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1.0 INTRODUCTION

This Local Planning Strategy for the Shire of Mundaring has been prepared to set out the long term planning directions for the Shire and to guide land use planning within the Shire over the next ten to fifteen years.

The Local Planning Strategy comprises two documents. This document, the *Local Planning Strategy: Background Document* sets out the State and regional planning context and the Local Government policy and strategic context, and contains a Shire Profile and an analysis of Key Issues. A separate *Local Planning Strategy: Strategies Document*, sets out the planning directions for the Shire and the recommended strategies for achieving these. The recommended strategies in the latter document are drawn from the background information and analysis contained in this document.

This section sets out the statutory context within which this Local Planning Strategy has been prepared, its role and purpose, and the method of its preparation.

1.1 Statutory context

Requirement for a Local Planning Strategy

The requirement to prepare a Local Planning Strategy, in place of the Scheme Report, which formerly accompanied proposed new Town Planning Schemes, was included in the *Town Planning Regulations 1967* in 1999. The same amendment to the Regulations introduced the requirement for new Schemes to be based on the Model Scheme Text.

Regulation 12A(3) of the *Town Planning Regulations 1967* requires a Local Planning Strategy to:

- set out the long-term planning directions for the local government
- apply State and regional planning policies
- provide the rationale for the zones and other provisions of the Scheme

Shire of Mundaring Town Planning Scheme No. 3

The Shire of Mundaring Town Planning Scheme No. 3 commenced operation on 18 March 1994. Town Planning Scheme No. 3 is a District Planning Scheme, applying across the whole Shire. Two other Shire of Mundaring Town Planning Schemes are in operation, each being Guided Development Schemes. Town Planning Scheme No. 6 (for land in Mahogany Creek) commenced operation in 1976, while Town Planning Scheme No. 7 (for land in Swan View) commenced operation in 1978.

At the time of writing, only 64 amendments to Town Planning Scheme No. 3 have been initiated. Of these, 48 have been approved while several have been initiated but have not yet proceeded to being finally determined.

Review of Shire of Mundaring Town Planning Scheme No. 3

In 1999, the Shire of Mundaring commenced a review of Town Planning Scheme No. 3. As part of this review, a Scheme Examination – Issues Paper was prepared and made available for extensive public consultation from November 2000 to January 2001, including a series of workshops with community members. The Scheme Examination – Issues Paper and recommendations on the Schedule of Submissions received formed the basis for a Scheme Examination Report. In August 2001, Council recommended that Town Planning Scheme No. 3, subject to Amendments arising out of the Scheme Examination Report, continue for another five years, rather than being replaced by a new Scheme.

In April 2003, the then Minister for Planning and Infrastructure advised that she considered it desirable to review Town Planning Scheme No. 3 by way of the preparation of a new Scheme. Key reasons for this decision were that a new Scheme would be based on the Model Scheme Text and that the associated preparation of a Local Planning Strategy would place the Scheme in a regional planning context.

This Local Planning Strategy and Local Planning Scheme No. 4 have been prepared to carry out this direction. The documents have endeavoured to address all relevant parts of the progressively expanding State Planning Framework and to address emerging issues such as bushfire hazard, biodiversity protection, climate change and peak oil.

1.2 Role and purpose

The Local Planning Strategy sets out the long-term planning directions for the Shire of Mundaring over the next ten to fifteen years, applies the wide range of relevant State, regional and local planning policies and strategies, and provides the rationale for the land use and development control proposals in Local Planning Scheme No. 4.

It is intended that the Local Planning Strategy will be read in conjunction with Local Planning Scheme No. 4 and *vice versa*. The Local Planning Strategy is to guide the operation of Local Planning Scheme No. 4. It is a requirement of the Scheme that, except to the extent of any inconsistency between the two, determinations under the Scheme are to be consistent with the Local Planning Strategy.

2.0 STATE AND REGIONAL PLANNING CONTEXT

2.1 State Planning Strategy

The Western Australian Planning Commission (WAPC) prepared the *State Planning Strategy* (1997), which provides a strategic guide for land use planning in the state up until 2029.

Vision for the Perth Region

The Strategy sets out a vision for the Perth Region (ie. the Perth Metropolitan Region) throughout the life of the Strategy:

“Over the next three decades Perth will become one of the cleanest, most productive and liveable cities in the world. It will have all its major natural features available for all to access and enjoy, its cultural heritage protected and its coastal and inland waters and air quality maintained to the highest possible standard. Perth will be an efficient city where the less mobile are able to easily access facilities and where there is a balance between walking, cycling, public transport, car and truck usage. It will be a region comprising distinct living areas with their own sense of community, their own recognisable centre and range of facilities.”

Strategies and actions relevant to the Shire of Mundaring

The State Planning Strategy specifies a wide range of strategies and actions in support of the guiding principles. Some apply across the state and others apply to specific regions. Those strategies and corresponding actions most relevant to the Shire of Mundaring are as follows:

Environmental Principle:

Strategy	Action
Increasingly use energy sources which have minimal impact on the environment	Ensuring that town planning schemes help minimise energy use by: <ul style="list-style-type: none"> • maximising development near public transport routes; • providing work places and diversity of employment opportunities within the residential community; • including a range of housing densities; • encouraging energy efficient and water sensitive subdivision and building design
	Promoting the use of alternative energy sources from wind, solar and tidal sources
	Ensure that housing lots are orientated to maximise the benefits of solar radiation

Prevent further loss in biodiversity	Promote the preparation of local conservation strategies by local government
	Protect wetlands, coastal and river foreshores and provide special protection to areas of World or National Heritage significance
	The retaining and managing of urban bushland in the planning process and making provision for a representative reserve system in strategic plans
	Protecting and restoring remnant vegetation in the rural landscape
Ensure that air quality is protected	Promote higher density and mixed land use developments to reduce car use and promote cycling, walking and public transport
Ensure that water resources are conserved and their quality protected	Ensuring that there is no further alienation of Crown land within existing and potential allocated Priority 1 and Priority 2 water supply development catchments and ensuring that further subdivision is in keeping with water resource quality protection requirements
	Promoting water sensitive design in urban subdivisions and local structure plans
	Encouraging greater use of recycled waste water
	No new landfill sites to be located up-gradient of any environmentally sensitive groundwater or surface water body
Ensure that land and soil is safeguarded and that degradation does not occur	Ensuring that areas of agricultural significance are defined and identified in local and regional schemes
	Ensuring that Rural-Residential development is not permitted in areas of agricultural significance
	Ensuring that town planning schemes secure compatible land uses in and adjacent to agricultural, horticultural and forestry areas
	Ensure that in areas of land degradation, rehabilitation measures are included as conditions of subdivision or development approval
	Develop consistent vegetation/tree protection controls
Reduce consumption of materials and promote recycling	Ensuring that sufficient land is allocated for composting and recycling centres
Promote planning, management and protection of resources	Continue to support multiple use of forests for compatible purposes
	Protect mineral resources and basic raw materials in statutory planning schemes

Protect landscape, open space and public access	Ensure neighbourhoods include appropriate local open space
	Considering landscape values when assessing proposed developments near national parks and other scenic areas
	Encouraging the introduction of innovative Rural-Residential development design, such as cluster development, to secure open landscape in sensitive environmental areas
Enhance the quality of life for all Western Australians	In planning for new communities, particularly in fire risk and hazard areas, provision be made for emergency management
	Encourage urban design and townscape programs on a statewide basis
	Ensure that the impacts from traffic and other noise generating activity are considered in the planning process
	Ensuring that a long-term view prevails relating to the location of land uses to ensure that those likely to have a detrimental impact on the local amenity are carefully sited
Protect the State's cultural heritage	Ensure that future town planning schemes and strategic plans protect existing and potential indigenous and non-indigenous heritage areas and buildings

Community principle:

Respond to the changing needs of the population	Incorporate in town planning schemes, where appropriate, the location of aged accommodation, child care and health facilities next to main transport routes
	Ensuring that there is an appropriate housing and density mix to fulfil existing and potential demand from aged people, Aboriginal people, people with disabilities, non-traditional families and different ethnic groups
	Undertake a review to assess how best to incorporate home, cottage and locally based industries within residential areas through town planning scheme provisions. This project should also include a review of local government home occupation approvals.
Improve the linkage between land use planning and the provision of human services	Identify in local structure plans and town planning schemes, sufficient land to accommodate a full range of necessary community facilities

	Consider the social facilities and service requirements of a proposed development at the structure planning and subdivision stage
	Determine the required land for community facilities in district structure plans for greenfield developments where there is more than one developer
	Providing land at the neighbourhood level for the construction of multi-purpose community centres (with access to telecommunications) able to meet the needs of locally required services
	Contributions for social infrastructure by developers be based on the principles set out in WAPC Planning Bulletin No. 18, 1997
Provide a range of housing opportunities	Encourage the provision of a range of lots and housing types in large comprehensively planned development projects or smaller redevelopments to reflect the diverse needs of the community
Build a sense of community through the design of accessible settlements and public facilities	Promoting mixed uses of land in communities, especially through the location of housing in commercial centres

Economic principle:

Provide flexibility in the planning system to meet the needs of small business	Ensuring that town planning schemes allow for the development of small businesses in close proximity to residential areas
	Ensuring that town planning schemes contain flexible provisions so that land can be used for a variety of compatible purposes
	Provide for mixed-use areas
Provide for the likely growth of downstream processing and value adding industries	Ensuring that regional plans and statutory schemes protect access corridors to industrial sites, buffer zones and transport infrastructure and identify essential infrastructure such as waste management
Facilitate land use planning for the growth of the tourism industry which is sensitive to environmental constraints	Include in town planning schemes provision for tourist accommodation and other facilities in areas with tourism potential
	Provide for tourism resorts in the Perth region
	Identifying in regional plans, appropriate tourist facilities (such as resorts) in areas with tourism potential

Make allowances for the needs of new industries and technologies	Encouraging local governments to prepare town planning schemes which adopt a merits-based approach for considering manufacturing and industrial development
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Infrastructure principle:

Plan for public transport facilities	Encouraging the development of more flexible and locally based public transport
	Ensure that planning approvals for the development of new areas requires appropriate funding for public transport services
Plan for balanced travel	Ensure that public facilities are designed to accommodate the needs of the people with disabilities
	Define, protect and implement regional cycle networks
	Ensuring that transport routes have the capacity to simultaneously accommodate the needs of private vehicle, public transport, cyclists and pedestrians
	Encourage higher car occupancy rates through specialised infrastructure and land use policies
	Encourage car pooling by providing strategically located pick-up/drop-off points
Ensure the efficient, progressive development and servicing of urban land	To avoid the fragmentation of land, ensure that Rural-Residential subdivision is restricted on land likely to be required for urban purposes within 50 years
	Promote provision of underground and carefully designed telecommunications infrastructure
Support the development of more nodal urban settlements	Ensuring policies provide a presumption in favour of consolidating settlements
	Ensuring policies provide a presumption in favour of separate communities

The Perth Region:

Protect key environmental resource areas and cultural heritage	Complete the reservation and acquisition of the regional open space network, including the Darling Range and Jandakot Regional Parks
	Ensure the values of urban bushland are considered in the development process
	Protect culturally significant places through town planning schemes

Protect water resources	Ensure that new major housing developments incorporate the principles of water sensitive urban design
Limit travel demand in urban areas	Ensure that public facilities are clustered in regional and district centres
	Promote medium and high density housing in and near regional and district centres and near public transport stations
	Promote mixed-use development in neighbourhood and district centres
	Promote good pedestrian and cycling facilities in urban areas
	Ensure that both residential and commercial activity is concentrated near public transport
Promote a strategic transport network	Design specialist strategic freight transport routes to minimise impacts on residential areas and to divert traffic from Armadale, Greenmount Hill and the Swan Valley

2.2 State Planning Framework

The WAPC's State Planning Policy No. 1: *State Planning Framework* brings together state and regional policies and plans applying to land use and development in Western Australia into a State Planning Framework. It reinforces and expands upon key principles of the State Planning Strategy. The elements of the State Planning Framework include other State Planning Policies (previously referred to as Statements of Planning Policy) as well as a range of other policies, strategies and structure plans. The State Planning Framework is updated from time to time.

As a State planning policy under Part 3 of the *Planning and Development Act 2005*, the Commission and local governments must have due regard to the provisions of the State Planning Framework in preparing or amending town planning schemes and making decisions on planning matters. The Commission assesses local government town planning schemes against the State Planning Framework to ensure consistency with state and regional policies.

Those elements of the State Planning Framework most relevant to the Shire of Mundaring are outlined in this section. [Note: this section also includes State Planning Policies adopted since the most recent variation of the State Planning Framework in 2006].

2.2.1 General Principles for Land Use Planning and Development

The State Planning Framework's General Principles for Land Use and Development expand on the guiding principles of the State Planning Strategy. These general principles form the basis for the other provisions of the State Planning Framework. The general principles are as follows:

Environment:

The protection of environmental assets and the wise use and management of resources are essential to encourage more ecologically sustainable land use and development. Planning should contribute to a more sustainable future by:

- i. promoting the conservation of ecological systems and the biodiversity they support including ecosystems, habitats, species and genetic diversity;
- ii. assisting in the conservation and management of natural resources, including air quality, energy, waterways and water quality, land, agriculture and minerals, to support both environmental quality and sustainable development over the long term;
- iii. protecting areas and sites with significant historic, architectural, aesthetic, scientific and cultural values from inappropriate land use and development;
- iv. adopting a risk-management approach which aims to avoid or minimise environmental degradation and hazards; and
- v. preventing environmental problems which might arise as a result of siting incompatible land uses close together.

Community:

Planning anticipates and responds to the needs of existing and future communities through the provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities. Planning should recognise the need for and, as far as practicable, contribute towards more sustainable communities by:

- i. accommodating future population growth and providing housing choice and diversity to suit the needs of different households, including specialist housing needs, and the services they require;
- ii. providing land for a range of accessible community resources, including affordable housing, places of employment, open space, education, health, cultural and community services;
- iii. integrating land use and transport planning and promoting patterns of land use which reduce the need for transport, promote the use of public transport and reduce the dependence on private cars;
- iv. encouraging safe environments, high standards of urban design and a sense of neighbourhood and community identity;

- v. promoting commercial areas as the focus for shopping, employment and community activities at the local, district and regional levels; and
- vi. providing effective systems of community consultation at appropriate stages in the planning and development process.

Economy:

Planning should contribute to the economic well-being of the State, regions and local communities by supporting economic development through the provision of land, facilitating decisions and resolving land use conflicts. In particular, planning should provide for economic development by:

- i. providing suitable zoned and serviced land for industry, business and other employment and wealth generating activities;
- ii. protecting agricultural land resources from inappropriate uses;
- iii. avoiding land use conflicts by separating sensitive and incompatible uses from industry and other economic activities with off-site impacts;
- iv. promoting local employment opportunities in order to reduce the time and cost of travel to work;
- v. providing sites for tourism accommodation and facilities taking account of their special location and servicing needs; and
- vi. ensuring that plans and policies are clear and certain, decisions are made in accordance with plans and policies, and decisions are made expeditiously.

Infrastructure:

Planning should ensure that physical and community infrastructure by both public and private agencies is coordinated and provided in a way that is efficient, equitable, accessible and timely. This means:

- i. planning for land use and development in a manner that allows for the logical and efficient provision and maintenance of infrastructure, including the setting aside of land for the construction of future transport routes and essential services;
- ii. protecting key infrastructure, including ports, airports, roads, railways and service corridors, from inappropriate land use and development;
- iii. facilitating the efficient use of existing urban infrastructure and human services and preventing development in areas which are not well serviced, where services and facilities are difficult to provide economically and which creates unnecessary demands for infrastructure and human services; and
- iv. encouraging consultation with providers of infrastructure, to ensure they have regard to planning policies and strategic land use planning when making their investment decisions, in order to ensure that land use and development are closely integrated with the provision of infrastructure services.

Most of the Regional Development general principle is not relevant to the Shire of Mundaring as it relates to non-metropolitan areas. However, it notes that the State Planning Strategy identifies key regional strategies and desirable actions for each region of the state.

2.2.2 State Planning Policies

2.2.2.1 SPP 2 Environmental and Natural Resources Policy

This is a broad, sector-issue policy dealing with environmental and natural resource issues. Among the policy's objectives is to integrate environment and natural resource management with land use planning and decision-making. The policy contains a wide range of policy measures, set out under the following headings:

- General Measures
- Water Resources
- Air Quality
- Soil and Land Quality
- Biodiversity
- Agricultural Land and Rangelands
- Minerals, Petroleum and Basic Raw Materials
- Marine Resources and Aquaculture
- Landscapes
- Greenhouse Gas Emissions and Energy Efficiency

Most of these policy measures can be relevant to the Shire of Mundaring. Those policy measures relevant to the Shire are as follows:

General Measures:

Planning strategies, schemes and decision-making should:

- (i) Avoid development that may result in unacceptable environmental damage.
- (ii) Actively seek opportunities for improved environmental outcomes including support for development which provides for environmental restoration or enhancement.
- (iii) Take account of the availability and condition of natural resources, based on best available information at the time.
- (iv) Protect significant natural, indigenous and cultural features, including sites and features significant as habitats and for their floral, cultural, built, archaeological, ethnographic, geological, geomorphological, visual or wilderness values.
- (v) Take into account the potential for economic, environmental and social (including cultural) effects on natural resources.

- (vi) Recognise that certain natural resources, including biological resources, are restricted to particular areas and that these geographical areas or land types may need to be identified accordingly and appropriate provision made to protect the areas for the use of these resources.
- (vii) Take account of the potential for on-site and off-site impacts of land use on the environment, natural resources and natural systems.
- (x) Support conservation, protection and management of native remnant vegetation where possible, to enhance soil and land quality, water quality, biodiversity, fauna habitat, landscape, amenity values and ecosystem function.
- (xi) Consider alternatives to land acquisition for conservation and landscape protection where limited or no public access is required.
- (xii) Take into account the potential for impacts from changes in climate and weather on human activities and cultural heritage including coastal and urban communities, natural systems and water resources.
- (xiii) Consider any relevant accredited Natural Resource Management Regional Strategy, or catchment management strategies prepared by catchment groups and endorsed by State government agencies, with a view to integrating implementation of appropriate and relevant parts through town planning schemes and assessment of developments.

Water Resources:

Planning strategies, schemes and decision-making should:

- (i) Consider mechanisms to protect, manage, conserve and enhance:
 - a. wetlands of importance, Ramsar wetlands and wetlands identified in any relevant *Environmental Protection Policy*;
 - b. waterways;
 - e. gazetted public drinking water source areas; and
 - f. other water sources which sustain catchments and identified environmental values.
- (ii) Take account of the availability of water resources to ensure maintenance of water quality and quantity for existing and future environmental and human uses.
- (iii) Encourage urban water management through water sensitive design approaches that better manage stormwater quality and quantity; that reduce the impact of stormwater flows to streams, wetlands and coastal waters; and that control or remove pollutants and nutrients so as to improve water quality, retain habitats, conserve water and provide for recreational opportunities and conservation functions through multiple use drainage systems.

- (iv) Ensure the provision of adequate setbacks between development and the foreshores of wetlands, waterways, estuaries and the coast, in order to maintain or improve the ecological and physical function of water bodies. Such setbacks will aim to maintain the natural drainage function, protect wildlife habitats and landscape values, lessen erosion of banks and verges, and facilitate filtration of sediment and waste associated with surface run-off from adjacent land uses, which may include retention or replacement of riparian vegetation.
- (v) Consider flood risk by identifying floodways and land affected by 1 in 100 year flood events and avoid intensifying the potential for flooding as a result of inappropriately located land uses and development.

Air Quality:

Planning strategies, schemes and decision-making should:

- (i) Promote urban development patterns, densities and form that support reduced travel demand, increased availability and access to public transport and that encourage walking and cycling.
- (ii) Have regard to the potential for conflict between sensitive land uses and activities with air emission impacts.
- (iii) Have regard to the relevant requirements of the *National Environmental Protection Measure for Ambient Air Quality* (1998), the *Environmental Protection (Kwinana) (Atmospheric Waste) Policy* (1992), the *Environmental Protection (Goldfields residential areas) (sulphur dioxide) Policy* (1992) and *State Planning Policy No. 4.1: State Industrial Buffer Policy*.

Soil and Land Quality:

Planning strategies, schemes and decision-making should:

- (i) Have regard to the capability of land to accommodate different land uses and developments, including erosion hazard, the absorptive capacity of soils, slope stability, potential for variable settlement or subsidence, active fault lines and dune migration.
- (ii) Recognise and consider land that is degraded or contaminated, or has the potential to become so, and facilitate its rehabilitation or remediation for appropriate future use.
- (iii) Ensure that land uses that may result in land contamination such as storage of chemicals, waste, other toxic materials or liquid fuel are not permitted unless it can be demonstrated that the proposed activities will not result in contamination of land or adverse effects on future land use.

- (iv) Identify existing and potential areas affected by salinity, acid sulphate soils or other severe land degradation problems and, where appropriate, facilitate measures such as promoting vegetation retention, replanting in groundwater recharge areas, and prevention of inappropriate development, in order to reduce impacts on land, buildings and infrastructure.

Biodiversity:

Planning strategies, schemes and decision-making should:

- (i) Consider mechanisms to protect areas of high biodiversity and/or conservation value, including:
 - a. land vested in the Conservation Commission as a national park, nature reserve, conservation park or other reserve, and land acquired and managed by the Department of Conservation and Land Management (CALM) pending formal reservation;
 - d. land containing Threatened Flora or Threatened Ecological Communities (CALM database) or that which is habitat to Threatened Fauna;
 - e. regionally significant vegetation within the Swan Coastal Plain area of the Perth Metropolitan Region as identified in *Bush Forever* (2000);
 - f. areas formally recognised as having significance for conservation or biodiversity values by the State Government as identified in management plans under the *Conservation and Land Management Act* (1984), the *Regional Forest Agreement* (1999), regional planning strategies, the Environmental Protection Authority (1976-1983) *Conservation Reserves for Western Australia as recommended by the Environmental Protection Authority [Systems 1 to 12]* as updated from time to time, and other relevant plans and strategies;
 - g. Ramsar wetlands and wetlands recognised as habitat for migratory species;
 - h. nationally significant wetlands listed in the *Directory of Important Wetlands in Australia* (2001); and
 - i. wetlands identified in any relevant Environmental Protection Policy (EPP), such as the Swan Coastal Plains Lakes EPP and the South-West Agricultural Zone EPP.
- (ii) Seek to avoid or minimise any adverse impacts, directly or indirectly, on areas of high biodiversity or conservation value as a result of changes in land use or development.
- (iii) Assist in establishing a comprehensive, adequate and representative conservation reserve system throughout the State for flora, fauna habitat, landscapes, waterways, estuaries and wetlands.

- (iv) Safeguard and enhance linkages between terrestrial and aquatic habitats which have become isolated, including the re-establishment of habitat corridors.
- (v) Assist the return of areas of high biodiversity conservation value to the public estate or otherwise ensure the protection of high biodiversity conservation values through mechanisms including planning controls or conservation covenants.
- (vi) Support the use of management plans to protect areas of high biodiversity conservation value in the long term.

