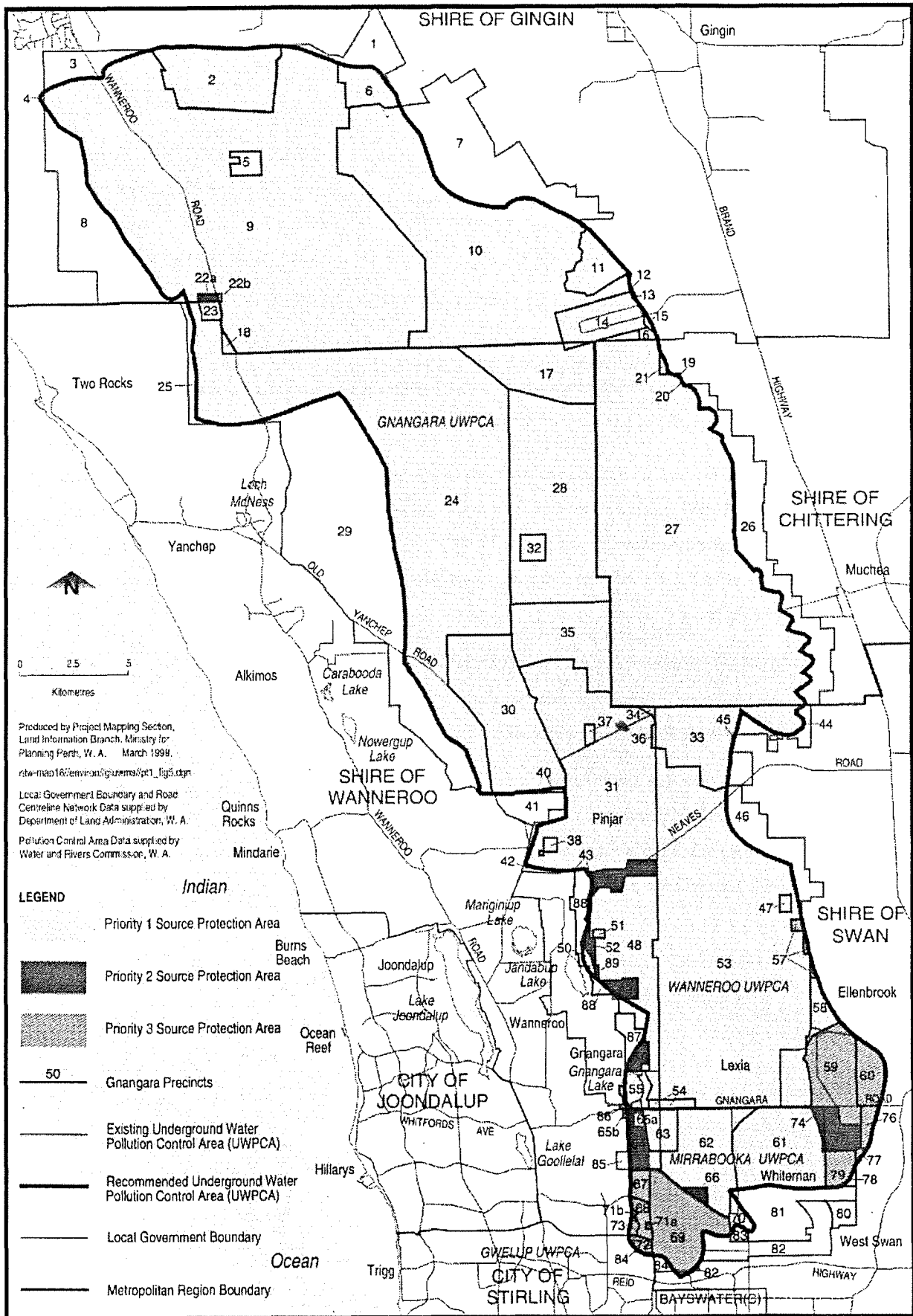


Figure 2: Proposed UWPCA & Priority Source Areas (Source WAPC, 1999 - Figure 5)

The preferred long term land use and zoning allocations are shown in Figures 3 and 4 (being Figures 7 and 8 of GLUWMS).

The significant issues relating to these Figures are:

- a proposed reduction in the UWPCA;
- the Neaves Road special Rural area (area 39 on Figure 5) and an operating market garden in the north of the area (area 22a) changes from Priority 1 (P1) to Priority 2 (P2) to reflect existing long-term land uses;
- the area which will become Parks and Recreation (P&R) reserve in the Metropolitan Region Scheme increases, with the inclusion of some additional privately owned land;
- all land (Government owned land and privately owned land which will be purchased by Government) that will be P1 is to be covered by a Water Catchment Reservation (WCR); and
- the Rural zoned land (P2) will be covered by a Rural-Water Protection Zone (RWPZ).

The key elements of the implementation strategy proposed in GLUWMS are:

- development applications on private land within WRC and P&R reserve will be considered by the WAPC consistent with the objectives and provisions of GLUWMS;
- the WAPC will develop a Statement of Planning Policy to manage developments within the RWPZ and the WCR;
- the Gngangara Mound Crown Land EPP should be updated to reflect the new UWPCA boundaries;
- the Water and Rivers Commission (WRC) will amend its own by-laws to be consistent with GLUWMS; and
- the WAPC, DEP and WRC will co-ordinate development applications in the area.



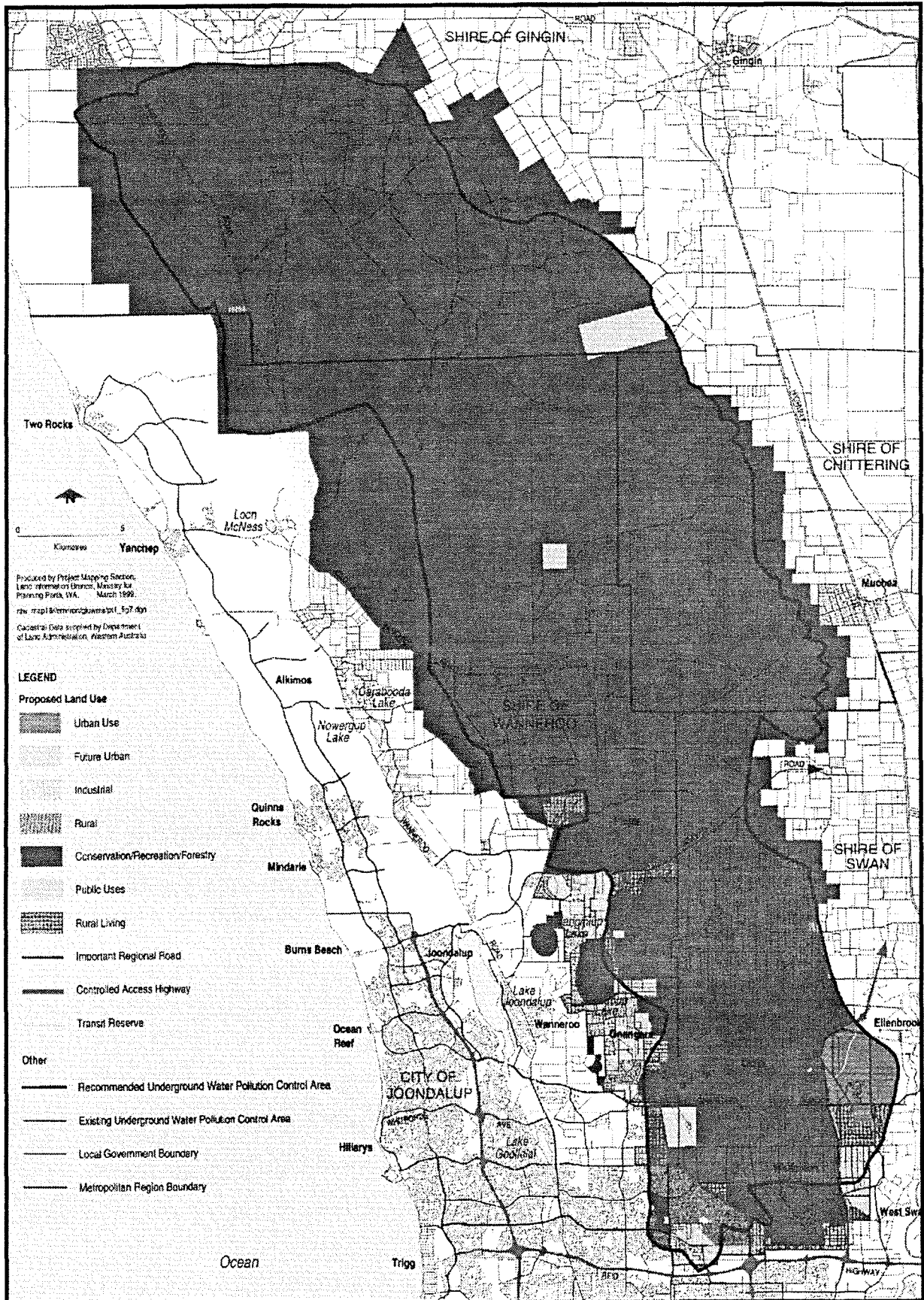


Figure 3: GLUWMS preferred long term land uses (Source WAPC, 1999 - Figure 7)



## **2.2 Environmental Management Areas**

The Select Committee also acknowledged that groundwater areas need to be managed to protect important environmental features, including wetlands. Superficial and unconfined groundwater aquifers on the Swan Coastal Plain have wetlands associated with them. Wetlands occur where land is low-lying which allows the water table to be at or near the surface. Consequently, to protect water quality in these wetlands the land upstream needs to be managed so that contaminants do not discharge into the groundwater. Water abstraction will most likely need to be controlled to maintain water quantity.