Agricultural Land and Rangelands:

Planning strategies, schemes and decision-making should:

- (i) Protect and enhance areas of agricultural significance, having regard to State, regional and local issues and characteristics, and to the requirements of *State Planning Policy No. 2.5: Agricultural and Rural Land Use Planning*.
- (ii) Consider the natural resource capability of rangelands and agricultural lands.
- (iii) Diversify compatible land use activities in agricultural areas and rangelands based on principles of sustainability and recognizing the capability and capacity of the land to support these uses.

Minerals, Petroleum and Basic Raw Material Resources:

Planning strategies, schemes and decision-making should:

- (i) Identify and protect important and economic mineral resources to enable mineral exploration and mining in accordance with acceptable environmental standards.
- (ii) Identify and protect important basic raw material resources and provide for their extraction and use in accordance with *State Planning Policy No. 2.4: Basic Raw Materials*.
- (iii) Support sequencing of uses where appropriate to maximise options and resultant benefits to community and the environment.
- (iv) Have regard to the *State Government Gravel Supply Strategy* (1998), the draft *Towards a State Lime Strategy* (2001) and any other Government adopted basic raw material or mineral strategy, in considering proposals for the extraction of basic raw materials and mineral resources.
- (v) Support, where possible, improved efficiencies in the production and consumption of mineral and basic raw material resources to ensure their availability for future environmental and human uses.

Landscape:

Planning strategies, schemes and decision-making should:

- (i) Identify and safeguard landscapes with high geological, geomorphological or ecological values, as well as those of aesthetic, cultural or historic value to the community, and encourage the restoration of those that are degraded.
- (ii) In areas identified in (i) above, consider the level of capacity of the landscape to absorb new activities and incorporate appropriate planning and building design and siting criteria to ensure that new development is consistent and sensitive to the character and quality of the landscape.
- (iii) Consider the need for a landscape, cultural or visual impact assessment for land use or development proposals that may have a significant impact on sensitive landscapes.

Greenhouse Gas Emissions and Energy Efficiency:

Planning strategies, schemes and decision-making should:

- (i) Promote energy efficient development and urban design incorporating such issues as energy efficient building design, walkable neighbourhoods, higher densities in areas accessible to high quality public transport, local access to employment, retail and community facilities, and orientation of building lots for solar efficiency.
- (ii) Support the retention of existing vegetation and revegetation in subdivision and development proposals.
- (iii) Support the use of alternative energy generation, including renewable energy, where appropriate.
- (iv) Support the adoption of adaptation measures that may be required to respond to climate change.

2.2.2.2 SPP 2.4 Basic Raw Materials

This policy applies to the Shire of Mundaring, as well as to other local governments with land zoned Rural in the Metropolitan Region Scheme and those local governments abutting the Perth Metropolitan Region. The policy is designed to facilitate extraction of basic raw materials close to major markets in the Metropolitan Region and to avoid sensitive development close to basic raw material resources which could inhibit extraction of the resource. At the same time, the policy recognises the importance of ensuring extraction occurs with minimum detriment to local amenity and the environment and in a manner consistent with long-term planning intentions. In the policy, “basic raw materials” means sand, clay, hard rock, limestone, gravel and other construction and road building materials.

The policy includes a Resource Protection Map (Figure 1) which identifies Priority Resource Locations, Key Extraction Areas and Extraction Areas. Priority Resource Locations and Key Extraction Areas require protection against incompatible land uses or developments which may constrain or prejudice existing or future basic raw materials extraction. Extraction Areas reflect existing extraction operations, which should be protected in the short term.

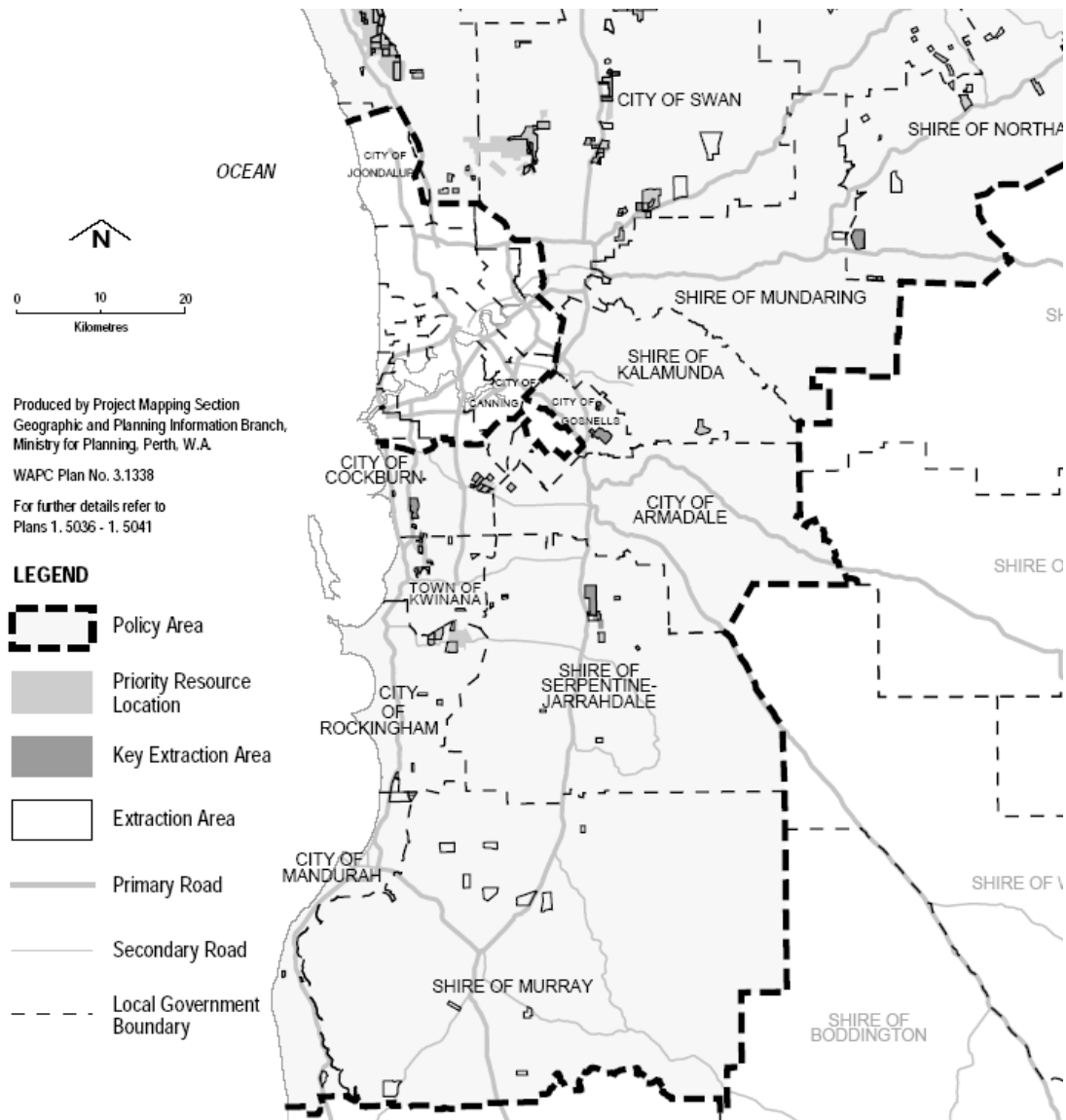


Figure 1: Resource Protection Plan (excerpt), State Planning Policy 2.4

The policy identifies no Priority Resource Locations or Key Extraction Areas within the Shire of Mundaring, and only one Extraction Area, the Shire of Mundaring's gravel pit at The Lakes, east of Great Eastern Highway. However, the policy also identifies Priority Resource Locations, Key Extraction Areas and Extraction Areas in abutting local governments near the boundary of the Shire of Mundaring. These are:

- a Key Extraction Area for the BGC hard rock quarry north of Great Southern Highway and just to the east of The Lakes in the Shire of Northam;
- an Extraction Area for a sand mine south of Great Southern Highway in the Shire of Northam; and
- a Priority Resource Location and Key Extraction Areas for quarries either side of Toodyay Road in Gidgegannup and Red Hill in the City of Swan.

The policy indicates that extractive industry should not be prohibited in a general rural zone unless there is adequate justification. It specifies relevant considerations for determining an application for an extractive industry. The policy also indicates a presumption against the introduction of sensitive uses (including rural residential development) within 1 kilometre of basic raw material extraction areas which would prejudice or be adversely affected by the basic raw materials extraction.

2.2.2.3 SPP 2.5 Agriculture and Rural Land Use Planning

This policy applies to rural land across the state, including the Metropolitan Region. The objectives of the policy can be summarised as follows:

- to protect agricultural land resources;
- to plan and provide for appropriate rural settlement;
- to minimise the potential for land use conflict; and
- to carefully manage natural resources.

The policy sets out the wide range of matters to be addressed in a Local Planning Strategy. Some of these are:

- identifying and protecting key natural resources;
- developing subdivision and development criteria for various areas;
- providing a clear strategy for settlement growth; and
- identifying agricultural areas of state or regional significance.

The policy also sets out zones which should be used for different categories of rural land and provisions which should apply and land uses which should be permitted, discretionary or prohibited within each of those zones.

The four recommended zones are:

Priority Agriculture: Land identified as an agricultural area of State or regional significance (by State agencies and the local government in consultation with the community) or land identified in a local planning strategy as an area of local agricultural significance. An Agricultural Impact Assessment is to accompany any proposed development, rezoning or subdivision to facilitate non-agricultural use.

General Agriculture: Rural land that is not identified an area of agricultural significance, nor identified and zoned for closer settlement.

Rural Smallholdings: Land providing housing and lifestyle opportunities, including opportunities for full or part-time income generation, on lots ranging from 4 ha to 40 hectares (or more depending on local conditions). Reticulated potable water supply is not required.

Rural Residential: Land used for residential purposes in a rural setting. The emphasis is on preserving the amenity of the area and controlling land use impacts. Lot sizes range from 1 to 4 hectares and reticulated potable water supply is required.

The policy specifies a range of town planning scheme provisions that should apply to the Rural Smallholdings and Rural Residential zones.

With respect to managing natural resources, the policy indicates that:

- drinking water sources (surface water and groundwater) must be protected by provisions in town planning schemes;
- town planning schemes should include provisions for land use and environmental management controls aiming to maintain or improve the quality of the natural environment and resource base (eg. restricting land clearing and promoting revegetation in areas identified in a local planning strategy as requiring remediation from land degradation and that improve water quality);

- town planning schemes should include provisions for extraction of basic raw materials, mineral and energy resources (these activities should be regarded as generally acceptable in rural areas, subject to assessment of their individual merits); and
- floodplains should be identified and protected in town planning schemes or in policies adopted under town planning schemes.

With respect to identifying agricultural areas of state or regional significance, the policy outlines the process and also indicates that the Department of Agriculture (now Department of Agriculture and Food) will assist with identifying such areas. An agricultural area of state or regional significance is “one that contains productive agricultural land that is suitable for the sustainable development of key or specialised agricultural uses that are of significant economic or social value to the state or a particular region”.

The policy identifies a potential agricultural area of state or regional significance, subject to investigation, generally within the northern and eastern parts of the Shire and extending into Gidgegannup in the City of Swan. Such areas contain a comparatively high concentration of irrigated and intensive agricultural uses.

Of note is that the policy indicates that, in the absence of specific guidance in a local planning strategy, the Department of Agriculture considers 80 ha to be the minimum size for a long-term sustainable intensive agricultural use.

2.2.2.4 SPP 2.7 Public Drinking Water Source Policy

This objective of this policy is to ensure that land use and development within Public Drinking Water Source Areas is compatible with protection and long-term management of water resources for public water supply.

The policy specifies that Public Drinking Water Source Areas should be identified in local planning strategies. The policy indicates that Priority 1 and Priority 2 source protection areas within Public Drinking Water Source Areas in the Perth Metropolitan Region should be identified and protected by Special Control Areas within town planning schemes. It indicates that Priority 3 source protection areas in the Perth Metropolitan Region generally do not require specific provisions in town planning schemes, but that land use decisions affecting those areas should have regard to the Water Quality Protection Note *Land Use Compatibility and Public Drinking Water Source Areas*.

As a general principle, the policy indicates that land uses and developments in all priority source protection areas which have the potential to detrimentally impact on the quality or quantity of public drinking water supplies should not be permitted, unless demonstrated that such impacts can be successfully managed.

2.2.2.5 SPP 2.8 Bushland Policy for the Perth Metropolitan Region

This policy, gazetted in June 2010, aims 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, to secure long-term protection of biodiversity and associated environmental values.

The policy is supplementary to State Planning Policy 2: Environment and Natural Resources (see section 2.2.2.1 above) and seeks to address in more detail the protection and management of significant bushland areas. More specifically, it addresses the protection and management of Bush Forever sites identified in the Government's *Bush Forever* (2000). *Bush Forever* identifies 51,200 ha of regionally significant bushland for protection in 287 Bush Forever sites. As *Bush Forever* is limited to the Swan Coastal Plain, only two Bush Forever sites are within the Shire of Mundaring (see section 2.2.4.3 below). Through a range of mechanisms, *Bush Forever* seeks to protect a target of at least 10 per cent of the original extent of each vegetation complex within the Perth Metropolitan Region portion of the Swan Coastal Plain.

The policy notes that the South-West Botanical Province, within which the Perth Metropolitan Region lies, is one of the most biologically diverse regions in the world, with many ecological communities and plant species endemic to the province. The policy recognises that bushland is an essential part of an area's environmental (green) infrastructure and a critical ingredient in the successful delivery of wider biodiversity, ecological, natural resource management and sustainability outcomes.

The policy has the following objectives:

- to establish a conservation system at the regional level (through Bush Forever areas and to operate with the clearing controls under the *Environmental Protection Act 1986*) that is, as far as is achievable, comprehensive, adequate and representative of the ecological communities of the Swan Coastal Plain portion of the Perth Metropolitan Region;

- to seek to protect and manage significant bushland recommended for protection and management for conservation purposes through a range of implementation mechanisms and as a collective and shared responsibility and general duty of care on the part of government, landowners and the community; and
- to provide a policy and implementation framework for significant bushland areas recommended for protection and management to assist conservation planning, planning assessment and decision-making processes.

The policy includes measures relating to different classes of Bush Forever sites and to local bushland. As most of the Shire lies outside of the area covered by *Bush Forever*, and the measures relating to local bushland are of greatest relevance to the Shire.

The policy states that, prior to making a development control decision that involves the clearing of native vegetation within a Bush Forever area, a local government is advised to consult with the Department of Environment and Conservation regarding vegetation clearing aspects, where appropriate.

Appendices to the policy include an impact assessment process and impact assessment criteria for proposals affecting regionally significant bushland within Bush Forever sites, as well as best practice criteria for rural living subdivision and rural development.

Policy measures relating to Bush Forever sites

The policy specifies some measures relating to regionally significant bushland within all Bush Forever sites, and other measures that relate specifically to five certain categories of Bush Forever sites. The two Bush Forever sites in the Shire of Mundaring encompass three of the five categories, and only those specific measures relating to those three categories are outlined below.

Policy measures relating to all Bush Forever sites:

The policy indicates that proposals or decision-making should:

- recognise regionally significant bushland protection and its management as a primary purpose and a fundamental planning consideration in its own right as part of an area's essential environmental infrastructure;
- ensure that all reasonable steps have been taken to avoid, minimise or offset (in combination, generally meaning to mitigate) any likely adverse impacts on regionally significant bushland consistent with the requirements of the policy;

- adopt or incorporate the impact assessment process and criteria as set out in Appendix 1 and 2 of the policy where there is likely to be an unavoidable adverse impact on regionally significant bushland;
- recognise that once a site has been negotiated and an outcome agreed in accordance with the measures of the policy, there will be a general presumption against the clearing of regionally significant bushland identified for protection, unless there is an improved environmental outcome;
- have regard to other relevant policies in respect to bushland and wetland areas; and
- encourage, support and require bushland management plans and the management of regionally significant bushland for conservation purposes.

Policy measures relating to Bush Forever reserves (existing or proposed):

These measures relate to regionally significant bushland within the Bush Forever reserves (existing or proposed) site implementation category on a map within the policy, or any other regionally significant bushland proposed for and/or reserved for Parks and Recreation in the Metropolitan Region Scheme (MRS) through ongoing implementation of *Bush Forever*.

Proposals or decision-making should:

- support a general presumption against the clearing or degrading of regionally significant bushland, except where a proposal or decision:
 - i) is consistent with existing approved uses or existing planning/environmental commitments or approvals; or
 - ii) is in accordance with a management plan approved under the *Conservation and Land Management Act 1984*; or
 - iii) is a compatible operation or necessary operation carried out under the *Conservation and Land Management Act 1984*; or
 - iv) is in accordance with a management plan, or similar, which has been endorsed by the WAPC and has appropriately considered bushland protection requirements; or
 - v) is consistent with the overall purpose and intent of an existing Crown reserve or can be reasonably justified with regard to wider environmental, social, economic or recreational needs, and all reasonable alternatives have been considered in order to avoid or minimise any direct loss of regionally significant bushland, and reasonable offset strategies are secured to offset any loss of regionally significant bushland, where appropriate and practical;

- consider opportunities for reviews, rationalisations and reconfigurations of existing Bush Forever reserves that do not contain regionally significant bushland and have no ecosystem value, or which provide for an improved environmental outcome;
- consider private land conservation initiatives to protect and manage Bush Forever reserves (existing or proposed) in private ownership as an alternative to State acquisition, where appropriate, particularly where public access or public land management for conservation is not requirement;
- support management orders in favour of conservation for Crown reserves under the *Land Administration Act 1997*, where appropriate, to provide added long-term security;
- require the preparation and implementation of a bushland management plan to manage the Bush Forever reserve for conservation purposes once it is consolidated in government ownership; and, prior to this, support the implementation of interim land management measures by the responsible authority for areas in government ownership; and
- seek to reserve all government-owned Bush Forever reserves (existing or proposed) for Parks and Recreation in the MRS to provide added planning security and protection.

Policy measures relating to Bush Forever sites on rural lands:

Proposals or decision-making should:

- support private land conservation initiatives through planning mechanisms and processes and through wider government and non-government programs and measures (eg. conservation covenants, management advice, assistance, agreements and funding incentives, including State land tax and local rate incentives;
- only support future rural living subdivision for conservation and rural development (including a single residential building envelope) in areas not already committed or approved for development where appropriate having particular regard to the best practice criteria identified in Appendix 3 of the policy, and subject to other planning and environmental considerations; and
- seek opportunities for improved environmental outcomes for rural living subdivision (those lots generally below 10 ha) or development with existing planning or environmental commitments or approvals.

Policy measures relating to Bush Forever sites comprising regional creeklines:

Proposals or decision-making should:

- support the protection and management of regionally significant bushland, and any related buffer and foreshore requirements, along regional creeklines in accordance with other relevant government Acts, policies and initiatives;
- support a general presumption against the clearing of regionally significant bushland along regional creeklines, subject to other relevant government Acts, policies and initiatives; and
- ensure that any future subdivision retains regionally significant bushland along creeklines within a single lot, where possible, and avoids lot boundaries severing regionally significant bushland.

Policy measures relating to local bushland

The policy indicates that local governments should prepare a local bushland protection strategy which:

- is part of a wider local biodiversity strategy, where possible;
- is a component of a wider local planning strategy and town planning scheme review, where possible;
- is based on guidelines endorsed by the WAPC;
- identifies or establishes processes to identify significant bushland sites for protection and management based on environmental, social and economic criteria and taking into account existing approvals and commitments;
- identifies decision-making processes and includes an implementation strategy;
- is subject of public consultation and liaison with the WAPC and other agencies;
- excludes land which is part of the State reserve system; and
- is endorsed by the council and the WAPC.

The above requirement has already been satisfied by the the Shire's Local Biodiversity Strategy, adopted in 2009 and incorporated into this Local Planning Strategy (see sections 3.10 and 4.2.2.2 below).

The policy also indicates that proposals or decision-making should:

- have regard to protection of significant bushland sites recommended for protection and management in a local bushland protection strategy or other study;

- support general presumption against clearing or degrading bushland containing certain environmental values and/or System 6 recommendation areas;
- proactively seek to safeguard, enhance and establish ecological linkages between Bush Forever areas, and between Bush Forever areas and other areas identified for protection through the measures of the policy.

2.2.2.6 SPP 2.9 Water Resources

This policy expands on State Planning Policy No. 2 (Environment and Natural Resources Policy) and provides additional guidance for the consideration of water resources in land use planning processes.

Policy measures

The policy specifies a wide range of measures which should be adopted in planning documents (including town planning schemes and local planning strategies) and decision making on all planning proposals. These include the following:

- aim to prevent or ameliorate potential impacts on water resources including:
 - increased nutrient loads
 - increased acidity and leaching of acid sulphate soils
 - removal of associated endemic vegetation important for long-term management of the water resource
 - increased erosion, sedimentation or turbidity
 - adverse impacts on environmental water requirements
 - pollution and contamination
 - salinity above natural levels;
- promote improved outcomes (eg. environmental repair and rehabilitation of water source, improved water quality, restoration of natural flow regimes);
- identify all water resources above and below ground within the subject area, and map and prioritise them in terms of state, regional or local significance (see section on requirements for local planning strategies and town planning schemes below);
- consider impacts of the water source on proposed development (eg. flooding, disease vector or nuisance insects);
- recognise and take into account various plans and strategies relating to water resources;
- ensure availability of water resources is compatible with the future requirements of the proposed and surrounding land use by assessing quantity and quality requirements for both the development and the environment;

- retain the natural alignment of waterways except where adjustments are necessary and do not compromise natural environmental values;
- ensure appropriate buffers are provided for wetlands, waterways and estuaries to maintain or enhance environmental attributes, functions and values of the water resource;
- take into account water cycle management and water-sensitive urban design principles;
- promote use of water conservation mechanisms;
- promote retention and use of local native vegetation in developments to minimise water use and maximise filtration; and
- incorporate reuse and recycling of water, particularly stormwater and grey water, consider black water reuse and recycling where deep sewer is unavailable and consider alternative water sources where appropriate.

Requirements for local planning strategies and town planning schemes

The policy indicates that water resource issues should be a key consideration when developing a local planning strategy as a local planning strategy is critical to successful water resource management. It recommends the following minimum requirements for considering water resources in local planning strategies:

- water resources within the area should be mapped according to the best available information at the time;
- each type of water resource should be afforded a priority/hierarchy of significance (this hierarchy may be relative to state, regional or local significance and should be guided by state government advice together with community expectations);
- where the significance of a particular resource is not easily identifiable, the level of significance may be guided by other state government water resource mapping or policy and take into account environmental, social, cultural and economic considerations and regional and/or local context;
- where specific water resources have been identified as significant in either a state, regional or local context, identify appropriate setbacks and/or buffers (a separate schedule in the policy provides guidelines for determining appropriate setbacks/buffers);
- where the significance of the water resource is unknown, it should be identified as such until relevant information is available;

- groundwater and surface water catchments and sub-catchments that occur within the area should be identified, along with (where information is available) any relevant environmental data that may influence water resources (eg. existing nutrient export levels) and data on future public and private drinking water catchments or sources;
- the availability of water resources for consumptive purposes should determine the type and intensity of land uses permissible (and advice sought from Department of Water in areas where water source areas are yet to be gazetted);
- proclaimed and confirmed (in use or future) public drinking water source areas should be identified and the protection and management of these should be addressed, with guidance on appropriate zonings, development restrictions, subdivision controls and Special Control Area provisions;
- all floodplains and areas prone to surface flooding or groundwater inundation should be identified and it should be ensured that no development in a flood path is permitted that could increase risk to public safety or property;
- based on the environmental constraints in all the above points, developable and non-developable areas should be identified;
- a public open space network should be identified and protected, such network including remnant vegetation, natural drainage lines, recreational, cultural and environmental features (a multiple use corridor approach is recommended);
- uses incompatible with water resource protection objectives should be located an appropriate distance from the water resource and potentially inappropriate land use practices (eg. clearing, stocking, fertilisation and effluent disposal) should be considered;
- consideration should be given to incorporating relevant goals and outcomes for water quality, natural water balance, water efficiency, vegetation conservation, flood risk management, stormwater management and erosion and sediment control (such goals should be identified from existing state or local government policy and be consistent with those in various water management plans);
- where appropriate, water quality should be enhanced as a result of development through use of water quality targets;
- the strategy should address influences the area will have on surrounding catchment(s) and the influences the catchment(s) will have on the dynamics of the area; and

- the strategy should include design principles and management measures to be applied to meet relevant goals where appropriate including (i) managing vegetation cover and dependent ecosystems such as wetlands and riparian corridors, (ii) managing site constraints and hazards such as flooding, slope stability, reactive soils, erosion hazards, salinity, acid sulphate soils and site contamination and (iii) implementing best planning and management practices to achieve effective total water cycle management and water sensitive urban design (a separate schedule in the policy specifies relevant principles).

The policy recommends the following requirements for considering water resources in town planning schemes:

- new schemes (and amendments) must demonstrate that any proposed changes will not have a significant impact on the environment and accordingly it should be accompanied by an environmental management plan to address the requirements of this policy;
- in local government areas where water allocation is identified as an issue, the scheme (and local planning strategy) should identify water allocation as an important consideration in determining location and type of development and specify that where it cannot be demonstrated that a proposed land use has access to a viable water resource to support it, that use should not be supported;
- as a minimum, schemes should afford significant water resources an appropriate level of protection and include provisions to assist in long term sustainable use of the resource (incorporating setbacks/buffers and perhaps other provisions including requirement for preparation and compliance with a management plan), with land containing significant water resources to be considered as land that generally cannot be developed;
- ensure adequate setbacks/buffers to water sources being or proposed to be protected, considering economic, social and environmental implications;
- current and future public drinking water sources should be protected from inappropriate development and subdivision;
- the use of Special Control Areas in protection and management of water resources should be considered; and
- scheme provisions should require best practice to implement water sensitive urban design where opportunities have been identified in strategic documents.

In addition to the above recommendations on local planning strategies and town planning schemes, the policy also includes a list of matters to be considered in considering subdivision or development, which should ideally be included in local planning strategies and schemes. These include the following.

- where subdivision or development is proposed on a lot containing significant water resources:
 - any development in the buffer/setback area should be appropriate to the primary aim of protecting the water resource; and
 - conditions of subdivision approval may include requiring ceding of the water resource free of cost where necessary to protect the resource, and the preparation and implementation of a management plan;
- promoting use of water sensitive design principles by ensuring development is consistent with best practices in sustainable total water cycle management with particular regard to stormwater management (including recommending implementation of water sensitive urban design for all new greenfield development);
- proposed stormwater management measures need to address water quality and quantity objectives, balance environmental benefit and long-term cost, and establish the requirements of the drainage authority or catchment manager;
- consideration should be given to one or all of:
 - rehabilitation of the water resource;
 - preparation of management plans and any necessary site works to achieve a positive outcome (eg. fencing, revegetation, water monitoring);
 - improving water quality;
 - reducing nutrient export levels into receiving waters; and
 - contributing to restoring natural flow regimes and variability;
- where a water resource is not identified as significant, but is proposed to be retained as part of a subdivision or development, considering:
 - the proposed end use and function of the water resource;
 - the proposal's design and compatibility with surrounding land uses;
 - who will have ultimate responsibility for its ongoing maintenance;
 - any rehabilitation that may be required; and
 - future management; and
- incorporating management measures into the approvals process to minimise impacts on water resources from construction activities.

The policy recognises that it is a significant task for a local government to address the requirements of the policy, which include identifying all water resource issues within its area. The policy thus indicates that this information should be able to be provided by the Department of Environment and Conservation or the Department of Water, and if detailed information is not available then preliminary advice may suffice.

In October 2008, the Commission published the document *Better Urban Water Management*, which provides guidance on the implementation of this State Planning Policy (see section 2.6 below).

2.2.2.7 SPP 2.10 Swan-Canning River System

This policy, gazetted in December 2006, addresses the Swan-Canning River System. Within the Shire of Mundaring, the Swan-Canning River System includes the Helena River, from Mundaring Weir and Lake C.Y. O'Connor, downriver to the boundary with the City of Swan. Local governments are required to take the policy into account in preparing and amending town planning schemes and when determining proposals that may affect the Swan-Canning River System.

The policy indicates that, to assist in the implementation of the policy, precinct plans should be prepared on a collaborative basis by the Swan River Trust, WAPC and relevant local governments. Nominal precincts are identified in the policy, generally based on the Swan River System Landscape Description (Swan River Trust, 1997). The Helena Valley precinct runs from Mundaring Weir and Lake C.Y. O'Connor to the junction of the Helena and Swan Rivers in the City of Swan (Figure 2). The policy indicates that the precise boundaries of these precincts are subject to definition through the precinct planning process.

The precinct plans, when prepared, should include all public and private land, and should incorporate provisions addressing land use and development control, including:

- height;
- setbacks;
- building design;
- open space;
- access and parking provisions;
- jetty structures and mooring envelopes;
- flood management and protection;
- pollution and erosion control; and
- environmental management guidelines

The policy comprises:

- a vision statement for the future of the river system;
- policies based on guiding principles for future land use and development along the river system; and
- performance criteria and objectives for each of nine precincts into which the river system is divided.

Vision statement

Decisions affecting the river system should be made in the context of the policy's vision statement:

Our vision for the river and its setting is that it displays its true worth as a sustaining resource to Aboriginal society over many millennia and as the foundation of European settlement in Western Australia. We are committed to protecting and enhancing the river by respecting its environmental values, social benefits and cultural significance. We will guide adjacent land use, civic design and development to ensure that the value of the river and its setting to the community is maintained.

Policies based on guiding principles

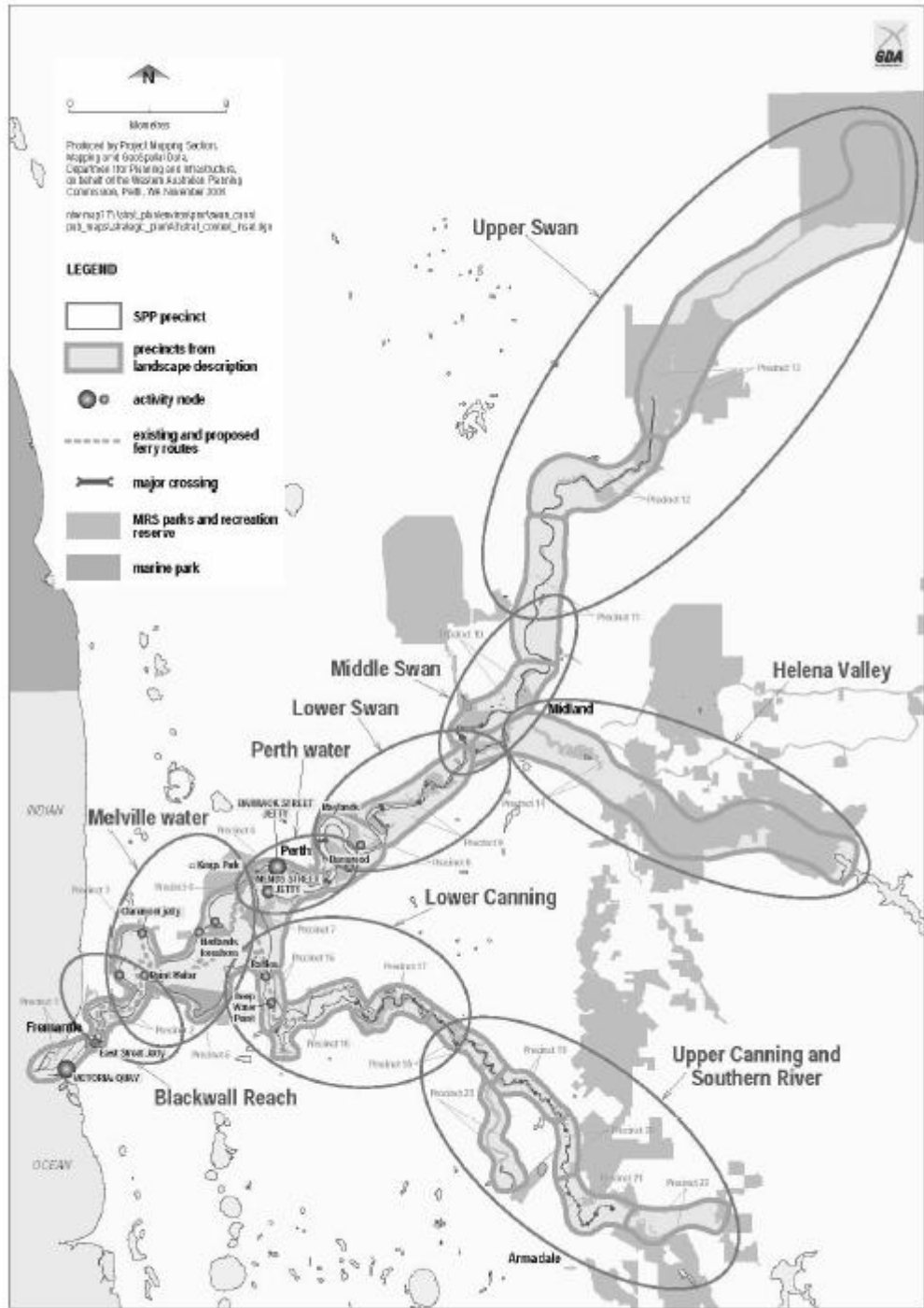
There are 40 separate policies identified, under the broad categories of social benefits, environmental values, cultural and natural heritage, and design and development. These categories are further divided into guiding principles, with one or more policies based on each guiding principle.

A few of the policies are of limited relevance to the Shire of Mundaring due to the characteristics of the Helena River within the Shire, but as nearly all of the policies may be applicable, the policies are reproduced in full, as follows:

SOCIAL BENEFITS

Maintaining the river and its setting as a community resource:

1. Development proposals and plans should recognise that the river is a public resource that should be available to the community in perpetuity. Any proposal for a use or development within the public realm that may affect the river and its settings should demonstrate a benefit to the community that offsets any detrimental impacts on the environment.
2. Implementation of plans and development proposals may require ongoing management strategies to monitor and minimise adverse impact on the river.



The boundaries identifying the SPP precincts are notional and subject to definition through the precinct planning process.

Figure 2: Helena Valley and other precincts, State Planning Policy 2.10

Securing public access to the river

3. Public access to the river and its foreshores should be maintained and enhanced while protecting the river.
4. Development proposals should avoid restricting or negatively impacting on public views to or from the river, particularly from vantage points.
5. Access to the river for recreation, tourism and transport should be available subject to the biological and ecological limitations of the river system and in accordance with any adopted Swan-Canning precinct plan.
6. Jetties and similar structures over and abutting the river should only be permitted where they do not restrict public access along the foreshore.
7. Commercial jetties and similar structures constructed on Crown land or water bed lease areas should provide a community benefit by providing public access to the jetty or similar structure. This includes providing public access along the foreshore.
8. Club facilities for water-based sports should only be permitted adjacent to the river where there is a demonstrated public benefit, public access to the river and its foreshore is not restricted, and membership of the club is open to all members of the community.

Maintaining a sense of place:

9. Proposals to develop land should ensure that the essential qualities that give each precinct in the Swan and Canning river system its distinctive character, as described in the Swan River System Landscape Description and the various Swan-Canning precinct plans, are protected and enhanced.

Providing opportunities for water transport:

10. The importance of the river as a transport network for commercial and recreational use should be acknowledged and taken into account when planning and determining proposals within the river area.
11. Access to river foreshores should be secured through the establishment of uninterrupted foreshore reserves, with associated walking paths and cycleway, and public motor vehicle parking areas, where appropriate to local conditions.

ENVIRONMENTAL VALUES

Protecting the natural environment:

1. The dynamic nature of the river, including its waters, floodplain, sustaining vegetation and habitats, should be taken into account when planning land use and development so as to ensure the long term health and value of the river.
2. The river receives water from urban areas through natural and constructed drainage systems. Urban development changes the water cycle. Proposed land use changes should be managed to minimise sediment transport and to prevent the mobilisation of nutrients or contaminants from the site to the river. Land use changes should not result in further water quality degradation but should, if possible, improve the situation.
3. Any subdivision and development in the vicinity of the river should recognise the possibility that acid sulphate soils may be present. Prior to any development being approved, proper investigations should be conducted and the proposed development should, if possible, improve the situation.

Protecting fringing vegetation:

4. Fringing vegetation serves an important biological function and adds value to the river ecosystem. There is a general presumption against the clearing of native and other vegetation within the river area unless otherwise determined by a precinct plan or if there is a demonstrated problem such as a weed invasion.
5. The protection and re-establishment of fringing riparian vegetation should be promoted as a means of stabilising river banks, providing wildlife habitat, intercepting nutrients, providing shade and improving river water quality.
6. The protection and re-establishment of wetlands, tributaries and bushland associated with the river should be promoted.

Minimising dredging and channel disturbance:

7. Dredging and deliberate channel disturbance is to be prevented or minimised.
8. Dredging will only be supported to maintain river function, re-establish former water conditions and maintain existing navigation channels. In all instances dredging must not result in disproportionate adverse impact on the health of the river and will require a development approval.

Implementing responsible stormwater management practices:

9. Water sensitive urban design principles should be incorporated in proposed developments. In doing so, natural flow regimes are to be generally preferred over artificial systems.
10. Stormwater management systems should be designed in a manner that will enhance the environmental quality of the river through the use of water sensitive urban design. The Stormwater Management Manual for Western Australia (Department of Environment, 2004) and Decision Process for Stormwater Management in WA (Department of Environment and Swan River Trust, 2005), provide guidance on this matter.

Response to river function, topography and landscape:

11. Development proposals should take account of the natural processes of the river system, including the floodplains, wetlands, saltmarshes and fringing vegetation.
12. Development should not be permitted where it will restrict the flow of water during flood events.

CULTURAL AND NATURAL HERITAGE

Conserving the cultural and natural heritage of the river and its setting:

1. The natural and cultural heritage values of the river should be protected and enhanced.
2. Consideration of Aboriginal and European based cultural and natural heritage values should be taken into account when planning and determining proposals within the river area.

DESIGN AND DEVELOPMENT

Promoting sensitive design and built form to complement the river landscape:

1. Development should maintain and enhance the quality and setting of the river.
2. Proposals for development should be considered in the context of the river setting and the characteristics of the development site, particularly in regard to building height, bulk, scale, form, orientation and location.
3. The selection and use of external finishes and materials should generally be based on materials and hues naturally occurring or predominantly used in the locality.

4. Design should take account of the social, cultural, physical and historical setting of the river, as described in the Swan River System Landscape Description and adopted Swan-Canning precinct plans.

Encouraging appropriate development:

5. Active recreation areas and associated development should occur in selected and suitable nodes where it achieves better access to and enjoyment of the river by the whole community.
6. Proposals for development adjacent to, or over the water may be supported in locations identified as transport, commercial or recreation nodes in an adopted Swan-Canning precinct plans, subject to sub-clause 7.4.7 being taken into account.
7. Proposals for development will be considered in the context of the extent to which:
 - the development is pertinent to the river;
 - public access is improved;
 - the public's use and enjoyment of the river experience is enhanced;
 - the visual landscape character of the river is maintained or improved;
 - the long-term health, amenity and landscape amenity of the river are sustained; and
 - the natural ecosystem of the river is protected.

Creating and maintaining foreshore reserves:

8. Land adjacent to the river should be available for public access, recreation and conservation of the river.
9. Foreshore reserves should be secured in public ownership. Where there is a nexus between subdivision or development and the need for the foreshore reserve, or it is otherwise appropriate having regard to environmental characteristics of the land, such land should be ceded free of cost to the Crown at the time of subdivision or development. Foreshore reserves are to be provided in addition to any required local public open space contribution. In other circumstances the necessary foreshore land may be acquired.
10. Limited term private or public authority exclusionary control and rights to use portions of the river or the river foreshore maybe acceptable in limited or special circumstances, provided the reason for the exclusionary control is for a wider public interest and the power to bring the land back to public control, if deemed required, is not compromised, and where acceptable alternative public access and circulation arrangements are implemented as part of a proposal.

11. Where public acquisition of private land planned for future foreshore reserve purposes is not likely to occur in the short-term, development should not be permitted within the area of reservation if it is likely to impact on the natural qualities of the land, or if it would prejudice its timely transfer to the Crown in the future.
12. River foreshore reserves should be planned with sufficient distance between the water of the river and urban development to allow for:
 - protection from inundation caused by a 1 in 100 year flood event;
 - conservation of the estuarine environment, including riparian vegetation;
 - public access and recreational use of the foreshore and the river;
 - installation or placement of essential public infrastructure;
 - commercial, transport and recreation nodes and associated facilities in accordance with adopted Swan-Canning river precinct plans, or other relevant plans;
 - views of the river from public places, and views of the foreshore from the river;
 - landscape protection and enhancement where needed; and
 - adequate separation distance from nuisance insects or disease-causing organisms.
13. Adequate setbacks to development should be specified in local planning schemes, and other plans and proposals, to allow for natural estuarine processes, conservation of environmental values, significant landscapes, public access and to maintain views to and from the river.
14. In the case of a subdivision, private development should be separated from foreshore reserves by a public road.

Creating linkages and natural vegetation corridors:

15. Linkages and natural vegetation corridors incorporated into plans and development proposals are encouraged where they:
 - provide important wildlife habitat and connections between habitat;
 - provide for public recreational movement and provide for natural water flows and stormwater; and
 - connect known destinations and identified nodes to enhance the community's recognition or sense of place of the river.

Policy statement for Helena Valley precinct

The policy contains a description of the precinct and a specific policy statement. These are as follows:

Description:

The Helena River passes through a range of landforms, from the flat alluvial plain at its confluence with the Swan River at Guildford to the undulating hills of the Darling Range and steeper ridges of the Darling Scarp. The valley has elevated views to the west across the coastal plain and Helena Valley Road is the main vehicular access.

Land uses in the lower river areas include residential, schools, light industrial and some rural land uses. Further upstream, riverside rural blocks are mostly cleared for grazing and horse agistment. Many properties extend to the river, restricting public access. In some places the river is lined by mature riparian vegetation forming a vegetated corridor. Following years of subdivision, farming and land clearing, parts of the river and valley have become degraded with only remnant habitats and little or no flowing water.

The river is dammed at the Mundaring Weir and is not navigable. In the summer, the lower river channel is reduced to a series of pools and exposed dry riverbed. In winter the waters swell to fill the entire flood plain. Much of the native riparian vegetation has been cleared for grazing or urban land uses. Further upstream a greater proportion of the native vegetation remains. The Mundaring Weir is a spectacular water body, which appears as a large, long narrow lake.

Policy:

Planning decisions in this area should:

- *enhance the natural riparian vegetation, especially in the lower reaches of the river;*
- *enhance the potential for water flows to be returned to the river;*
- *ensure that development complements the historic landscape qualities of the river near its junction with the Swan River at Guildford;*
- *improve public access to the river and extend contiguous foreshore reserves;*
- *ensure that earthworks, associated with subdivision and development complement landscape values, particularly in the upper reaches of the valley;*

- *protect places of cultural significance, in particular places on the State heritage register and the Department of Indigenous Affairs register of significant places;*
- *maintain and enhance views from public places;*
- *protect the landscape and heritage values of the Mundaring Weir; and*
- *restrict construction of dams and prominent earthworks.*

2.2.2.8 SPP 3 Urban Growth and Settlement

This policy applies throughout the state and should be taken into account in preparing local planning strategies and town planning schemes. It contains a range of policy measures addressing different urban growth and settlement issues. Those relevant to the Shire of Mundaring are outlined below:

Creating sustainable communities

The policy supports the creation of sustainable communities and sets out the following key requirements for such communities:

- a strong, diversified and sustainable economic base with assured access to jobs and employment;
- sufficient and suitable serviced land in the right locations for housing, employment, commercial, recreational and other purposes, coordinated with efficient and economic provision of transport, essential infrastructure and human services;
- variety and choice in size, type and affordability of housing, responsive to community diversity and demand;
- affordable land for housing and affordable housing products in greenfield and brownfield locations;
- making most efficient use of land in existing urban areas through use of vacant/underutilised land/buildings and higher densities where appropriate, cost-effective use of land, buildings, services, neighbourhoods and infrastructure, and promoting and encouraging energy-efficiency in urban development;
- directing urban expansion into designated growth areas well serviced by employment and public transport;
- supporting higher residential densities in the most accessible locations and adjacent to high amenity areas;
- clustering retail, employment, recreational and other activities which attract large numbers of people in existing and proposed activity centres at major public transport nodes;
- locating new development (employment, health, education, shops, leisure and community facilities) so as to be accessible by foot, bicycle or public transport rather than requiring access by car;

- good urban design to create/enhance community identity, sense of place, liveability and social interaction in new and existing neighbourhoods;
- designing the urban environment to reduce opportunities for, and fear of, crime;
- considering the environment by protecting, restoring and enhancing biodiversity and minimising development impacts on land, water, energy, minerals, basic raw materials, agriculture and other natural resources;
- a planning framework which seeks to actively facilitate and promote good quality development to contribute to economic growth and improve quality of life; and
- focus on partnerships between state and local governments, service providers, industry groups, businesses and the community in planning and design of cities, towns and settlements.

Managing urban growth in metropolitan Perth

The policy indicates that future metropolitan growth will be planned and managed in accordance with the Network city strategy (refer to section 2.2.3.1 of the Local Planning Strategy).

Planning for liveable neighbourhoods

The policy indicates that principles of the WAPC's *Liveable Neighbourhoods* apply to preparation and review of structure plans for new growth areas and the redevelopment of existing areas. These principles include:

- an urban structure of walkable neighbourhoods clustered to form towns of compatibly mixed uses to reduce car dependence;
- interconnected street network to facilitate safe, efficient and pleasant walking, cycling and driving;
- active street frontages with buildings facing streets;
- new developments supporting the efficiency of public transport systems;
- mixed use urban development;
- a variety of lot sizes and housing types;
- subdivision and housing types which can adapt to changing needs and gradual intensification;
- protection and incorporation of significant cultural and environmental features in the design of an area; and
- cost-effective and resource-efficient development to promote affordable housing.

Coordination of services and infrastructure

The policy indicates that planning for new growth and settlements should be co-ordinated with cost-efficient provision of infrastructure and services (eg. public transport, water, sewerage, electricity, gas, community and recreation facilities). Local strategies should identify land required for future transport routes, infrastructure, community services and facilities, with transport and other infrastructure with off-site impacts separated from residential and other sensitive uses. The need for early consultation with infrastructure providers is highlighted.