In acknowledgment of this relationship between wetlands, groundwater and land use, the EPA has developed a Guidance note which sets out the EPA's position in regard to new developments on land upstream of important wetland (No 48). The land upstream of an important wetland, or its catchment or capture zone, is also called an Environmental Management Area (EMA).

The Guidance note categorises significant wetlands as either Category A (National and international significance) or Category B (State and regional significance). Category A wetlands are offered higher protection than category B wetlands. Most of the significant wetlands within the study area are Category B wetlands. Only two Category A wetlands are found within the GLUWMS area: Lock McNess and Twin Swamps.

GLUWMS give some attention to the important wetlands in the area and the management of the associated EMA. There are also other wetlands in the area which have significant conservation values, for example Twin Swamps.

## **2.3 Gnangara Park Concept Plan**

CALM have management responsibility for a considerable area of the Gnangara Mound, which includes System Six areas Caraban, Wabling, Yeal, Melaleuca Park, Ridges area and State Forest 65. There is also a considerable area of State Forest (pine plantations) and an area of land north of Yanchep called UWPCA areas.

In May this year CALM released a paper prepared by a technical working group (representatives from CALM, WRC, Water Corporation, Ministry for Planning and DEP) which proposes that this land be consolidated into a single management area called Gnangara Park. The paper also proposed broad principles and strategies for the management of the area, including a draft concept plan (Figure 5).

The implementation of this Plan will provide on-going protection to important conservation areas identified in System Six, Perth's Bush Plan and for important public water supply areas. It is important that any assessment of GLUWMS uses this draft Concept plan as part of the framework.

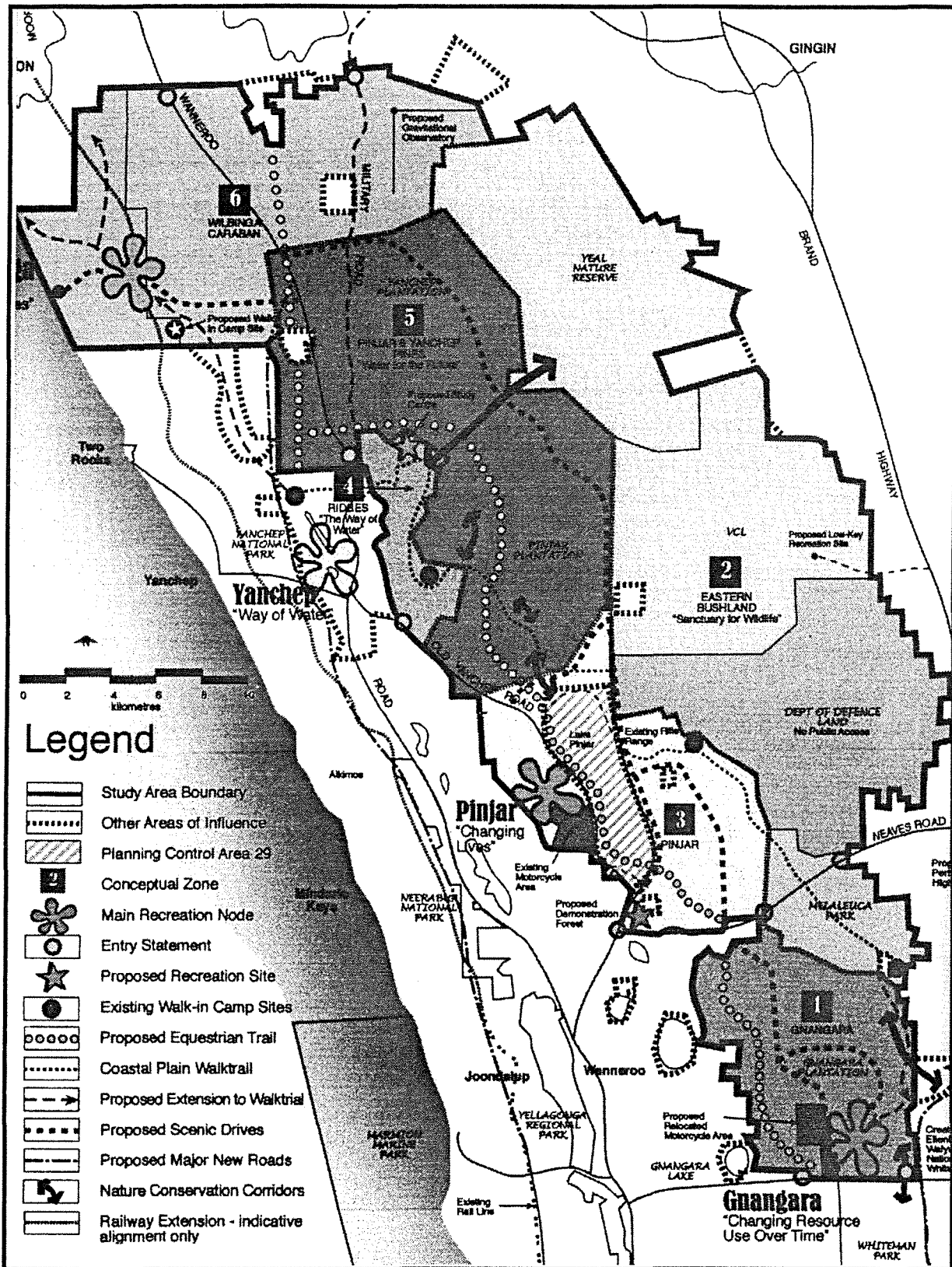


Figure 5: Gngangara Park Concept Plan (Source: CALM, 1999 - Map 1).