The policy stipulates that the Commission's land release plans should be used to guide the programming of new development on metropolitan greenfield and major infill sites. Developer contributions for infrastructure should be made in accordance with Commission policy and in areas of fragmented land ownership, consideration should be given to cost-sharing among owners to ensure equitable funding of infrastructure. Greenfield developments that leapfrog the existing urban front should prefund extensions to infrastructure.

Managing rural residential growth

The policy indicates that State Planning Policy No. 2.5 (see 2.2.2.3 above) applies to the zoning of land for rural residential use. Rural residential development should:

- avoid productive agricultural land, important natural resources, areas of high bush fire risk or environmental sensitivity;
- avoid future or suitable future urban areas;
- preferably be located near existing settlements with available services and facilities;
- minimise potential for conflict with incompatible activities associated with productive rural use or natural resource management;
- only include suitable locations (eg. land topographically varied, visually attractive or otherwise having potential for lifestyle pursuits); and
- be allocated based on forecast estimates of demand, not on speculative land development.

2.2.2.9 SPP 3.1 Residential Design Codes

The Residential Design Codes of Western Australia provide a basis for the control of residential development throughout the state. The Residential Design Codes were first gazetted in 2002 and replaced the earlier Residential Planning Codes. At the time of writing, the current version of the Residential Design Codes was published in August 2013 and supersedes earlier versions from 2002, April 2008 and November 2010.

The Residential Design Codes (R-Codes) address the following general design elements:

- context
- streetscape
- site planning and design
- building design
- special purpose buildings (in areas coded less than R30)

Objectives are specified for each general design element. The general design elements are then broken down into several specific design elements:

- site area
- street setback
- lot boundary setback
- open space
- communal open space
- building height
- setback of garages and carports
- garage width
- street surveillance
- street walls and fences
- sight lines
- appearance of retained dwelling
- outdoor living areas
- landscaping
- parking
- design of car spaces
- vehicular access
- pedestrian access
- site works
- retaining walls
- stormwater management
- visual privacy
- solar access for adjoining sites
- outbuildings

- external fixtures
- utilities and facilities
- ancillary dwellings
- aged or dependent persons' dwellings
- single bedroom dwellings
- building appearance
- dwelling size

For each of these specific design elements, the R-Codes specify both design principles and deemed-to-comply requirements. A proposed development that does not satisfy the deemed-to-comply requirements is assessed against the objectives and the design principles relative to the matters that are not deemed-to-comply.

The R-Codes allow for a local government to adopt local planning policies addressing certain matters where it wishes to vary requirements of the R-Codes to reflect local differences in character.

It should be noted that the Model Scheme Text also allows for provisions in local government town planning schemes to vary requirements of the R-Codes.

2.2.2.10 SPP 3.4 Natural Hazards and Disasters

This policy deals with a range of natural hazards and disasters: flood, severe storms and cyclones, storm surge, tsunami, bush fires, landslides and earthquakes. It is based on the premise that the most effective strategy for reducing the long-term impact of natural hazards is to integrate hazard mitigation into the land use planning process. The policy is to be taken into account in preparation and assessment of town planning schemes and local planning strategies, as well as in considering structure plans, policies and development and subdivision applications.

The policy's objectives are to:

- include planning for natural disasters as a fundamental element in the preparation of all statutory and non-statutory planning documents (specifically town planning schemes, amendments and local planning strategies); and
- through use of these planning instruments, to minimise the adverse impacts of natural disasters on communities, the economy and the environment.

Town planning schemes, local planning strategies and other planning documents and decisions should have regard to the following natural elements and factors that may create or influence hazards:

- climate
- geology
- soils
- vegetation cover
- slopes
- landforms
- hydrology
- the built environment
- community awareness
- history of hazards in the region; and
- potential for long term changes to risk (eg. climate change, land use change).

Flood

Proposed development on a floodplain is considered acceptable with regard to major flooding as long as it does not produce an adverse impact on surrounding development and it has an adequate level of flood protection. Land uses in flood prone areas should exclude development that would obstruct floodways.

Floodplain mapping should be based on the 1 in 100 year flood, with land use and development controls applying to the floodplain for such an event. All habitable, commercial and industrial buildings should have floor levels above the level of such a flood.

Severe storms and cyclones

The policy confirms the requirements in the Building Code of Australia regarding structures being required to be able to withstand cyclonic winds and rain.

Bush fires

The policy incorporates by reference the provisions and requirements of *Planning for Bushfire Protection (WAPC and Fire and Emergency Services Authority, 2001)* and the WAPC's Development Control Policy No. 3.7 (Fire Planning) – both since rescinded and replaced by the *Planning for Bush Fire Protection Guidelines (2010)* (see section 2.8 below).

Landslides and other land movements

The policy indicates that steep slopes of around 15% or greater may be at risk of landslide, depending on the nature of the land, and that if development is proposed in these areas, additional geotechnical investigations may be required or specific measures taken in the construction of buildings.

Earthquakes

The policy indicates that the best available existing information on earthquakes should be used, and requirements of the Building Code of Australia for developments in earthquake prone areas should be followed as necessary.

2.2.2.11 SPP 3.5 Historic Heritage Conservation

This policy, gazetted in May 2007, sets out principles of planning for conservation and protection of the state's historic heritage. The policy does not apply to Aboriginal heritage (except where Aboriginal heritage places or areas are entered in the State Register, a local Heritage List or are located within a designated area) or to natural heritage (except where natural heritage forms part of a place of historic cultural heritage significance), as these are protected by other legislation.

The objectives of the policy are to:

- conserve places and areas of historic heritage significance;
- ensure that development does not adversely affect the significance of heritage places and areas;
- ensure that heritage significance at both the state and local levels is given due weight in planning decision-making; and
- provide improved certainty to landowners and the community about the planning processes for heritage identification, conservation and protection.

The policy explains that municipal inventories do not have statutory force and effect in terms of planning controls but inclusion of places in a Heritage List, under a Scheme with Model Scheme Text provisions, provides that statutory force. A Heritage List may include all or some of the places on a municipal inventory.

The policy explains the designation of heritage areas under local government Schemes, including the requirement for a local planning policy setting out the objectives and guidelines for conserving the significant heritage fabric of that area. The policy also sets out matters local governments should have regard to when considering planning applications relating heritage places or areas.

Development control principles

The Policy sets out eleven development control principles which should be applied in considering planning applications relating to a place or area on the State Heritage Register, a heritage List or a heritage area designated under a local government planning Scheme:

Alterations, extensions or change of use affecting a heritage place

- Development should conserve and protect the cultural significance of a heritage place based on respect for the existing building or structure, and should involve the least possible change to the significant fabric.
- Alterations and additions to a heritage place should not detract from its significance and should be compatible with the siting, scale, architectural style and form, materials and external finishes of the place. Compatibility requires additions or alterations to sit well with the original fabric rather than simply copying or mimicking it.
- In some cases, the conservation and protection of a heritage place may require a change of use to ensure a reasonable beneficial use or return. Sympathetic adaptation and change of use should be supported in such cases.
- Development should be in accordance with any local planning policies relating to heritage.

Demolition of a heritage place (including a place within a heritage area)

- Demolition of a State heritage place is rarely appropriate and should require the strongest justification. Demolition of a local heritage place should be avoided wherever possible, although there will be circumstances where demolition is justified. The onus rests with the applicant to provide a clear justification for it.
- Demolition approval should not be expected simply because redevelopment is a more attractive proposition, or because a building has been neglected. Consideration of a demolition proposal should be based upon the significance of the building or place; the feasibility of restoring or adapting it, or incorporating it into new development; the extent to which the community would benefit from the proposed redevelopment; and any local planning policies relating to the demolition of heritage places.

Development within a heritage area

- Development within a heritage area should respect and complement the heritage significance of the area as identified in the local planning policy. A respectful design approach gives special consideration to the siting, scale, architectural style and form, materials and finishes of the proposed development in relation to its neighbours, without copying historic detailing or decoration.
- Alterations and additions to existing buildings should be designed and sited in a manner that respects and complements the heritage significance of the area.
- A general presumption should apply in favour of retaining buildings that make a positive contribution to the significance of the area.
- Approval for demolition, if granted, may be accompanied by a requirement for an acceptable redevelopment proposal to avoid gap sites. If redevelopment is likely to be delayed, consideration should be given to the interim use of the land including a requirement for sympathetic treatment such as facade retention, landscaping or boundary treatment.
- Any new buildings erected in heritage areas should be designed and sited in a way that respects and complements the heritage significance of the area. New construction that is imaginative, well designed and harmonious should not be discouraged.

2.2.2.12 SPP 3.6 Development Contributions for Infrastructure

This policy, gazetted in November 2009, sets out the principles and considerations that apply to development contributions for the provision of infrastructure in new and established areas.

Background

The planning and coordination of infrastructure is fundamental to the economic and social wellbeing of the community. New urban development and redevelopment needs to ensure cost-effective provision of infrastructure and facilities such as roads, public transport, water supply, sewerage, electricity, gas, telecommunications, drainage, open space, schools, health, community and recreational facilities.

Public infrastructure is funded through a range of sources, including federal assistance grants, state government taxes, local government rates, user/access fees and development contributions. In Western Australia, land developers are responsible for the provision of most service utilities, either in their direct provision or through contributions to their provision. The requirements for development contributions are imposed by way of conditions on subdivision, strata subdivision or development or, in areas of fragmented ownership where cost sharing arrangements are necessary, by development schemes or development contributions made under local government schemes.

Due to economic growth and increasing expectations from the community for new and upgraded infrastructure, local governments face increasing pressures on the services they provide. However, local governments are financially constrained from directly providing infrastructure and facilities. As a result, local governments apply development contribution conditions to development.

Local governments have indicated that they need more guidance on the scope and framework for seeking development contributions. The development industry has also pointed to the need for greater consistency and transparency in charging developers because of the potential impacts on housing affordability and to avoid inequities arising from new residents subsidising existing residents.

The policy sets out the standard development contributions for infrastructure applied by the WAPC on the subdivision, strata subdivision, or development of land. It also provides a consistent, accountable and transparent system for local governments to plan and charge for development contributions over and above the standard provisions through the preparation of development contribution plans.

Objectives

The objectives of the policy are to:

- promote the efficient and effective provision of public infrastructure and facilities to meet the demands arising from new growth and development;
- ensure that development contributions are necessary to the development to be permitted and charged equitably among those benefiting from the infrastructure and facilities to be provided;
- ensure consistency and transparency in the system for apportioning, collecting and spending development contributions; and
- ensure the social wellbeing of communities arising from or affected by development.

Scope of development contributions

Standard development contribution requirements are set out in Appendix 1 of the policy and relate to:

- land contributions (public open space, foreshore reserves, primary school sites and land for roads and road widening in some circumstances);
- infrastructure works (roads, water, sewerage, drainage works, electricity supply infrastructure and other public utilities – both on-site works and, as required, off-site works and upgrading); and
- monetary contributions.

The policy specifies that local governments can, in addition to the standard development contributions, seek contributions for the capital costs (ie. not ongoing operation or maintenance costs) of community infrastructure. Community infrastructure is defined as “the structure and facilities which help communities and neighbourhoods to function effectively, including:

- sporting and recreational facilities;
- community centres;
- child care and after school centres;
- libraries and cultural facilities; and
- such other services and facilities for which development contributions may reasonably be requested, having regard to the objectives, scope and provisions of this policy”.

Development contributions can be sought for:

- a new item of infrastructure;
- land for infrastructure;
- an upgrade in the standard provision of an existing item of infrastructure;
- an extension to existing infrastructure;
- the total replacement of infrastructure once it has reached the end of its economic life; and
- other costs reasonably associated with the preparation, implementation and administration of a development contribution plan.

Principles underlying development contributions

The policy sets out the eight following principles, which development contributions must be levied in accordance with:

1. Need and Nexus: the need for the infrastructure included in the development contribution plan must be clearly demonstrated and the connection between the development and the demand created should be clearly established.
2. Transparency: the method for calculating the development contribution and its application should be clear, transparent and simple to understand and administer.
3. Equity: development contributions should be levied from all developments within a development contribution area, based on their relative contribution to need.
4. Certainty: all development contributions should be clearly identified and methods of accounting for escalation agreed upon at commencement of a development.
5. Efficiency: development contributions should be justified on a whole of life capital cost basis consistent with maintaining financial discipline on service providers by precluding over recovery of costs.
6. Consistency: development contributions should be applied uniformly across a Development Contribution Area and the methodology for applying contributions should be consistent.
7. Right of Consultation and Arbitration: Landowners and developers have the right to be consulted on the determination of development contributions; they also have the opportunity to seek review by an independent third party if they believe the calculation of contributions is not reasonable.
8. Accountable: There must be accountability in the manner in which development contributions are determined and expended.

Imposition of Development Contributions

Where local governments are seeking development contributions beyond the standard development contribution requirements set out in Appendix 1 of the policy, they must be accompanied by a development contribution plan (the need for such a plan may not arise where there is a single development and the need for the development contribution is created by that one development). The development contribution plan is to identify the need for such infrastructure for the development contribution area or by a voluntary agreement between a developer and the relevant local government.

The three stages of the imposition of development contributions are:

- development contributions are formulated and agreed;

- development contributions are calculated and applied; and
- development contributions become due and payable.

Characteristics of a development contribution plan

Development contribution plans require that:

- there is a clear and sound basis with linkages to the local government's strategic and financial planning process;
- there is justification for the infrastructure identified in the plan;
- the costs of infrastructure are appropriate;
- there is commitment to providing the infrastructure in a reasonable period;
- the development contribution area to which the plan applies is appropriate;
- cost-sharing arrangement between owners in the development contribution area are fair and reasonable; and
- there is consultation with the owners affected by the plan.

A development contribution plan does not have effect until it is incorporated into a local planning Scheme.

Process for determining development contributions for community infrastructure

Local government requirements for development contributions for community infrastructure should be calculated on the basis of:

- the need for that infrastructure based on an analysis of the demand;
- the nexus, where the relationship between the need for infrastructure and the new development is clearly established;
- catchment areas that the infrastructure would service, identifying existing demand and new demand that is associated with the development; and
- the cost of providing the infrastructure, which should be based on the latest or best estimates available to the local government, and should include provision for regular adjustments to account for cost escalation over time.

Where a local government is seeking contributions for community infrastructure, these need to be supported by:

- a community infrastructure plan for the area, identifying the services and facilities required over the next 5 to 10 years (supported by demand analysis and identification of service catchments);
- a capital expenditure plan, identifying the capital costs of facilities and revenue sources and programs for provision;

- projected growth figures, including number of new dwellings to be created at catchment level (suburb or district); and
- a methodology for determining the proportion of costs of community infrastructure to be attributed to growth and the proportion to be attributed to existing areas.

An appendix the policy outlines the process for determining development contributions for community infrastructure.

Conditions requiring contributions

Conditions relating to development contribution requirements can be satisfied by:

- the ceding of land for roads, public open space, primary school sites, drainage and other reserves;
- construction of infrastructure works which are transferred to public authorities on completion;
- monetary contributions to acquire land or undertake works by or on behalf of public authorities; or
- a combination of the above.

Local governments are not to impose development contributions beyond the scope of WAPC policy as conditions or prerequisites for rezoning. The rezoning process is not to be used to impose unreasonable demands on land development outside the scope of WAPC policy. Development contributions are to be formulated through an open or transparent process. This may be through development contribution plans, or by voluntary agreements.

Application of credits in development contribution plans

A development contribution plan may identify infrastructure that:

- needs to be actioned with the first development in a development contribution area, such as a major road extension/connection; or
- is predominantly located on the developer's land, such as construction of a recreation facility to serve the larger development contribution area.

The local government may mandate that this work is undertaken, creating an in-kind contribution above that identified in the development contribution plan for that area. In this instance developer and the local government must negotiate a fair and reasonable outcome in relation to this credit.

2.2.2.13 SPP 4.1 State Industrial Buffer Policy (Amended) (draft)

In 1997, the State Industrial Buffer Policy was gazetted. In July 2009, a draft amended State Industrial Policy was released by the Commission. The draft policy clearly indicates that it replaces the earlier policy. Although only a draft policy at the time of writing, it has been included in this section as it replaces a former policy which was listed in the State Planning Framework.

The draft policy applies to planning decision-making, and proposals which seek to provide for:

- new industrial areas and uses, and essential infrastructure;
- sensitive land uses in proximity to existing industrial areas and essential infrastructure; and
- the expansion or change in the operations of an existing industry and essential infrastructure.

The draft policy's objectives are to:

- avoid conflict between industry and/or essential infrastructure and sensitive land uses;
- protect industry and/or essential infrastructure from encroachment by those land uses that would be sensitive to impacts and adversely impact the efficient operations;
- provide for the development of industry and/or essential infrastructure in a way that maximises amenity, minimises environmental and health impacts and takes account of risk to nearby sensitive land uses; and
- promotes compatible uses in areas affected by off-site impacts of industry and/or essential infrastructure.

The draft policy sets out a range of policy measures relating to land use conflict, the definition of buffer areas, and technical analysis. These include:

- new industries will be required to demonstrate if and how they intend to contain emissions on-site and should be located to provide and maintain an appropriate buffer between the proposed industrial uses and sensitive land uses;
- where existing industries cannot acquire appropriate buffer areas to mitigate off-site impacts they should be encouraged to relocate to another site which can facilitate growth of the industry while not compromising the amenity of existing or future land uses;

- siting of sensitive land uses within a buffer area should generally be avoided, and any proposed sensitive land uses within buffer areas should be thoroughly investigated to avoid future health or amenity conflict or future constraint on the industries protected by the buffer;
- proposals that satisfy recommended buffer distances in the EPA's *Guidance for the Assessment of Environmental Factors No. 3: Separation distances between industrial and sensitive land uses* (June 2005) are deemed to comply with the objectives of the policy;
- new scheme controls should be consistent with the EPA Guidance Statement No. 3;
- detailed technical analysis (the requirements and applicable criteria for which are set out in the policy) is required if a proponent seeks to reduce a buffer from those specified in the EPA Guidance Statement No. 3, and may also be required for industries or operations that pose potential risk to amenity or health and that are not addressed in the EPA Guidance Statement No. 3.

The draft policy goes on to address implementation mechanisms. It specifies that local planning strategies and structure plans need to identify buffer areas around major existing or proposed industrial areas and infrastructure, including any uses that have the potential for unacceptable off-site amenity and health impact or risk. It also indicates that local planning strategies must identify the location and land requirements of key infrastructure and utilities necessary to service proposed and existing development.

The draft policy specifically requires that consideration shall be given to the following when preparing local planning strategies, local government town planning schemes and scheme amendments:

- i) managing and minimising the potential for land use conflict between industry and/or essential infrastructure and sensitive land uses;
- ii) timely and accurate identification of industry and essential infrastructure which require buffers;
- iii) ensuring that proposals which in the opinion of the Commission:
 - restrict the operation of important activities in industrial zones;
 - restrict substantial and deleterious off-site impact on the amenity, health, safety and security of the industrial area;
 - inhibit the location of industries and activities with less off-site impact and risk towards the periphery of the industrial zone; or
 - limit the ability of the protected industry or infrastructure to achieve the ultimate planned capacity and operating efficiency, should not be supported; and

- iv) incorporating proposals which:
- include planning provisions to minimise the effect on the amenity of, and risk to, adjoining sensitive land uses, such as recommended buffer areas or separation distances and physical measures (eg. acoustic barriers to reduce noise emissions or landscaping to reduce light spill);
 - consider future changes in the off-site impact of existing industry and/or essential infrastructure, and review zonings and permissible uses adjoining industrial zones or existing industry to ensure the land is developed in a compatible manner; and
 - provide mechanisms to ensure advice is provided to future landowners and residents informing them of the potential for off-site impact on amenity from nearby industrial uses or essential infrastructure (eg. notification through memorials on property titles or signage).

The draft policy indicates that local government town planning schemes are the preferred basis for identifying and managing buffers and it sets out matters to which regard should be given in considering planning proposals in a buffer area.

An annexure to the draft policy addresses the specific issue of wastewater infrastructure and, to the extent of any inconsistency with the remainder of the draft policy, prevails. That annexure indicates that the provider of wastewater infrastructure shall endeavour to contain all emissions on-site, but that where the EPA agrees that emissions cannot feasibly be contained on-site, the provider and/or operator of the infrastructure shall provide either a generic (in accordance with EPA Guidance Statement No. 3) or scientifically prepared buffer to the infrastructure. The annexure indicates that certain odour sensitive land uses should not be located, or (where already existing) expanded or intensified in a buffer to a wastewater treatment plant. The annexure then sets out matters to which due regard shall be given in considering land use and development proposals in the odour buffer of wastewater treatment plants or wastewater pump stations. It indicates that in existing residential zones within the wastewater infrastructure buffer, there will be a general presumption against rezoning to higher residential densities or permitting subdivision for intensification of development.

2.2.2.14 SPP 4.2 Activity Centres for Perth and Peel

In October 2000, the Metropolitan Centres Policy Statement for the Perth Metropolitan Region (which became SPP 4.2) was gazetted. A new SPP 4.2, Activity Centres for Perth and Peel, was released in August 2010, aligned with *Directions 2031 and Beyond* (see section 2.2.3.6 below). The new SPP was finalised after considering submissions on a draft document released in June 2009.

A hierarchy and network of activity centres are identified in *Directions 2031 and Beyond*. The SPP indicates that its main purpose is to specify broad planning requirements for the planning and development of new activity centres, and the redevelopment and renewal of existing activity centres, in urban areas of Perth and Peel.

The objectives of the policy are to:

- distribute activity centres to meet different levels of community need and enable employment, goods and services to be accessed efficiently and equitably by the community;
- apply the activity centre hierarchy as part of a long-term and integrated approach by public authorities and private stakeholders to the development of economic and social infrastructure;
- plan activity centres to support a wide range of retail and commercial premises and promote a competitive retail and commercial market;
- increase the range of employment in activity centres and contribute to the achievement of sub-regional employment self-sufficiency targets;
- increase the density and diversity of housing in and around activity centres to improve land efficiency, housing variety and support centre facilities;
- ensure activity centres provide sufficient development intensity and land use mix to support high-frequency public transport;
- maximise access to activity centres by walking, cycling and public transport while reducing private car trips;
- plan activity centre development around a legible street network and quality public spaces; and
- concentrate activities, particularly those that generate high numbers of trips, within activity centres.

The policy indicates that activity centres are community focal points, and that they include activities such as commercial, retail, higher density housing, entertainment, tourism, civic/community, higher education and medical services. Activity centres vary in size and diversity, and are designed to be well serviced by public transport.

The policy relates to only some of the activity centres in the activity centre hierarchy, specifically the following:

- Perth “Capital City”
- Strategic metropolitan centres
- Secondary centres
- Specialised centres
- District centres
- Neighbourhood centres

The policy applies throughout the Perth and Peel region to guide the preparation and review of local planning strategies, schemes and structure plans, and to guide development control.

Policy measures

Within the Shire of Mundaring, the only activity centre specifically identified is Mundaring, as a district centre. Midland, in the adjacent City of Swan, is identified as a strategic metropolitan centre. The policy and *Directions 2031 and Beyond* do not identify specific neighbourhood or local centres.

The policy indicates that district centres have a greater focus on servicing the daily and weekly needs of their residents, and that their relatively smaller scale catchment enables them to have a greater local community focus and provide services, facilities and job opportunities that reflect the particular needs of their catchments.

The policy includes provisions encouraging the maximisation of intensity and diversity of activity within activity centres. The policy indicates that higher density housing should be incorporated within and immediately adjacent to activity centres to establish a sense of community and to increase activity outside normal business hours. The policy specifies appropriate residential densities within walkable catchments of different categories of activity centres. For district centres, the policy indicates that there should be a minimum residential density of 20 dwellings per gross ha, and desirably 30 dwellings per gross ha, within a 400 metre walkable catchment of the district centre.

The policy contains provisions encouraging the location of appropriate employment within activity centres. It indicates that local planning strategies and district structure plans should define employment locations and job targets for activity centres, consistent with sub-regional targets. It notes that office development within a district centre should complement the function of the particular centre.

Policy provisions emphasise prioritising public transport and other modes of transport ahead of private car transport to/from and within activity centres. Activity centres should be planned in line with transit-oriented development principles to make it convenient and practicable for residents, employees and visitors to travel by public transport instead of by private car. The policy also includes detailed measures on traffic and parking within activity centres, urban form and resource conservation.

The policy also addresses land uses located outside of activity centres. It specifies that bulky goods retailing should generally be located outside of, but in close proximity to, activity centres. It specifies that shops and offices should not be located in industrial zones unless clearly ancillary to the uses in those zones.

With respect to implementation, the policy provides more detailed guidance for local planning strategies and local planning schemes. However, it should be noted that this Local Planning Strategy and the Shire's accompanying town planning scheme (Local Planning Scheme No. 4) were prepared and adopted by the Shire prior to the release of this new SPP 4.2.

An Appendix to the policy provides more detailed guidance for activity centres in the form of a Model Centre Framework.

2.2.2.15 SPP 4.3 Poultry Farms Policy

This Policy applies throughout the state and addresses issues to be taken into account when determining proposals for new or expanded poultry farms, or considering residential or rural residential rezoning, subdivision or development proposals near existing poultry farms.

The Policy indicates that new poultry farms should:

- avoid existing or proposed residential or rural residential areas (including those identified in schemes and planning strategies);
- avoid Priority 1 surface and groundwater catchment areas;
- be at least 100 metres from the boundary of the subject lot;
- be at least 300 metres from any existing or future rural residential zone;
- be at least 500 metres from any existing or future residential zone;
- as a condition of approval, have a sign indicating the type and hours of operation and the possibility of undesirable environmental impacts; and
- if in a prominent location, be screened by landscaping from view from public places.

Existing poultry farms may be permitted to expand subject to:

- being located in a rural zone that is not identified for short or medium-term residential or rural residential development;
- new sheds being at least 100 metres from the boundary of the subject lot or, where an existing shed is closer than 100 metres, no closer than that existing shed; and
- as a condition of approval, have a sign indicating the type and hours of operation and the possibility of undesirable environmental impacts.

The Policy also sets out the information required to accompany rezoning, subdivision or development applications in the vicinity of poultry farms or for new or expanded poultry farms.

With respect to proposals for residential or rural residential development in the vicinity of poultry farms, the Policy indicates that where that proposal (rezoning, subdivision or development) is within 500 metres (for residential) or 300 metres (for rural residential) of an existing or approved poultry farm, the WAPC and/or local government may require the proponent to provide an assessment showing that the operation of the poultry farm will not adversely affect the amenity of the new residents in the proposed residential or rural residential area. Such assessment would include consideration of:

- the type of poultry farm and odours, dust, noise and other impacts associated with the activities on the site;
- odour impacts, having regard to prevailing topographical and meteorological conditions (with reference to odour dispersal modelling unless exempted);
- experiences of nearby residents based on evidence of complaints or lack thereof;
- access arrangements, particularly the access point, frequency and time of truck movements;
- measures to address any adverse impacts such as buffer zones which can be used for compatible purposes, fencing and landscape screening, orientation of housing and staging of subdivision and development.

The WAPC may require prospective purchasers of newly created lots near an existing poultry farm to be advised of its existence; this may be in the form of a notification on title. Local governments are encouraged to provide advice about the location of existing poultry farms.

The Policy encourages rezoning of poultry farm sites in the vicinity of future residential or rural residential development to provide an incentive to relocate the farm (though subdivision and development of the land is likely to be permitted only after the relocation takes place). Planning strategies should identify existing poultry farms and avoid incompatible uses in their vicinity. Subdivision controls should ensure that poultry farm sites are of sufficient size to maintain the specified buffer zones. Poultry farms should only be a discretionary use within a rural zone, rather than a permitted (or “as of right”) use. Poultry farms should be prohibited in other zones.

The Policy suggests that land use classification distinguish between the various types of poultry farms (eg. breeder/boiler farms or egg farms) to introduce control over changes from one kind of poultry operation to another.

In accordance with the WAPC’s resolution under clause 32 of the Metropolitan Region Scheme, the Policy indicates that all applications for poultry farms or extensions/additions in excess of 100 m² in the Urban, Urban Deferred and Rural zones should be referred to the WAPC for determination.

2.2.2.16 SPP 5.1 Land Use Planning in the Vicinity of Perth Airport

This Policy applies to land in the vicinity of Perth Airport which is, or may in the future be, affected by aircraft noise. This includes land in the Shire of Mundaring. The Policy’s objectives are to protect Perth Airport from unreasonable encroachment by incompatible noise-sensitive development and to minimise the noise impact of airport operations on existing and future communities.

The Policy incorporates mapping of Aircraft Noise Exposure Forecast (ANEF) prepared by Westralia Airports Corporation for a future level of airport operations of 350,000 movements per year (this mapping is shown at Figure 3).

It should be noted that a Perth Airport Preliminary Draft Master Plan 2009 incorporates revised ANEF contours based on certain new assumptions; the changes to ANEF contours affecting the Shire of Mundaring are relatively minor. However, until incorporated into this State Planning Policy, the revised contours do not have effect in planning considerations.

The mapping delineates ANEF contours at 5 ANEF intervals from 5 ANEF to 40 ANEF. The Policy distinguishes between three levels of noise exposure:

- less than 20 ANEF
- 20 to 25 ANEF
- above 25 ANEF

For properties below 1000 m² traversed by an ANEF contour, the ANEF level applying to the majority of the property will be assumed to apply to the whole of the property. For lots above 1000 m², the two ANEF levels will be considered separately for the relevant portions of the property.

Areas with less than 20 ANEF

The Policy sets no restriction on zoning and development within this noise exposure zone, but acknowledges that there may still be some noise nuisance experienced in areas below 20 ANEF.

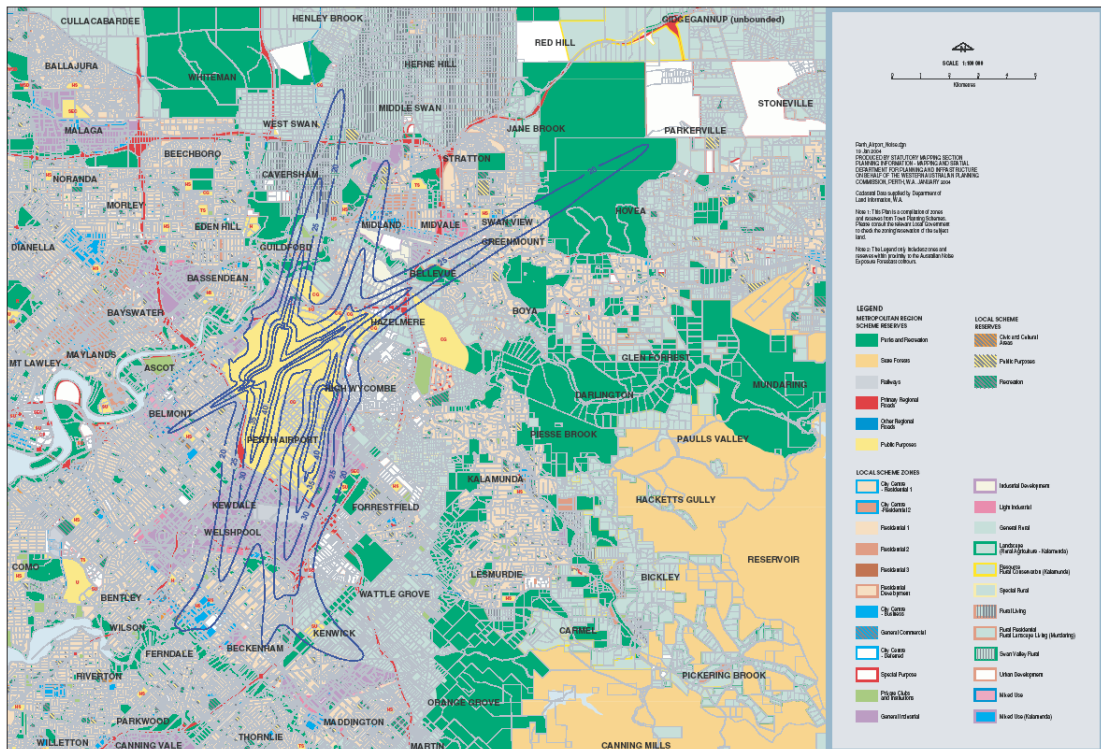


Figure 3: Aircraft Noise Exposure Forecast (ANEF) contours, State Planning Policy 5.1

Areas from 20 to 25 ANEF

Certain building types are acceptable, while others are conditionally acceptable within these contours. These are as follows:

Acceptable	Conditionally acceptable
Hotel, motel, hostel	Residential (house, home unit, flat)
Commercial	Caravan park
Light industrial	School, university
Other industrial	Hospital, nursing home
	Child care premises
	Place of worship
	Cinema/theatre, exhibition centre
	Public building

The Policy indicates that development involving conditionally acceptable building types should be subject to discretionary control under local government town planning schemes.

The maximum residential density applying to residential zoned land should be R20, except where:

- there is a strategic need for more consolidated development;
- a higher density coding is desirable to facilitate redevelopment or infill of an existing residential area;
- there is some other public interest reason which justifies the need for higher density coding.

For development subject of discretionary control under a town planning scheme, the impact of aircraft noise should be taken into consideration in determining applications and, where relevant, in conditions of approval.

Noise insulation is not mandatory for residential development, but some areas may experience peak aircraft noise in excess of the Indoor Design Sound Levels specified in Australian Standard 2021, and noise insulation is recommended in such cases. Noise insulation requirements for other conditionally acceptable uses should be determined based on a range of factors set out in the Policy.

Notification on title of the potential for noise nuisance is to be required as a condition of development or subdivision approval, except for acceptable building types. Advice should be provided in association with development and building licence applications regarding noise nuisance, required or recommended noise insulation and the benefits of window closure and the associated need for forced ventilation.

Areas above 25 ANEF

Certain building types are acceptable, others are conditionally acceptable and some are unacceptable. These are as follows:

Acceptable	Conditionally acceptable	Unacceptable
Light industrial *	Hotel, motel, hostel *	Residential (house, home unit, flat)
Other industrial	Public building (incl restaurants, medical centres, places of worship) *	Caravan park
	Commercial (incl offices and shops)	School, university
	Child care premises	Hospital, nursing home
	Light industrial **	Hotel, motel, hostel**
		Public building **

* 25 to 30 ANEF only

** above 30 ANEF only

The Policy indicates a presumption against zoning which may permit unacceptable building types, particularly residential zoning, but notes that where land is already so zoned and in the opinion of the local government it is not practicable to allocate the land for alternative uses, the existing zoning may remain. Under no circumstances should rural or other non-residential zoned land be zoned to allow residential development or other unacceptable building types. Development involving conditionally acceptable or unacceptable building types should be subject to discretionary control under local government town planning schemes.

Where alternative (non-residential) zoning of existing Residential zoned land is not practicable, density of residential development should be kept to a minimum. Possible exceptions are where:

- a higher density is necessary to facilitate redevelopment or infill development of an existing residential area;
- there is a strategic need for more consolidated development;
- there is some other public interest reason which justifies the need for higher density coding; and
- a higher density would facilitate the concurrent provision of noise insulation in accordance with Australian Standard 2021.

In areas subject to noise exposure levels above ANEF 30, the permissible density of residential development should generally not be increased.

For all building types classified as unacceptable, noise insulation is required as a condition of planning approval (particularly for all new residential development, educational establishments, hospitals and nursing homes). Noise insulation requirements for conditionally acceptable uses should be determined based on a range of factors set out in the Policy.

Heritage listed buildings and pre-existing housing within a designated heritage area may be exempted from the requirements for noise insulation, as provided for under an operative town planning scheme. Minor additions to existing residential development (involving no more than two habitable rooms and no more than 25% increase in habitable floorspace) should also be exempted from the requirement for noise insulation. More substantial additions should be subject to noise insulation requirements, applying to the additional areas, with noise insulation of the remainder of the dwelling desirable but not mandatory.

Notification on title of the potential for noise nuisance is to be required as a condition of development or subdivision approval, except for acceptable building types. Advice should be provided in association with development and building licence applications regarding noise nuisance, required or recommended noise insulation and the benefits of window closure and the associated need for forced ventilation.

Implementation

The Policy recommends that for land affected by noise exposure levels above 20 ANEF, town planning schemes should prohibit noise sensitive uses classified as unacceptable building types for relevant ANEF levels. The Policy recommends the inclusion of Special Control Areas in town planning schemes to control development above 20 ANEF, with Special Control Area provisions including:

- all noise-sensitive development to require planning approval, particularly single houses in noise-affected areas;
- the ability to refuse applications that are inconsistent with this Policy;
- the ability to impose conditions addressing the requirements of this Policy regarding noise reduction in buildings; and
- the ability to impose registration of notices on title where land is affected by aircraft noise above 20 ANEF.

The WAPC is to have regard to the Policy in determining subdivision and strata subdivision applications, while local government should also have regard to the Policy in making its recommendations on such applications. Certain development applications should be forwarded by local government to Westralia Airports Corporation for comment and advice. These are:

- Scheme Amendments increasing residential density above R20 in areas from 20 to 25 ANEF;
- Scheme Amendments proposing any increase in residential density in areas above 25 ANEF;
- development identified in the Policy as unacceptable building types, except for residential development complying with the current applicable R Coding;
- development involving penetration of Prescribed Airspace or other activities prescribed in the *Airports (Protection of Airspace) Regulations*;
- non-structural activities (artificial light, emission of smoke, dust, other particulate matter, steam or other gas) subject to approval under the *Airports (Protection of Airspace) Regulations*; and
- use or development in the vicinity of the airport which is likely to attract significant gathering of birds.

2.2.2.17 SPP 5.2 Telecommunications Infrastructure

Since the passing of the *Telecommunications Act 1997*, telecommunications facilities have been required to comply with state and local government planning and environmental approval procedures, unless those facilities are specifically exempted by the legislation. This Policy applies to zoning, subdivision and development of land throughout the state in respect of telecommunications facilities that are not exempted by the legislation. While acknowledging the importance of telecommunications infrastructure, the Policy also indicates the importance of planning policies ensuring that telecommunications facilities are designed and installed in a manner that protects the visual character and amenity of local areas.

Exemptions under the act include:

- a low impact-facility described in the *Telecommunications (Low-Impact Facilities) Determination 1997 and Amendment No.1 1999* when installed by a carrier;
- inspection and maintenance;
- a temporary defence facility; and
- a facility authorised by a Facilities Installation Permit issued under the Telecommunications Act.

The Low-Impact Determination uses the zoning of land to ascertain whether a particular facility is determined as low-impact.

The Policy indicates that in the Perth metropolitan region it is State government policy to require all new electricity and telecommunications cables to be placed underground, unless there is no alternative to overhead cabling due to unsuitable ground conditions.

With respect to mobile phone base stations (which comprise a radio receiver, transmitter and antenna), the Policy notes research conducted by the Australian Radiation Protection and Nuclear Safety Agency (ARPNSA) that found environment radiofrequency levels near base stations for the digital mobile phone network are extremely low, with the highest average daily level well below 1% of the Australian Communications Authority's public exposure limits and concluded that *"given the very low levels recorded and the relatively low power of these transmitters, it is unlikely that the radiofrequency radiation from base stations would cause any adverse health effects, based on current medical research."*

The Policy addresses the following in detail:

- guiding principles for the location, siting and design of telecommunications infrastructure;
- matters to be considered when determining planning applications; and
- information required to be provided when submitting a planning application.

The Policy indicates that local governments may include any relevant provision of the Policy in a town planning scheme or planning policy.

Guiding principles for the location, siting and design of telecommunications infrastructure

The guiding principles include:

- a co-ordinated approach to planning and development of telecommunications infrastructure, although changes in the location of and demand for services require a flexible approach;
- facilities should be located and designed to meet the communication needs of the community;

- facilities should be designed and sited to minimise any potential adverse impact on the character and amenity of the local environment, particularly impacts on prominent landscape features, general views in the locality and individual significant views;
- facilities should be designed and sited to minimise adverse impacts on areas of natural conservation value and places of heritage significance or where declared rare flora are located;
- facilities should be designed and sited with specific consideration of water catchment protection requirements and the need to minimise land degradation;
- facilities should be designed and sited to minimise adverse impacts on the visual character and amenity of residential areas;
- unless impractical to do so, telecommunications towers should be located within commercial, business, industrial or rural areas and outside identified conservation areas;
- the design and siting of telecommunications towers and ancillary facilities should be integrated with existing buildings and structures unless impractical to do so, in which case they should be sited and designed so as to minimise any adverse impact on the amenity of the surrounding area;
- co-location of telecommunications facilities should generally be sought, unless this would detract from local amenities or significantly compromise operation of the facilities;
- measures such as surface mounting, concealment, colour co-ordination, camouflage and landscaping to screen at least the base of towers and ancillary structures, and to draw attention away from the tower, should be used, where appropriate, to minimise visual impact of facilities;
- design and operation of facilities should accord with Australian Communications Authority licensing requirements, with physical isolation and control of public access to emission hazard zones and use of minimum power levels consistent with quality services; and
- construction of facilities (including access) should be undertaken so as to minimise adverse effects on the natural environment and the amenity of users or occupiers of adjacent property, and ensure compliance with relevant health and safety standards.

Matters to be considered when determining planning applications

In determining applications for telecommunications infrastructure, local government or the WAPC should consider and have regard to the:

- extent to which the proposal contributes to the social and economic benefits of convenient access to modern telecommunications services;
- need to ensure continuity of supply of telecommunications services to people and businesses in the local area or region;
- effect of the proposal on, and extent to which it protects, the environment and natural landscape;
- effect of the proposal on any place of cultural heritage significance;
- extent to which the proposal enhances or maintains visual amenity (including streetscape) and minimises adverse visual impacts;
- degree to which the proposal is co-ordinated with other services; and
- extent to which it is consistent with the guiding principles (above) and required information (below) in this Policy.

Information required to be provided when submitting a planning application

In addition to requirements for planning applications set out in the relevant town planning scheme, applications for telecommunications infrastructure should also include the following details, as relevant:

- graphic illustrations showing the type of facility and its relationship with adjacent development (eg. computer-generated simulations, photos of similar facilities);
- elevations showing extent, height and appearance of the proposed facility as viewed from any adjacent street, public place and adjacent property;
- proposed materials and colour of the facility, and proposed arrangements for maintenance and/or future modifications in response to changes to any adjacent buildings or structure;
- any proposed screening/fencing, including maintenance arrangements;
- any external lighting of the facility and/or site;
- any existing vegetation to be removed and any proposals for landscaping or restoring disturbed land;
- any significant environmental constraints and, where relevant, commitments stating how these will be managed to prevent an unacceptable impact on the environment; and

- the timing of works involved in establishing the facility and any arrangements for temporary or changed access during construction.

The application should also be accompanied by a written statement or report indicating:

- the maximum power output and radiofrequency electromagnetic energy levels of the facility;
- how the facility relates to the existing and proposed telecommunications network and what (if any) additional facilities are under consideration to meet increased demand;
- the extent to which the facility complies with relevant town planning schemes and planning policies, with justification for any variation from scheme or policy provisions;
- if located in an easement or corridor, how the facility will affect the capacity for future installations in that easement or corridor; and
- how the facility addresses the guiding principles for location, siting and design in this Policy.

2.2.2.18 SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning

Based on an earlier draft policy, this policy was gazetted on 22 September 2009.

The policy's objectives are to:

- protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of proposals;
- protect major transport corridors and freight operations from incompatible urban encroachment;
- encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals;
- facilitate the development and operation of an efficient freight network; and
- facilitate the strategic co-location of freight handling facilities.

Relevant to the Shire of Mundaring, the policy applies to:

- proposed new noise-sensitive development in the vicinity of an existing or future major road, rail or freight handling facility;
- proposed new major road or rail infrastructure projects in the vicinity of existing or future noise-sensitive land uses; and

- proposed major redevelopment of existing major road or rail infrastructure in the vicinity of existing or future noise-sensitive land uses.

The policy does not apply retrospectively to noise from existing roads or railways in the vicinity of existing noise-sensitive land uses.

The policy sets out outside noise criteria applying to the emission of road and rail transport noise as received at a noise-sensitive land use. There is a noise target, and a noise margin 5dB higher. In areas where the noise target will be met, no measures are required under the policy. In areas where the noise target is likely to be exceeded but noise levels are likely to be within the noise margin, mitigation measures should be implemented. However, where the target and margin are likely to be exceeded, a detailed noise assessment should be carried out by the developer.

The policy indicates that noise assessments for new noise-sensitive developments should be carried out as early in the planning process as practicable, typically at the scheme amendment or subdivision stage.

The policy outlines possible noise management and mitigation measures that may be applied, and the circumstances in which it may be appropriate to require notification on Title (generally where target noise levels for new noise-sensitive developments cannot be practicably achieved).

The policy also indicates that noise management measures should be reasonable and practicable: in some instances it may not be reasonable and practicable to meet the noise target criteria. Measures should be determined by considering matters such as noise benefit, cost, feasibility, community preferences, amenity impacts, safety, security and conflict with other planning and transport policies.

2.2.3 Regional Strategies and Structure Plans

2.2.3.1 Network city

Network city: community planning strategy for Perth and Peel was released for public comment in September 2004. The strategy is based on the outcomes of the *Dialogue with the City* process, highlighted by a large public forum in September 2003. State Planning Policy No. 3 Urban Growth and Settlement (March 2006) (see section 2.2.2.8 above) specifies that future Metropolitan growth will be planned and managed in accordance with Network city.

Accordingly, Network city superseded *Metroplan* (1990), the State government's previous metropolitan planning strategy.

Subsequently, *Directions 2031: Draft Spatial Framework for Perth and Peel* (June 2009) was released (see section 2.2.3.6 below). This latter document built on many of the aspirational themes identified in *Network city* but also examined some of *Network city's* underlying assumptions in the context of recent growth trends and the existing structure and form of the city.

In August 2010, a finalised version of the document, *Directions 2031 and Beyond* was released. *Directions 2031* now supersedes *Network city*. However, as *Network city* was the major metropolitan strategy in place during the preparation of the Local Planning Strategy, this section has been included for reference.

Network city had an overriding vision, values and principles, and key objectives and themes. These were as follows:

Vision:

By 2030, Perth people will have created a world-class sustainable city; vibrant, more compact and accessible, with a unique sense of place.