### **3. EPA Assessment**

#### **3.1 Overview and Gngangara Mound Crown Land EPP**

The Gngangara Land Use and Water Management Strategy is a significant step in providing for the ongoing protection of an important community asset and environmental resource - the Gngangara Mound. The EPA commends the work of the WAPC in producing the draft strategy. The need for a consistent whole-of-Government approach to managing the mound is supported. This would require a revision of the existing Gngangara Mound Crown Land EPP. The EPA notes that the EPP will soon be revised. This revision should be undertaken such that that GLUWMS and the EPP are consistent and complimentary. Review of the EPP should therefore be a priority.

#### **3.2 Objective for a revised Gngangara Mound Crown Land EPP**

Firstly, GLUWMS proposes an objective for a revised objective for the EPP, being: *“Recognise that all development proposals in the study area which vary from the general provisions of the EPP may be assessed under Part IV of the Environmental Protection Act (1986) by the EPA”*. The EPA has noted this advice, however, it is of the view that it is not an objective which is appropriate for the EPP. The EPP is currently under review and the public will have the opportunity to comment upon the EPP objectives through the public review process. The EPP currently covers Crown land within the UWPCA and provides a legislative framework for the protection of drinking water, wetlands and groundwater dependent vegetation.

#### **3.3 Translating the UWPCA boundary into cadastral boundaries**

While the EPA supports the new boundaries for the UWPCA, as they are based on a scientific analysis of groundwater flows, a precautionary approach is required in translating this boundary into a formalised boundary on statutory documents, including Department of Land Administration titles and town planning scheme maps. It is understood that it is not possible to use curved lines when defining areas on maps and that small straight lines will be used to approximate the curved lines. In this case, the line should be drawn so as to include all of the area defined in the UWPCA.

#### **3.4 Precinct 29**

Precinct 29 is the area of State Forest in the north west of the study area that is currently within the P1 area, but is outside the area required for P1 under the revised UWPCA boundary. GLUWMS proposes that in the future this is likely to be included as part of a coastal P3 area. It would be sensible that this area either stay as P1 or become P3 immediately rather than wait until the administrative process to expand the coastal P3 area are in place.

#### **3.5 GLUWMS land use and zoning maps and the Gngangara Park Concept Plan**

The preferred land use map for GLUWMS (Figure 1 in this report) uses a broad proposed land use category called “Conservation/Recreation/Forestry to cover a large area of the study area, most of which is also covered by the Gngangara Park Plan. The Gngangara Park Plan provides a more detailed description of the preferred land uses in that area and is a more appropriate categorisation. The GLUWMS preferred long-term land use map should be modified to be made consistent with CALM’s proposed Gngangara Park Concept Plan.

## **4. Conclusion and Recommendations**

The EPA's recommendations in relation to Gngangara Land Use and Water Management Strategy are discussed below. Overall, the EPA commends the work of the WAPC in producing the draft strategy, and provides the following advice:

- the objective for a revised Gngangara Mound Crown Land EPP as stated in draft GLUWMS requires revision to bring it into line with the objectives of the new draft State Groundwater EPP;
- a precautionary approach should be adopted when translating the curved lines of the proposed UWPCA, produced by modelling of the water resources, into cadastral or straight lines such that the area included within the UWPCA is larger rather than smaller;
- Precinct 29, currently P1, should remain within the UWPCA area as either P1 or P3 (as proposed) rather than be removed from P1 for a period of time and then re-included as a P3 area at a later time;
- The preferred land use map for GLUWMS should be modified so as to be consistent with the Gngangara Park Concept Plan by providing a more detailed description of the preferred land uses in the area.

## **5. References**

Department of Conservation and Land Management, 1999. Gngangara Park Concept Plan, Perth WA.

Government of Western Australia, 1992. Environmental Protection (Gngangara Mound Crown Land) Policy.

Western Australian Planning Commission, 1999. Gngangara Land Use and Water Management Strategy. Ministry for Planning, Perth, WA.