Values:

- sustainability
- inclusiveness
- innovation and creativity
- sense of place
- equity

Principles:

- enhance efficiency of urban land use and infrastructure
- protect and rehabilitate the environment, and improve resource efficiency and energy use
- enhance community vitality and cohesiveness

Key objectives:

1. deliver urban growth management
2. accommodate urban growth primarily within a Network city pattern, incorporating communities
3. align transport systems and land use to optimise accessibility and amenity
4. deliver a safe, reliable and energy-efficient transport system that provides travel choice

5. protect and enhance the natural environment, open spaces and heritage
6. deliver for all a better quality of life, building on our existing strengths
7. plan with the communities
8. ensure employment is created in centres
9. deliver a city with 'urban' energy, creativity and cultural vitality
10. provide a city plan that will be implemented, provide certainty and deliver results

Key themes:

1. manage growth by sharing responsibility between industry, communities and government
2. make fuller use of urban land
3. plan with communities
4. nurture the environment
5. encourage public over private transport
6. strengthen local sense of place
7. develop strategies which deliver local jobs
8. provide for affordable housing

Network city addressed, and identified strategies and actions for, seven key elements of planning for the Metropolitan region, City of Mandurah and Shire of Murray (referred to as "Greater Perth"):

- spatial plan and strategy;
- implementation: governance and process;
- planning for a liveable city;
- economy and employment;
- environment and heritage;
- transport; and
- infrastructure coordination.

Spatial Plan and Strategy

The broad spatial plan for the growth of the Perth Metropolitan Region, Mandurah and Murray until 2030 was the Network City Framework (Figure 4). Network city was based on a projected population for Perth and Peel of 2.39 million in 2031, up from 1.55 million in 2001.

The Network City Framework specified fundamental principles against which regional policies were to be tested. These were:

- plan with communities;
- nurture the environment;
- make fuller use of urban land;
- encourage public over private transport;

- strengthen local sense of place;
- develop strategies which deliver local jobs; and
- provide affordable housing

The Network City Framework showed different categories of urban land, transport networks and activity corridors.

Urban land

The three categories of urban land were:

- older areas have many opportunities to strengthen networks and centres;
- areas where there are fewer opportunities for urban consolidation outside of activities centres and corridors; and
- future communities will be designed around networks and centres.

In the Shire of Mundaring, urban land fell almost entirely into the second category, except for the small portion of Midvale west of Roe Highway located within the Shire, which was within the first category. Urban land identified in the Shire generally included all land zoned Urban in the MRS, but it also:

- included the land zoned Urban Deferred in north Parkerville and north Stoneville;
- included the large-lot residential area south of the Mundaring golf course (zoned Rural in the MRS); and
- excluded land in Helena Valley recently zoned Urban in the MRS (west of the established “Helena Valley Private Estate” development).

The balance of the Shire was identified as rural and resource areas, non-development areas (reflecting water catchments, National Parks, state forest and some other Crown land), industrial (Midvale and Mundaring light industrial areas) and public services (Wooroloo and Acacia prisons).

Transport networks

Five categories of transport networks were identified:

- activity corridors with excellent public transport
- transport corridors for cars, trucks and express buses
- passenger rail
- freight rail
- other transport corridors (existing and proposed are separately identified)

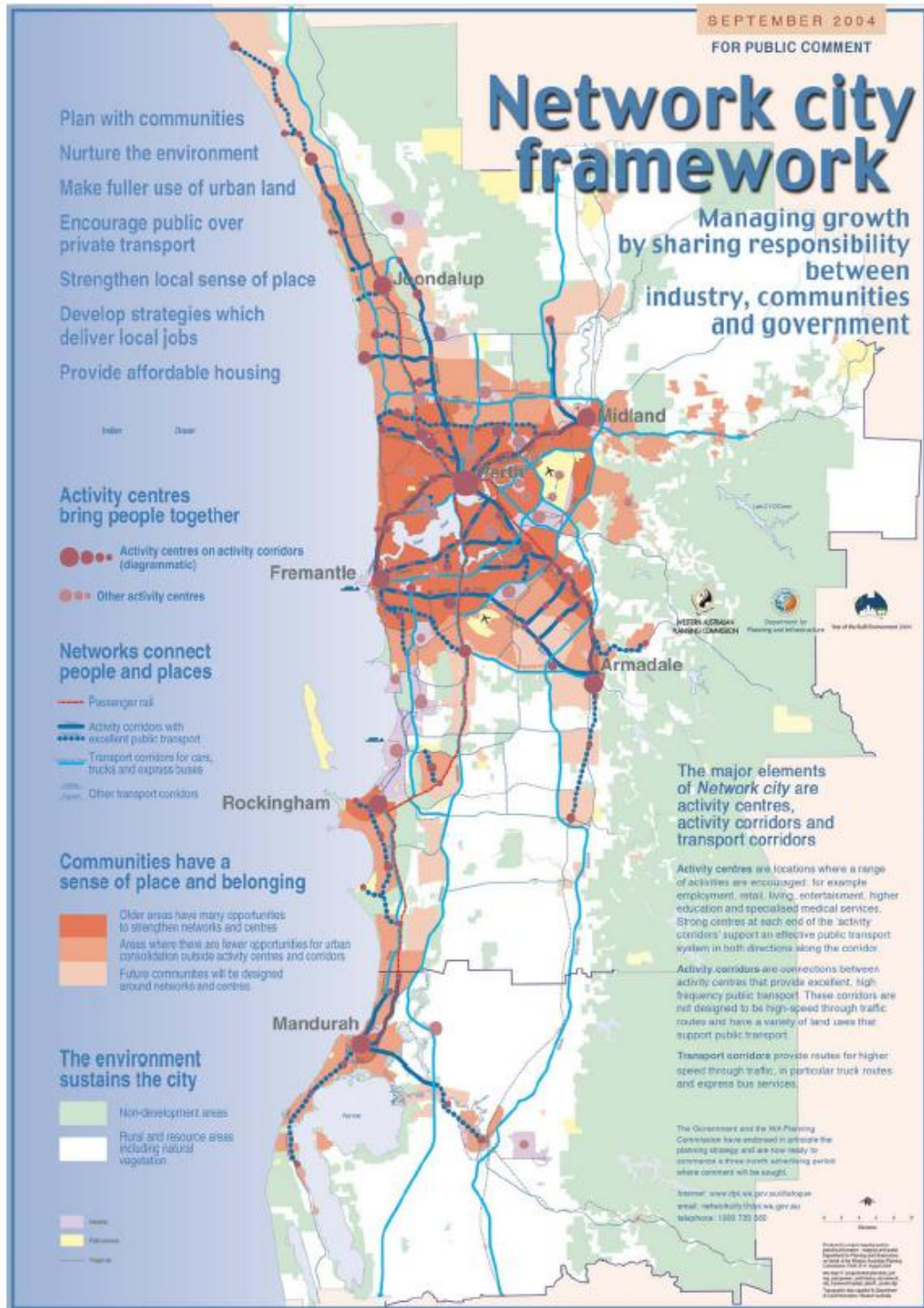


Figure 4: Network City Framework

Activity corridors were defined as “connections between activity centres that provide excellent, high frequency public transport to support the land uses that will occur along the activity corridors and at the activity centres” and were not designed to be high-speed through traffic routes.

No activity corridors were identified within the Shire of Mundaring. Roe Highway, and Great Eastern Highway between Roe Highway and Sawyers Valley, were identified as transport corridors for cars, trucks and express buses. These corridors were to provide routes for higher speed traffic. The Framework identified Great Eastern Highway east of Sawyers Valley and Great Southern Highway as (existing) other transport corridors. The proposed Perth-Adelaide Highway (commonly known as the “orange route”) was identified as a future other transport corridor (by comparison, the proposed Perth-Darwin Highway in the City of Swan was identified as a transport corridor for cars, trucks and express buses). The Midland – Millendon Junction railway line was identified as freight rail.

Activity centres

Two categories of activity centres were identified:

- activity centres on activity corridors
- other activity centres

The size of each activity centre on the Network City Framework indicated its relative scale at 2030, with five levels identified (Perth being the largest). However, the strategy indicated that the scale and associated designation of each centre required further analysis to determine its place in the hierarchy of centres.

Mundaring was the only activity centre identified within the Shire, classified as an “other activity centre”. Mundaring was shown as one of the smallest level of activity centres. This indicated a relative scale equivalent to, for example, Guildford and Roleystone, and lesser than, for example, Kalamunda and Ellenbrook. Midland was identified as one of the second largest level of activity centres.

Numerous strategies and key actions were contained in the document, but these are not included here given that it has now been superseded.

2.2.3.2 Foothills Structure Plan

The *Foothills Structure Plan* (DPUD, 1992) was set within the framework of *Metroplan* (1990) and provided a basis for statutory planning and coordinating development in the foothills, from the Helena River in the north to Gosnells in the south. The only part of the Shire of Mundaring within the Foothills Structure Plan is that portion of the locality of Helena Valley south of the Helena River and west of Scott Street and Ridge Hill Road.

The Foothills Structure Plan identifies the then existing residential development cell in Helena Valley (“Cedar Woods” development) as MRS Urban. Land to the west and east of this area is identified as Future Urban. The western boundary reflects the ANEF 25 aircraft noise contour. This land in the Shire of Mundaring shown as Future Urban and west of the then existing MRS Urban has subsequently been rezoned to Urban under the MRS. A few lots to the east of the MRS Urban area, each side of Helena Valley Road, are also shown as Future Urban and in 2009 an MRS Amendment rezoned those lots Urban (Amendment 1160/41, see section 2.3 below).

The balance portion of land within the Shire of Mundaring is mostly identified as Landscape Protection (west and east of the Future Urban areas), with a strip of Regional Open Space identified along the Helena River floodplain. The land east of the Future Urban area each side of Helena Valley Road is included in the Landscape Protection Area due to its location adjacent to the Darling Escarpment and the significant scenic value and contribution to the regional landscape of the escarpment. The emphasis in the Landscape Protection Area is on protecting and preserving significant landscape features and the environment, by controlling fragmentation of land and exercising strict controls over land uses, design and siting of buildings and retaining and supplementing vegetation. Rural residential use may be possible in a Landscape Protection Area if sympathetically planned to maintain and enhance landscape character and amenity.

Along with land in Helena Valley, much of the Bushmead Rifle Range site to the south in the City of Swan is also identified as Future Urban. This wider area Helena Valley/Bushmead area is identified as a single residential planning unit. A range of residential densities, from R2.5 to R30, are recommended for the planning unit. The Foothills Structure Plan acknowledges the need for a structure plan over the combined Helena Valley/Bushmead planning unit, with the cooperation of the Shire of Mundaring and City of Swan, and indicates that Helena Valley/Bushmead may require two new primary schools. The Foothills Structure Plan suggests that such local structure plan for Helena Valley/Bushmead would be the basis for zoning amendments to the MRS.

It should be noted that Metroplan has subsequently been superseded, in turn, by *Network city* and *Directions 2031*. At the time of writing, the status of the Foothills Structure Plan is somewhat unclear, but it is probably the case that the Foothills Structure Plan remains valid only to the extent that it is consistent with *Directions 2031*.

2.2.3.3 North East Corridor Structure Plan

The *North East Corridor Structure Plan* (DPUD, 1994) identified itself as an “ideas plan”, providing a policy guide for new zones and reserves being created by way of amendment to the Metropolitan Region Scheme and, subsequently, amendments to local government town planning schemes.

The analysis and text content in the document is clearly limited to consideration of land within the City of Swan, extending north from Midland and Guildford to Bullsbrook. However, the study area map, and the actual Structure Plan it contains, extend to cover portions of some surrounding local governments, including the Shire of Mundaring as far east as Glen Forrest.

The North East Corridor Structure Plan covers parts of the Shire of Mundaring not covered by the Foothills Structure Plan, but also differs in some respects from the earlier (1992) Foothills Structure Plan in those areas covered by both plans, with the Future Urban land west and east of the then existing Urban zoned land in the Metropolitan Region Scheme in Helena Valley shown as “Rural living – Buffer Areas” (west) and “Escarpment Landscape Protection” (east) respectively. Also, the Bushmead Rifle Range site in the City of Swan is shown as Public Purposes in the North East Corridor Structure Plan, whereas it was shown as Future Urban in the Foothills Structure Plan.

The North East Corridor Structure Plan shows land in Bellevue north of the Helena River as Special Rural, with Open Space along the river. In Swan View, Darlington, Glen Forrest, Greenmount, Boya, Helena Valley and Midvale, the land then zoned Urban and Urban Deferred in the Metropolitan Region Scheme is shown as such, with remaining adjacent land within the Shire either identified as Escarpment Landscape Protection or Open Space (the latter applying to John Forrest and Greenmount National Parks and a strip along the Helena River). The Midvale industrial area is shown as Industrial.

It is unclear why there are discrepancies between the two structure plans, and what status should be afforded to the North East Corridor Structure Plan. However, given that none of the analysis and text content of the document relates to the Shire of Mundaring, it is assumed that it is not applicable to land within the Shire.

2.2.3.4 North Eastern Hills Settlement Pattern Plan

The *North Eastern Hills Settlement Pattern Plan* (WAPC, April 2002) covers portions of the Shire of Mundaring and the City of Swan (Figure 5). In the Shire of Mundaring it includes John Forrest National Park and that part of the Shire east of John Forrest National Park and Glen Forrest and north of the large areas of water catchment, state forest, National Parks and other crown land. In the City of Swan it includes Gidgegannup, Brigadoon and Walyunga and Avon Valley National Parks.

A wide range of issues were considered in the preparation of the Plan and some of these were subject of individual working papers (eg. natural resources, agriculture, development demand, infrastructure).

Geographic precincts

The Plan divides the study area into distinct geographic precincts, based on analysis of settlement constraints (ranked absolute, hard or soft) and opportunities. The three geographic precincts are:

- Landscape Corridors
- Settlement Cells
- Existing and Proposed Hinterlands

Two identified landscape corridors affect the Shire of Mundaring. One, based on John Forrest National Park and also including adjacent land in Parkerville, most of Hovea and the rural buffer between Glen Forrest and Mahogany Creek, links north through western Gidgegannup and Brigadoon to Walyunga National Park. The other runs between Chidlow and Mount Helena, continuing north to the east of Gidgegannup townsite.

Settlement cells are broad, primarily undeveloped areas with relatively settlement constraints. Three were identified, a northern cell entirely within Gidgegannup, a western cell primarily within Gidgegannup but including some northern portions of Parkerville, Stoneville and Mount Helena, and an eastern cell divided between most of Bailup and much of Wooroloo within the Shire of Mundaring and eastern portions of Gidgegannup.

Hinterlands are smaller areas for detailed analysis in the study, divided into proposed hinterlands (primarily, portions of the settlement cells) and existing hinterlands (villages in the Shire of Mundaring and their surrounding hinterlands, in some cases incorporating portions of settlement cells). The existing hinterlands identified are Parkerville, Stoneville, Mount Helena, Mundaring (includes Mahogany Creek and Sawyers Valley), Chidlow and Wooroloo.

Recommendations for landscape corridors

The Plan identifies that land uses which may be appropriate within landscape corridors include, but are not necessarily limited to:

- continuation of traditional agricultural activities;
- agroforestry;
- aquaculture;
- horticulture;
- semi-intensive livestock;
- viticulture; and
- low-impact tourism and ecotourism

Guidance for existing hinterlands

The Plan supports continuation of the Shire of Mundaring’s long-established approach of retaining discrete townsites surrounded by non-urban land use.

The Plan projected the population of the existing hinterlands to increase from the then current 13,106 to 26,658 by the year 2026, an increase of over 13,500 people. The projections for each hinterland are as follows:

	Current	Projected 2026
Mundaring (incl. Mahogany Creek and Sawyers Valley)	4241	5151
Parkerville	1580	4150
Stoneville	2200	6260
Mount Helena	2610	4170
Chidlow	1802	3032
Wooroloo	673	3895
Total	13106	26658

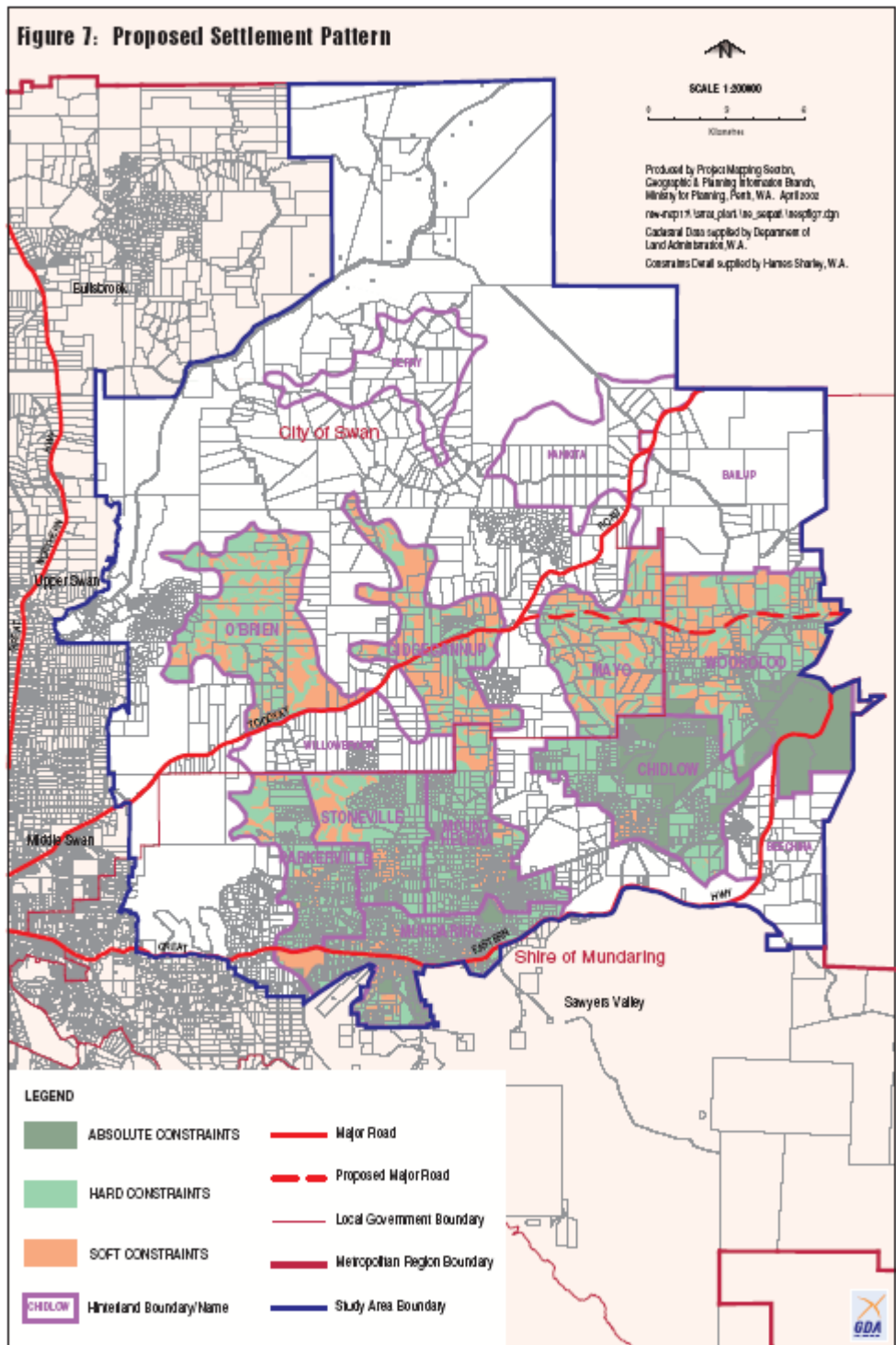


Figure 5: North Eastern Hills Settlement Pattern Plan - proposed settlement pattern

Settlement options for proposed hinterlands

The Plan assumed that the proposed hinterlands may need to accommodate a population of approximately 12,600 in 2026, although noting that for a range of factors the eventual population may be less than this. The Plan considered five options for settlement types to achieve this population growth. These options, and a brief summary of how they were assessed, were as follows:

- Rural-Residential Option

This option assumed subdivision with an average lot size of 3.5 ha across the proposed hinterlands.

It would be the most inefficient use in terms of area required and road network, extensively fragment the rural landscape and remove land from agriculture. Widespread vegetation clearing would be required. There would be environmental concerns with extensive use of septic waste disposal systems. It was indicated that there were few reasons to support this form of development as the sole settlement type, but acknowledged that rural residential development provides an effective buffer between higher density settlements and rural activities.

- Small Villages Option

This option assumed development of up to six villages of approximately 2000 people.

This option was seen as continuing the existing settlement pattern. However, villages would not provide the economies of scale offered by larger townsites and may be too small to support services and facilities such as primary schools and community facilities. It would not be feasible to link villages to the metropolitan sewerage system, and the cost of other infrastructure services would be high with such a diverse settlement pattern.

The sustainability of such villages was seen as seriously questionable. The villages would offer little employment generation and they would rely strongly on private motor vehicle use, with an effective level of public transport not being feasible to dispersed villages.

- Small Townsites Option

This option assumed development of three small townsites of approximately 4000 people.

Small townsites would have better economies of scale than villages, providing justification for extension to metropolitan water and sewerage networks. Such townsites would reach the threshold for provision of a primary school, and justify the development of a range of commercial and community facilities. There would be some employment opportunities, but significant employment would still be in Midland or Perth. This approach would still entail a strong reliance on private transport, with it being difficult to provide an efficient and effective public transport system. Careful planning would be required to ensure that small townsites do not affect the visual amenity of the area which contributes to the “hills lifestyle”.

This option was considered the most suitable. Populations of around 4000 would ensure the settlements were more sustainable than rural residential or village settlements.

- Mix of Villages and Small Townsites Option

This option assumed dispersing the projected population among each proposed hinterland to create a range of villages and small townsites.

This option was seen as having the same issues as the villages option, with settlements too small to be economically, socially or environmentally sustainable.

- Large Townsite Option

This option assumed the development of a larger townsite of approximately 12,000 people.

Such a townsite could provide a high school and two or three primary schools and a range of residential, retail, commercial, social and community services. The option would provide greatest efficiencies in terms of infrastructure and service provision and provide greater employment opportunities.

However, it was recognised that such a townsite would have a significant impact on the visual amenity of the study area and the “hills lifestyle” in general, given the suburban characteristics of a townsite of this size. Land assembly may be difficult and given the significant public funds that would be required to establish such a townsite, a high degree of political support would be required.

This option was deemed unsuitable in the North Eastern Hills.

Selection of proposed hinterlands for small townsites

Having identified the small townsites option (three townsites of approximately 4000 people each) as the preferred settlement option, the Plan then considered eight proposed hinterlands for their potential to accommodate a small townsite. Six of the eight proposed hinterlands were in Gidgegannup in the City of Swan, with only two in the Shire of Mundaring: Bailup and Beechina (which also incorporates the locality of The Lakes).

The Plan's assessment of Bailup and Beechina found:

Bailup:

- area contains large land parcels that are generally cleared, have relatively level terrain and average around 200 ha;
- serviced by Toodyay Road, but poor access to existing settlements, community facilities and infrastructure;
- has the most rural character of any of the proposed hinterlands;
- relatively isolated from national parks and significant areas of bushland;
- cost of servicing and infrastructure provision is likely to be very high (although relatively level terrain may slightly reduce construction costs), so that a significantly sized development may be necessary to make servicing financially feasible; and
- large lot sizes make broadacre farming more viable than other parts of the North Eastern Hills.

Beechina:

- area has lot sizes ranging from 5 ha rural residential lots to 50 ha rural lots;
- good access to settlements of Chidlow and Wooroloo;
- part of the hinterland is parkland cleared, but sizable stands of native bushland remain;
- close to Great Eastern Highway and to infrastructure and community facilities;
- not particularly suitable for development of a small townsite as it has a significant amount of land that is inappropriate for development; and
- fragmented subdivision pattern mitigates against townsite development.

The three hinterlands selected for small townsites are all in the City of Swan (O'Brien, Mayo and Gidgegannup).

Implementation and current status of Plan

The Plan indicates that growth should initially be directed to existing townsites (those in the Shire of Mundaring, and Gidgegannup townsite). Only once the Gidgegannup townsite reaches 4000 people should the other two new townsites be developed, sequentially (although circumstances in which this development could be brought forward are outlined in the Plan).

The Plan recommends the joint production of a District Structure Plan by DPI [now DoP], the City of Swan and the Shire of Mundaring. The District Structure Plan should address matters including:

- finalising boundaries of the landscape corridors and proposed hinterlands;
- specific measures to refine and implement the concept of landscape corridors;
- reviewing existing clearing controls and determining whether further subdivision will be permitted within the landscape corridors; and
- detailing a buffer to protect the Perth-Adelaide Highway.

It should be noted that no work has been done by DPI/DoP, the City of Swan or Shire of Mundaring towards such a District Structure Plan.

The Plan acknowledges that it would be reviewed upon completion of the Future Perth study. The *Network city* strategy and *Directions 2031* have subsequently been released (see 2.2.3.1 above and 2.2.3.6 below) and arguably provide a different emphasis in metropolitan urban form that is inconsistent with some of the assumptions of the North Eastern Hills Settlement Pattern Plan.

As with the Foothills Structure Plan, at the time of writing of this Local Planning Strategy, the status of the North Eastern Hills Settlement Pattern Plan is somewhat unclear, but it is probably the case that the North Eastern Hills Settlement Pattern Plan remains valid only to the extent that it is consistent with *Directions 2031*.

Some clarification was provided on 30 October 2008, when the Chairman of the WAPC made the following statement regarding future development of the north-east corridor:

The north-east corridor of Perth has been identified since the early 1990s as a potential urban growth area. The State Planning Strategy, released in 1997, proposed an extension to the north-east corridor providing for increased urbanisation and employment opportunities.

In 2002 and 2003 respectively, the WAPC published the North-Eastern Hills Settlement Pattern Plan and the North-East Corridor Extension Strategy. Both documents provide an established basis for future decisions regarding population growth in the north-east corridor and north-eastern hills.

The WAPC acknowledges that future development recommended in these strategies is inconsistent with some of the principles and objectives of Network City. The WAPC expects that planning for future town sites will incorporate contemporary planning principles to align with the objectives of Network City.

The WAPC supports the consolidation of existing settlements - Bullsbrook first, then Gidgegannup - prior to considering proposals for new areas, on the basis of consolidated, tight, urban development to improve the infrastructure of the area and public transport to Midland.

Proponents for town site development in Gidgegannup will be required to:

- investigate the use of sustainable design practices;*
- identify opportunities to create local employment;*
- provide opportunities for diverse and affordable housing;*
- and*
- pursue feasible and appropriately funded public transport systems to reduce reliance on private vehicle trips.*

The identification of new towns in the shires of Mundaring, Swan and Chittering are very long term proposals (20+ years) that will only be considered once existing settlements are at capacity. Any future town site should be retained as a large rural holdings on the understanding that government will not undertake any planning for these areas for at least 10 years.

2.2.3.5 Middle Helena Catchment Area Land Use and Water Management Strategy

The draft *Middle Helena Catchment Area Land Use and Water Management Strategy* was prepared by the WAPC and the then Water and Rivers Commission, and published in August 2003. After input from the Shires of Kalamunda and Mundaring and other stakeholders, the Department of Planning prepared a final document, which was released in June 2010.

The Strategy addresses the catchment of the Helena Pumpback dam. That dam is situated in the locality of Darlington, about 12 km downstream on Helena River from Mundaring Weir. Water from the Pumpback dam is returned upstream to Lake C.Y. O'Connor (the reservoir impounded by Mundaring Weir), contributing between 25 and 40% of the annual inflow to Lake C.Y. O'Connor. Lake C.Y. O'Connor provides water supplies for much of the state's goldfields and wheatbelt areas, as well as many parts of the Shire of Mundaring.

The catchment extends either side of the Helena River between Mundaring Weir and the Helena Pumpback Dam, in the Shires of Mundaring and Kalamunda. In the Shire of Mundaring, the catchment includes portions of the localities of Darlington, Glen Forrest, Mahogany Creek and Mundaring.

The Strategy notes that raw water quality in the Helena Pumpback Dam is the most marginal of the jarrah forested catchments in the hills region, with relatively high turbidity and coliform counts, reflecting existing land uses in parts of the catchment.

For the catchment area, the Strategy analyses geology and landforms, vegetation, land tenure, land use and the impacts of various land uses on water quality. It then breaks the catchment into numerous precincts. For each precinct, a public drinking water source area priority classification is proposed. The three levels of priority classification for protecting water quality, as used throughout the state, are:

- P1: Defined to ensure there is no degradation of the water source. Declared over areas where provision of highest quality public drinking water is the prime beneficial land use. Typically affects land under Crown or state ownership. Land development is generally not permitted.
- P2: Defined to ensure there is no increased risk of pollution to the water source. Declared over land where low intensity development (such as broadacre rural use) already exists. Protection of public water supply sources is a high priority. Some conditional development is allowed.
- P3: Defined to manage the risk of pollution to the water source. Declared over land where water supply sources need to coexist with other land uses such as residential, commercial and light industrial developments. Protection is achieved through management guidelines rather than restrictions on land use.

Recommended priority classifications for the catchment within the Shire of Mundaring are at Figure 6.

The Strategy makes recommendations for planning controls over the catchment in both the Metropolitan Region Scheme (MRS) and the Shire of Mundaring and Shire of Kalamunda town planning schemes. In the MRS, the identified P1 areas are to be included in the Water Catchments Reserve, while P2 areas are to be included in the Rural – Water Protection Zone. This will require an amendment to the MRS.

The Strategy does not recommend changes to existing zonings in the Shire of Mundaring and Kalamunda town planning schemes, but rather it recommends the imposition of an overlaying Special Control Area (SCA) within each scheme (Figure 7 shows the recommended SCA within Shire of Mundaring). The Strategy recommends that this SCA apply to the whole Middle Helena catchment within each scheme. The purpose of the SCA would be to give effect to the MRS amendments, identify the Middle Helena catchment area boundary, and to guide future land use and development.

The Strategy sets out proposed land use controls and the processes and matters to be taken into account by decision-makers (WAPC or Shire of Mundaring) determining planning proposals within the catchment area. The Strategy makes different recommendations for land in each of the three priority source protection areas.

For P1 priority source protection areas, the WAPC would be the decision-making authority.

In P2 priority source protection areas, the Strategy recommends that land use controls should be guided by the latest version of the Department of Water's Table: Land Use Compatibility in Public Drinking Water Source Areas, noting the following specific variations to the table for the Middle Helena Catchment:

- Restaurants (including cafes and tea rooms) and Exhibitions Centres are classified Compatible with conditions – proposals for on-site wastewater disposal should be consistent with the Government Sewerage Policy: Metropolitan Region and are to be assessed on an individual basis to consider site characteristics and proposed management practices; and
- Irrigated golf courses or recreational parks, and public swimming pools/aquatic centres are classed Compatible with Conditions on Reserve 7045, Mundaring Weir Road, Mundaring (Mundaring Recreation Reserve).

The Strategy sets out a range of other matters to be considered in determining proposals for P2 priority source protection areas.

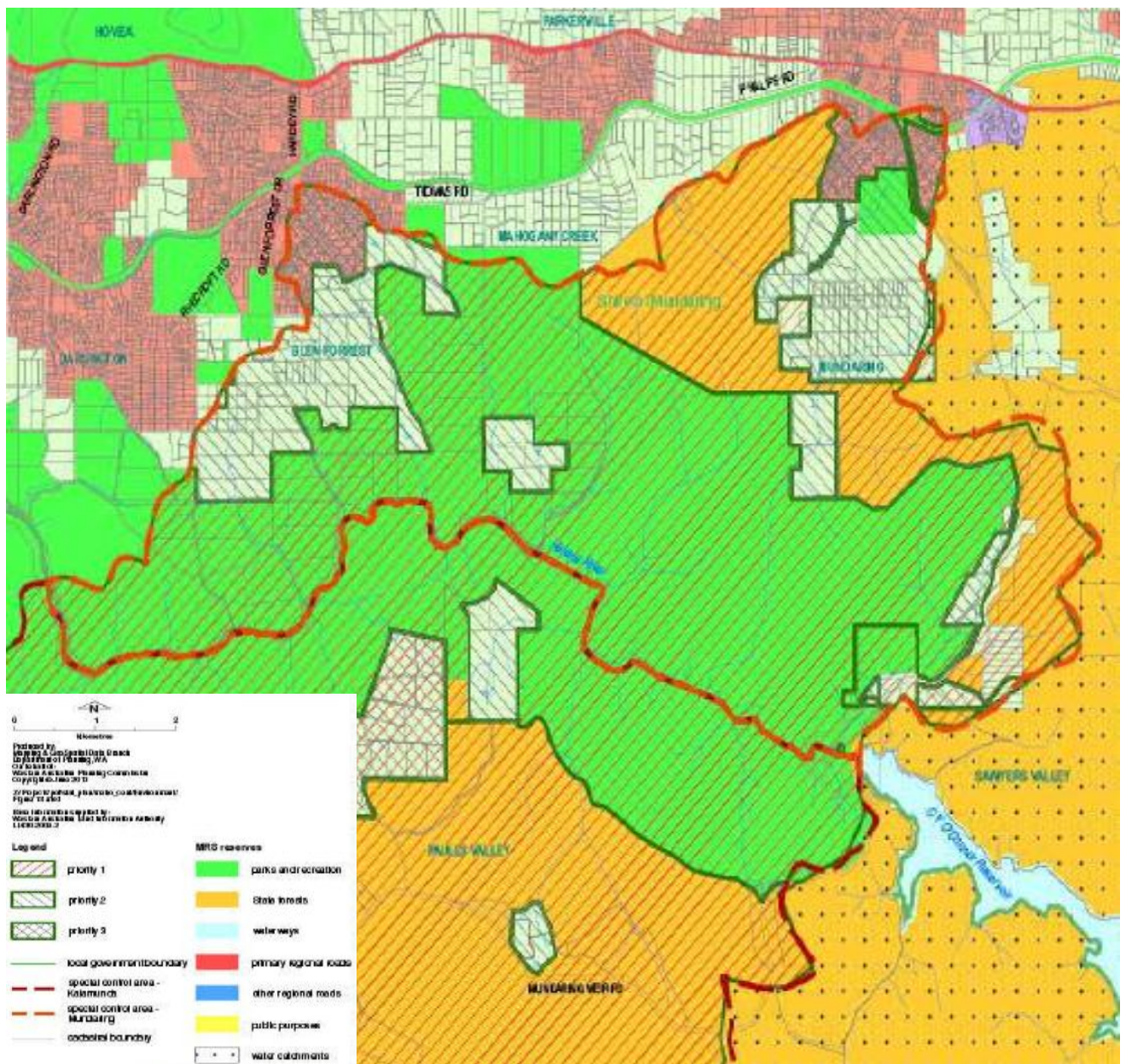


Figure 6: Middle Helena Catchment Area Land Use and Water Management Strategy - proposed priority classifications within the Shire of Mundaring

Similarly, the Strategy specifies matters to be considered in determining proposals within P3 priority source protection areas. These are generally less stringent than those recommended for P2 areas.

Additionally, the Strategy recommends specific wording for Special Control Area (SCA) provisions that would apply to all land within the catchment. The purpose of the SCA would be to implement the Strategy. The objectives of the SCA would be to:

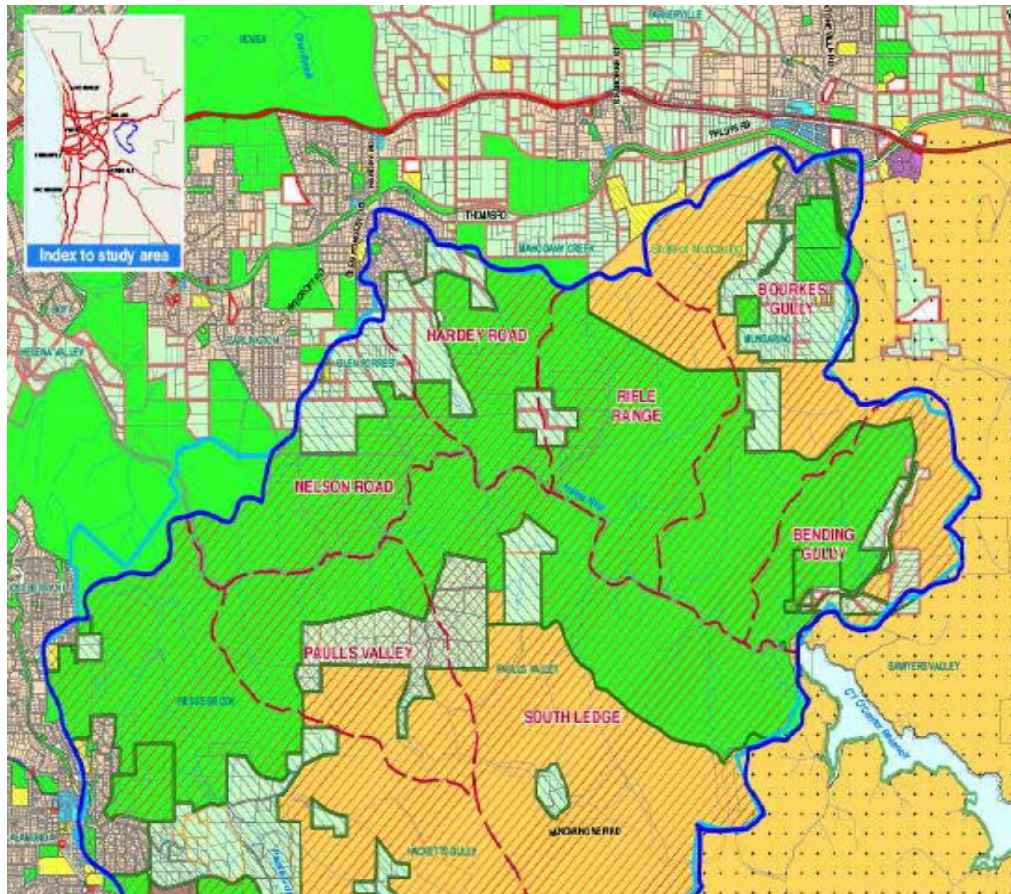


Figure 7: Middle Helena Catchment Area Land Use and Water Management Strategy - proposed Special Control Area within the Shire of Mundaring

- ensure that the long-term quality of the Middle Helena catchment as a public drinking water source is not compromised;
- reduce potential nutrient, contaminant and sediment export into the Helena River; and
- provide a planning framework for land use decision-making for landowners and local and state government.

The Strategy also proposes minor adjustment of the gazetted catchment area boundary to more accurately represent the physical (hydrological) catchment; the proposed SCA is based on the recommended revised catchment area boundary.

In addition, the draft Strategy recommends definition of a Reservoir Protection Zone for the Helena Pumphead Dam. This is not a statutory planning control, but rather a classification under by-laws of the *Metropolitan Water Supply, Sewerage and Drainage Act 1909* (new by-laws are currently proposed under that Act and the *Country Areas Water Supply Act 1947*).

The Reservoir Protection Zone includes the reservoir and all publicly owned land bounded by the Bibbulmun Track and bridle trail in the south (in Shire of Kalamunda) and a 2 km radius in other areas. In order to protect the reservoir from possible pathogen contamination resulting from human contact, it is intended to prohibit unauthorised public access to the reservoir, and to close and rehabilitate an existing walk trail within the zone. Access for fire fighting, conservation activities, Aboriginal heritage access requirements and maintenance of infrastructure would still be allowed.

2.2.3.6 Directions 2031 and Beyond

Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon, prepared by the Commission and the Department of Planning, was released in August 2010. The document was finalised after considering submissions on a draft *Directions 2031* document released in June 2009.

Directions 2031 and Beyond describes itself as:

a high level spatial framework and strategic plan that establishes a vision for future growth of the metropolitan Perth and Peel region... [and that] provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate a range of growth scenarios

Directions 2031 and Beyond supersedes *Network city* (see section 2.2.3.1 above) and *Metroplan*. The document provides direction on:

- how to provide for a growing population while ensuring we live within available land, water and energy resources;
- where development should be focused and what patterns of land use and transport will best support this development pattern;
- what areas need to be protected to retain high quality natural environments and resources; and
- what infrastructure is needed to support our growth.

Population projections

Directions 2031 and Beyond notes that population projections to 2031 vary considerably depending on the level of net overseas migration, which is uncertain. The document uses Commission projections to conclude that by 2031 the population of Perth and Peel will be at least 2.2 million, meaning the region will accommodate over 500,000 new residents, require 328,000 new dwellings and 353,000 new jobs. However, it also notes a ABS high growth scenario (based on high net overseas migration) would result in a population of 2.88 million and a requirement for 429,000 new dwellings. The document considers it prudent to consider a range of projections.

Given the uncertainty about population projections, different scenarios were modelled to determine the area of greenfield land that will be required to accommodate a population of 3.5 million in the Perth and Peel region. The document notes that the various assumptions for expected residential density in greenfield development and rate of infill in existing residential areas generate significantly different greenfield land requirements.

Land supply management

Directions 2031 and Beyond indicates that the Department of Planning will establish an urban expansion management program to ensure that the rezoning of land takes place at the appropriate time and in the most suitable locations, and to ensure that there is sufficient land available for development at all time. This urban expansion management program is a key component of the *Outer Metropolitan Perth and Peel Sub-Regional Strategy* (see section 2.2.3.7 below).

The urban expansion management plan is based on ensuring a 25-year supply of undeveloped land comprising an ongoing land bank of at least 15 years supply of urban and urban deferred zoned land and at least a 10 year buffer of rural land identified for future urban expansion or investigation. *Directions 2031 and Beyond* specifies that existing urban and urban deferred zoned areas should be prioritised for urban development, where appropriate.

Strategic framework

Directions 2031 and Beyond adopts the following vision for the Perth and Peel region:

By 2031, Perth and Peel people will have created a world class liveable city: green, vibrant, more compact and accessible with a unique sense of place.

The document's strategic framework is based on five key themes and objectives:

Theme: Liveable

Objective: Living in, or visiting, our city should be a safe, comfortable and enjoyable experience.

Theme: Prosperous

Objective: Our success as a global city will depend on building on our current prosperity.

Theme: Accessible

Objective: All people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home.

Theme: Sustainable

Objective: We should grow within the constraints placed on us by the environment we live in.

Theme: Responsible

Objective: We have a responsibility to manage urban growth and make the most efficient use of available land and infrastructure.

Urban form

The *Directions 2031 and Beyond* spatial framework identifies a preferred growth scenario for the Perth and Peel region. The preferred growth scenario is for a connected city. The connected city model is preferred because a more compact city is desirable, which means achieving more consolidated development in appropriate locations.

The document notes that:

- approximately 60% of the city's population currently live beyond the inner-middle suburbs, and it is anticipated that by 2031, this proportion will remain fairly constant;
- more efficient use must be made of land and infrastructure: the current average residential density of 10 to 11 dwellings per gross urban zoned hectare on the urban fringe must be increased to an average of at least 15 dwellings per gross urban zoned hectare to achieve *Directions 2031 and Beyond* growth targets; and
- land that is already zoned must be prioritised.

The document notes that on current trends the amount of infill residential development achieved as a proportion of total development between now and 2031 would be between 30 and 35%. The connected city model in *Directions 2031 and Beyond* seeks a 50% improvement on current trends and hence sets a target of 47% of growth as infill development (this represents 154,000 of the required 328,000 dwellings).

The Perth and Peel region is broken into six sub-regions (Central, North-West, North-East, South West, South-East and Peel). The Shire of Mundaring, along with the City of Swan and Shire of Kalamunda, is located in the North-East sub-region. Some detailed guidance for development in the North-East sub-region is contained in the Outer Metropolitan Perth and Peel Sub-Regional Strategy, released with *Directions 2031 and Beyond* (see section 2.2.3.7 below).

The anticipated population, housing and employment profile for the North-East sub-region for the connected city scenario in 2031 are as follows:

	2008	2031	Change (2008-2031)
Population	189,000	258,000	69,000
Dwellings	73,000	113,000	40,000
Jobs	56,000	98,000	42,000

The 2031 target figure for jobs in the North-East sub-region represents a much higher proportional increase than population or dwellings because *Directions 2031 and Beyond* is promoting higher employment self-sufficiency within different sub-regions to reduce commuting time and costs and the associated impacts on transport systems and the environment. The jobs target would see employment self-sufficiency in the North-East sub-region increase from 63% in 2008 to 75% in 2031.

Directions 2031 and Beyond addresses several structural elements that contribute to the city’s urban form. These are as follows:

Activity centres network

The document describes activity centres as “hubs that attract people for a variety of activities, such as shopping, working, studying and living. These areas consist of a concentration of commercial uses, combined with a varying proportion of other land uses”. In general activity centres will:

- provide services, employment and activities that are appropriate for and accessible to the communities they support;

- be integrated with and encourage efficient operation of the transport network, with particular emphasis on promoting public transport, walking and cycling and reducing the number and length of trips;
- be designed on transit oriented development principles;
- provide opportunities as places to live through higher density housing and the development of social and cultural networks;
- encourage the agglomeration of economic activity and cultivation of business groups; and
- support the development of local identity and sense of place.

The document identifies the following activity centres hierarchy:

- “Capital city” (Perth central area and adjacent East Perth, West Perth and Northbridge)
- Primary centres;
- Strategic metropolitan centres;
- Secondary centres;
- District centres;
- Neighbourhood centres; and
- Local centres.

It also recognises specialised centres (around universities, health facilities and airports), existing industrial centres, strategic industrial centres and priority industrial sites.

Directions 2031 and Beyond does not identify individual district centres, neighbourhood centres or local centres. None of the other activity centres are identified within the Shire of Mundaring. The nearest activity centre to Mundaring is Midland, which is classified as a strategic metropolitan centre. However, the *Outer Metropolitan Perth and Peel Sub-Regional Strategy*, released at the same time as *Directions 2031 and Beyond* (see section 2.2.3.7 below), and the revised State Planning Policy 4.2 Activity Centres for Perth and Peel (see section 2.2.2.14 above), both identify Mundaring as a district centre.

Movement network

The document identifies existing high frequency public transport connections and possible key public transport connections (for future public transport improvements). None of these are identified within the Shire of Mundaring.

Green network

The document identifies National Parks, MRS Parks and Recreation Reserves, Conservation Parks and Nature Reserves within the Shire of Mundaring.

Themes and strategies

For each of the five themes and objectives identified in the strategic framework (see above), *Directions 2031 and Beyond* nominates strategies that have been developed to implement these themes and objectives. For each strategy, the document also specifies a “Way forward”. The strategies and ways forward relevant to the Shire of Mundaring are as follows:

Theme: A liveable city

Objective: Living in, or visiting, our city should be a safe, comfortable and enjoyable experience.

Strategy: Promote good urban design and development to enhance people’s experience of the city.

Way Forward: Directions 2031 reflects the principles and supports the ongoing implementation of the WAPC Liveable Neighbourhoods policy that promotes walkable neighbourhoods, compatible mixed use development, promotion of a sense of place and support for a variety of housing types.

Strategy: Protect heritage places and values

Way forward: Directions 2031:

- recognises the importance of heritage to a sense of place and as a link to our past;
- encourages the consideration of heritage values as part of redevelopment; and
- supports the continued identification and protection of heritage places into the future.

Strategy: Improve community safety

Way forward: Directions 2031 supports the ongoing implementation of the WAPC Designing Out Crime Planning Guidelines to raise awareness and aid the implementation of key community safety, security and crime prevention issues, designing out crime principles and solutions.

Strategy: Design accessible, well-connected and sustainable urban communities that support and enable effective inclusion and participation in the community for all residents

Way forward: The planning system will continue to undertake policy development and implement reviews to improve regional, district and local environments by:

- extending planning initiatives that currently integrate town planning, housing and transport such as Liveable Neighbourhoods, the Model Scheme Text and Directions 2031;

- establishing, promoting and enforcing stronger town planning codes and zoning classifications including the Residential Design Codes (R-Codes); and
- supporting the development of accessible communities and universally designed housing.

Strategy: Provide quality passive and public open space

Way forward: Directions 2031 encourages local government to institute public open space strategies in order to:

- strategically guide the development of a system of diverse and well-distributed public open spaces;
- ensure adequate provision of regional and district active recreation sites;
- incorporate protection of the natural environment and water management concepts into the development of public open space; and
- encourage walking, cycling and sports as part of the overall community health picture.

Strategy: Plan for increased housing supply in response to changing population needs

Way forward: Planning will need to:

- focus on targeted locations for future urban growth such as in and around retail and employment centres, transit oriented developments and high frequency public transport corridors; and
- apply higher R-codes in strategies and schemes within areas that have close proximity to educational institutions, community facilities and services such as hospitals, medical centres and libraries.

This should not be interpreted as a requirement for across-the-board increases in density throughout established suburbs.

Strategy: Promote and increase housing diversity, adaptability, affordability and choice

Way forward: The new WAPC State Planning Policy 4.2 Activity Centres for Perth and Peel requires minimum residential densities to ensure that the benefits of providing affordable and diverse housing will be maximised in activity centres. The Department of Planning will work with local governments, the Department of Housing, non-profit housing organisations and developers to provide more affordable housing in redevelopment areas.

Strategy: Ensure urban expansion occurs in a timely manner in the most suitable locations

Way forward: In order to ensure a sufficient supply of undeveloped urban and urban deferred zoned land, the urban expansion management program will need to:

- identify land ahead of the rezoning process;

- stage the rezoning of that land in response to future growth trends;
- ensure that there is sufficient land available for development at all times, without the need for blanket rezonings;
- identify land for rezoning to take place at the appropriate time in the most suitable locations; and
- complement the urban development program which coordinates the planning and release of serviced land in response to population growth trends and emerging development and planning opportunities and barriers.

Strategy: Promote higher densities in greenfield development

Way forward: While the majority of growth in the outer sub-regions is focused on greenfield development, the contribution of infill development and redevelopment is essential to create a connected city form. As the outer sub-regions mature, infill and redevelopment will become increasingly viable alternatives to new greenfield development, due to the increasingly constrained nature of non-urban areas.

Theme: A prosperous city

Objective: Our success as a global city will depend on building on our current prosperity.

Strategy: Provide a hierarchy of places and locations for a range of economic activities and employment across the Perth and Peel region

Way forward: Directions 2031 has identified a network of activity centres to complement the role of the Perth city centre and provide a greater distribution of jobs throughout the metropolitan region. This hierarchy and spatial distribution of centres will be the core focus of the growth over the next 20 to 25 years. The hierarchy builds on earlier centre classifications contained in the Corridor Plan and Metroplan. Directions 2031 also aims to provide a more balanced distribution of employment, services and amenity to the 60 per cent of the population who will live outside the central sub-region by 2031.

Strategy: Plan for a diverse mix of services, facilities, activities, amenity and housing types in centres to facilitate economic development and employment

Way forward: There needs to be strong focus on the potential employment and urban amenity functions of activity centres. While some activity centres are predominantly shopping centres for surrounding communities, many others have potential for economic diversification through new floor space to accommodate more businesses and services and higher density housing.

Given the dominance of service industries, any new economic activity should be compatible with activity centre environments. Local governments should plan centres as mixed use precincts suitable for a range of businesses and local employment. Economically diverse and high-amenity environments offer better prospects to attract high-order jobs, such as business-to-business services, as distinct from population-driven jobs focused on providing consumer goods and household services.

Major non-industrial activity centres need to play a greater role in providing for office and service sector employment growth and related facilities. Planning for activity centres should seek to capitalise on their various urban qualities and potential for development, urban renewal and employment generation. Policies should actively encourage mixed use environments through flexible zonings to accommodate small business and local employment.

Strategy: Increase the levels of employment self-sufficiency in sub-regional areas

Way forward: Directions 2031 aims to increase the diversity of employment opportunities outside the Perth city centre by encouraging business and jobs to shift to other centres in the upper levels of the hierarchy. This will encourage higher levels of employment self-sufficiency outside the capital, with significant benefits to be derived from the decentralisation of retail employment. Benefits include reducing travel distance to work, reduced greenhouse gas production and petrol consumption, reductions in travel costs and travelling times; reducing road congestion; and increasing opportunities for non-car based commuting such as walking, cycling and public transport.

Strategy: Facilitate and retain employment land to support economic growth and a balanced distribution of employment across the metropolitan Perth and Peel region

Way forward: Land use planning has an important role in assisting employment growth through policies to facilitate the expansion of existing industry and commerce and the development of new businesses. Directions 2031 supports the facilitation and retention of employment land; therefore:

- Strategic plans and local planning schemes should seek to optimise the operation and economic functions and long-term employment potential of industrial zones.
- Local planning strategies and related strategic plans should factor in infrastructure sites and freight corridor needs, land use compatibility and buffer requirements as part of long-term planning for established industrial precincts.
- Existing industrial estates and associated buffers need to be protected from the increasing encroachment by inappropriate non-industrial uses and in some cases by residential encroachment.

Directions 2031 encourages a well-balanced distribution of well-serviced industrial centres across metropolitan Perth and Peel; therefore:

- Urban planning policies should acknowledge the role of major economic infrastructure such as ports and airports and regional transport connections.
- Planning schemes and development controls should recognise contemporary business and industry trends and innovations and provide for generic employment zones, in which mixed uses are allowed on the basis of compatibility and performance standards, rather than strict land use classes.
- It is necessary to plan for appropriate co-location of dwellings, employment and services and innovative mixed use planning to encourage a unique sense of place and attract highly skilled and creative people.
- Industrial centres need to be protected and their growth fostered due to their economic value and importance to the Perth metropolitan area and the State.
- The state and regional significance of some existing industrial zones in the Perth metropolitan central sub-region needs to be acknowledged in the wider planning framework, and their relocation proactively opposed.

Strategy: Protect access to productive natural resources and agricultural land

Way forward: Directions 2031 will ensure that suitable land is identified to support the economic activity of the city and the state, particularly for infrastructure provision and industrial development. In addition, the city cannot grow without access to basic raw materials for construction and production of goods. Directions 2031 will continue to protect these important assets.

Directions 2031 supports the development of contemporary policy responses to deal with the protection of important natural resources that are fundamental to supporting our local economy. In particular, urban development needs to be carefully considered where it may adversely impact on priority agricultural activity and essential basic raw materials.

Maintaining appropriate bushfire management plans and planning guidelines will help to minimise the risks associated with bushfire.

Strategy: Promote and support tourism opportunities

Way forward: Directions 2031 has identified a number of metropolitan attractors that are not recognised in the activity centres hierarchy, yet are places that attract visitors and warrant consideration in sub-regional strategies and structure plans. Metropolitan attractors should be included in any analysis of activity centres within the sub-regions due to the influence they may have over the use of the movement and green networks and the impact of tourism on the local economy. [The Perth Hills are among the metropolitan attractors identified in the document]

Theme: An accessible city

Objective: All people should be able to easily meet their education, employment, recreation, service and consumer needs within a reasonable distance of their home.

Strategy: Connect communities with jobs and services

Way forward: Directions 2031 supports initiatives which:

- ensure that the planning and growth of activity centres is supported by timely delivery of appropriate transport infrastructure;
- implement the activity centres planning program in partnership with local governments, communities and key service providers, to assist in the planning, development and prioritisation of centres and coordination of service and infrastructure delivery; and
- supports the principles of transit oriented development in the planning and re-planning of activity centres to achieve better integration of land use and transport services.

Strategy: Improve the efficiency and effectiveness of public transport

Way forward: In recognition of the important role that public transport must play in shaping the future growth of the city and reducing dependence on the private car, the State Government has appointed an independent panel to provide advice on the preparation of a public transport plan for Perth. This plan will guide the next generation on investment in public transport infrastructure and identify opportunities to increase public transport use.

The proposed vision of the public transport network, when fully developed, will allow for a more effective means of travelling across and within suburbs, linking key activity centres and nodes, and significantly improving integration, efficiency and patronage. The network components of the 20-year public transport plan will feature rail and other rapid transit and high frequency bus services.

Directions 2031 has identified conceptual future public transport connections required to support and service the activity centres network. These connections will be subject to further consideration and refinement as the public transport plan is developed. In addition, to maximise the effectiveness of the public transport network, it will be necessary to identify minimum residential densities around key transport nodes. It is expected that the level of these densities will be substantially higher than current levels.

Strategy: Encourage a shift to more sustainable transport modes

Way forward: Directions 2031 recognises the importance of walking and cycling as not only the most sustainable form of transport, but also a major contributor to the health of our communities and for the contribution it can make to the overall travel picture as other parts of the movement network become more heavily congested.

Directions 2031 supports the promotion of the sustainable transport options including:

- planning and design of activity centres around transit oriented development principles to promote public transport, walking and cycling as an alternative to private car use;
- continued reinforcement of Liveable Neighbourhoods design principles in new urban growth areas;
- finalising the review of and subsequently implementing the Perth bicycle network to build upon the current cycling infrastructure and policy development to support state and local government initiatives to increase cycling activity;
- the Western Australian trails strategy which promotes community connectivity and health;
- Walk WA: A Walking Strategy for Western Australia which takes a whole-of-government approach to support the development of accessible environments in which the decision to walk is easier;
- the State Government TravelSmart program which works with local government to help households make informed travel choices about how to get places using their cars less and walking, cycling and using public transport more; and
- continued implementation of an accessible public transport system for people with disabilities which meets the access needs of the entire community.

Strategy: Maximise the efficiency of road infrastructure

Way forward: The State Government recognises that continued transport demand cannot be satisfied by simply building more roads, and it is investigating new approaches to improve the efficiency of the road network and to respond to the growing challenge of traffic congestion.

Main Roads WA is investigating and trialling congestion management approaches including real time road user information, incident management and ramp metering. Main Roads WA is also investing in a range of intelligent transport systems to deliver smoother running on our roads and freeways, improved road safety, transport cost savings and reduced greenhouse gas emissions. At the same time it must be recognised that there will still be a significant need for investment in road infrastructure.

Strategy: Protect freight networks and the movement economy

Way forward: Directions 2031 recognises the importance of freight movement to the city's economic prosperity. Directions 2031 also acknowledges the critical need to ensure that the freight network is well connected to key industrial areas and a well-balanced system of well-planned intermodal terminals. The WAPC State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning identifies a freight movement network of road and railway infrastructure. In responding to the increasing demand for various modes of freight transport in the future it will be necessary to:

- Protect major transport corridors and freight operations from incompatible urban encroachment, particularly those leading to major ports. SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning provides a standardised and consistent triple bottom line framework for the consideration and management of the impacts of transport noise and freight operations on new developments, such that transport corridors, freight operations and urban development can co-exist provided that the necessary mitigation treatments are applied.
- Ensure that future freight corridors are identified early enough to provide sufficient space for the movement network and offsets to adjacent development. The adjacent development also needs to be appropriately zoned and developed to mitigate the potential conflicts between land use and freight corridor use.
- Identify appropriate locations for freight intermodal terminals in response to the increasing role of these facilities in the future; and, in recognition that intermodal terminals are required for interstate, intrastate and international trade.
- Ensure third party access to any new private freight rail and port facilities, where unused capacity exists, and commercial arrangements can be negotiated for the use of those facilities.
- Assess on a continuous basis, industry demand for strategic new freight infrastructure connections and associated facilities such as intermodal terminals. Concurrently, efforts aimed at achieving more efficient usage of existing transport infrastructure must be supported, such as encouraging 24-hour access to the major ports in order to spread the impact of large vehicles accessing the port.
- Analyse and identify future high-wide load corridors for the movement of indivisible loads through the metropolitan area.

Strategy: Consider parking in the overall transport picture

Way forward: The Department of Planning is developing a medium to long-term metropolitan parking framework for centres which will address the appropriate levels of parking, a structure for assessing parking provision and appropriate management and regulatory structures. Prioritised access, pricing and financial support for public transport will be considered along with support for good urban design and amenity, including developing guiding principles for local government on good parking practices.

Strategy: Plan and develop transit oriented developments to accommodate mixed use and higher density housing development

Way forward: Maximise the benefits to the community of an effective and well-used public transit system by promoting, planning and developing outcomes that will support and sustain public transport use, and will achieve the more effective integration of land use and public transport infrastructure.

The WAPC and Department of Planning will continue to refine the focus of its transit oriented development program to achieve the best outcomes and deliver Directions 2031; and to act on the most effective interventions in partnership with local governments and other major stakeholders. Priorities will be informed by a range of factors including diversity of activity, provision of employment and dwellings; accessibility to more sustainable transport modes; partnership potential; strategic significance; potential patronage; need for infrastructure; social benefits; and development opportunities.

Theme: A sustainable city

Objective: We should grow within the constraints placed on us by the environment we live in.

Strategy: Protect our natural and built environments and scarce resources; respond to social change and optimise the land use and transport conditions that create vibrant, accessible, healthy and adaptable communities

Way forward: The State Planning Framework unites existing state and regional planning policies, strategies and guidelines within a central framework which provides a context for decision-making on land use and development in Western Australia. It informs the WAPC, local government and others involved in the planning process on those aspects of state level planning policy which are to be taken into account, and given effect to, in order to ensure integrated decision-making across all spheres of planning.

Strategy: Protect and manage significant biodiversity areas

Way forward: Key to maintaining a degree of biodiversity within an urban setting is the identification, protection and management of areas that demonstrate genetic species and ecosystem diversity. Directions 2031 supports the following initiatives aimed at improving the biodiversity of our city:

- Ongoing implementation of Bush Forever, a whole-of-government initiative designed to identify, protect and manage regionally significant bushland on the Swan coastal plain. This is a key part of the State Government's contribution to the National Strategy for the Conservation of Australia's Biological Diversity. It is anticipated that this initiative will eventually be expanded into the Peel region through Swan Bioplan, an initiative of the Department of Environment and Conservation.
- Implementation of the Western Australian Local Government Association Local Government Biodiversity Planning Guidelines, an initiative aimed at identifying and integrating local biodiversity considerations into land use planning.
- Ongoing preparation and implementation of state planning policies that support the protection of significant environmental attributes in the Perth and Peel region, including State Planning Policy 2.9 Water Resources which recommends that identified significant water resources, such as conservation category wetlands, not be developed.
- Identification, protection and management of environmental assets early in the planning process through the integration of land and water planning in the State Government's Better Urban Water Management framework.

Strategy: Protect matters of national environmental significance

Way forward: The Commonwealth listed species, communities, areas and places are to be considered in the planning process, and the intent and application of the EPBC Act is to be observed particularly during the structure planning process for greenfield developments.

Strategy: Protect water resources

Way forward: The protection of surface and groundwater supplies and the water catchments will become increasingly important as the city grows. The continued preservation of these resources through the metropolitan Perth and Peel region schemes, and the application of Statement of Planning Policy 2.7 Public Drinking Water Source Policy will help to maintain adequate water supplies for a growing population.

Directions 2031 supports further State Government initiatives aimed at addressing these challenges including:

- protection of surface and groundwater drinking supplies and their water catchments through appropriate strategies, zonings, reservations and special control areas in the metropolitan and Peel region schemes;

- Statement of Planning Policy 2.7 Public Drinking Water Source Policy adopted by the WAPC to ensure that land use and development are compatible with the protection and long-term management of water supplies; and
- the 2009 draft Department of Water Perth-Peel Regional Water Plan 2010-2030, which sets out strategic directions for the sustainable management of the region's water resources to 2030.

Directions 2031 promotes the application of water sensitive urban design principles as the most effective way to manage stormwater in an urban setting, to achieve more efficient and effective use of water and better outcomes for the environment and urban form.

This approach is based on total water cycle management which recognises the interconnectedness of all water, including water supply, ground water, stormwater, wastewater, flooding, wetlands, watercourses, estuaries and coastal waters. The urban water cycle should be managed as a single system in which all urban water flows are recognised as an important natural asset and potential resource.

The State Government's Better Urban Water Management has been adopted as the preferred policy approach in working towards water sensitive urban design. This approach was collaboratively developed by the Department for Planning and Infrastructure, Department of Water, the Western Australian Local Government Association and the Commonwealth Department of the Environment, Water, Heritage and the Arts. This policy has been designed to ensure an appropriate level of consideration is given to the total water cycle at each stage of the planning system.

The Department of Water Stormwater Management Manual provides a variety of best practice stormwater management options suitable to a range of built environments, and considers stormwater as part of the overall water cycle management picture. It has been produced to provide guidance to all parties involved in the stormwater management process, including developers, environmental consultants, environmental/community groups, industry, local government, water resource suppliers and state government agencies.

Strategy: Mitigate and adapt to climate change

Way forward: A key planning task is to influence a change in personal travel patterns, in particular by encouraging alternatives to private car use which generates more than 50 percent of total transport emissions. Directions 2031 seeks to address this challenge by:

- improving the relationship between land use and alternative transport modes such as cycling and walking, improving urban design and making optimum use of existing infrastructure;

- identifying opportunities for new public transport services and encouraging a shift to non-motorised forms of transport, and encouraging higher levels of employment self-sufficiency to reduce travel demand;
- recognising and building on the growing preference for non-motorised forms of transport, including walking and cycling; and
- promoting higher levels of employment self-sufficiency in sub-regional areas, thereby reducing commuting distances and times.

Living Smart has been developed to target behavioural issues by guiding household improvements in the areas of water, energy, waste and travel. This innovative community engagement program has demonstrated the potential to impact on reducing energy use.

Strategy: Reduce waste generation and encourage reuse and recycling

Way forward: The Department of Planning will continue to work with the Waste Authority and the Department of Environment and Conservation to provide advice on the suitability of locations for future waste management facilities, their transport routes and any necessary buffers to sensitive land uses, and encourage waste generators and businesses that might use or recycle these wastes to co-locate where possible.

The Living Smart program makes a significant contribution to waste management as it includes guidance to households on minimising waste and promotes reuse and recycling.

Strategy: Improve air quality

Way forward: Air quality should be considered with respect to the location of residential development near major transport routes or interchanges as there is likely to be reduced air quality in these locations, and appropriate buffer controls around non-conforming land uses need to be maintained to ensure the compatibility of land uses.

The WAPC is committed to environmentally sustainable development as a participating member of the Department of Environment and Conservation Air Quality Coordinating Committee and a lead agency in the implementation of the Perth Air Quality Management Plan actions.

The Perth Air Quality Management Plan, released in December 2000, was developed to ensure that clean air is achieved and maintained throughout the Perth metropolitan region over the next 30 years. The implementation strategy developed in 2002 details how the actions of the plan are to take place; it consists of 12 initiatives that outline 126 actions aimed at improving Perth's air quality.

Strategy: Expand and enhance our open space network

Way forward: Directions 2031 supports the continued identification, acquisition and management of public open space to service a growing population. It also recognises that while the population is growing, its characteristics are changing. What was considered an acceptable provision of open space 20 years ago will need to evolve to cater for a different population composition in 20 years' time. The provision, design and layout of open spaces must reflect the diverse needs of the communities they serve. While some communities may require ready access to large areas of active recreation space for sporting pursuits, other communities, particularly higher density communities, may prefer smaller parks and public places.

Ongoing maintenance and development of a vibrant open space network will require detailed consideration of water supply issues and increasing levels of water efficiency and design innovation into the future.

Strategy: Integrate natural resource management into land use planning

Way forward: The WAPC endorsed the Directions Paper on the Integration of Natural Resources Management into Land Use Planning, which included a series of recommendations and actions to improve the integration of environmental matters into land use. This paper is focused on natural resource management, and identifies a number of areas for improvement under the following key themes:

- establishing clear policy direction for integrating natural resource management into the planning framework;
- ensuring whole-of-government involvement in natural resource management and land use planning; and
- promoting local government support for integration of natural resource management into land use planning.

Directions 2031 supports the recommendations of the directions paper to improve regulatory decision-making and reduce the time and cost associated with approvals processes.

Theme: A responsible city

Objective: We have a responsibility to manage urban growth and make the most efficient use of available land and infrastructure.

Strategy: Provide for a hierarchy of strategic plans for the metropolitan Perth and Peel region

Way forward: Directions 2031 is the highest level spatial framework and strategic plan to manage the growth of the metropolitan Perth and Peel region over the medium to long-term planning horizon of 2031 and beyond.

The spatial framework outlines population growth scenarios and land use patterns for a medium to long-term increase of half a million people by 2031, and prepares for a city of 3.5 million people by 2050.

The strategic plan will guide the development of more detailed sub-regional strategies and plans, and the provision of infrastructure necessary to support growth.

The sub-regional strategies focus on the detailed planning and infrastructure required to accommodate residential growth in the central and outer metropolitan Perth and Peel sub-regions.

From 1 January 2012, the Commonwealth will link future infrastructure funding to states and territories that meet these national criteria. Directions 2031 provides the appropriate framework to demonstrate how Western Australia will meet the national criteria.

Strategy: Maximise essential urban infrastructure efficiency and equity; and develop a coordinated approach to infrastructure and land use planning and development

Way forward: Infrastructure agencies have strategic investment plans to provide or upgrade the capacity of existing essential services, networks and social infrastructure throughout the metropolitan Perth and Peel region. Over the next 20 years, it will be necessary to ensure effective coordination between land use and infrastructure planning agencies to facilitate the new infrastructure required to support future growth.

The effective delivery of infrastructure will require assessments of existing capacity, future demand, land requirements, funding and a strategic plan within which to operate.

The Urban Development Program is prepared as a statutory function of the WAPC to advise the government on land use planning and the coordination of services and infrastructure provision. The Urban Development Program, through the WAPC Infrastructure Coordinating Committee (ICC) supports inter-agency decision-making about urban development in the region and the provision of services to the community.

The Urban Development Program will:

- identify and monitor past, current and projected residential land development activity and the provision of associated essential services and community infrastructure within a five-year time horizon;
- monitor residential growth and infrastructure development trends to inform urban growth management policy; and
- provide up-to-date data about the likely future development of the urban development program region, as a reference for infrastructure agencies to use when planning their networks and capital works investment.

Current policy settings relating to infrastructure and service provision will be reviewed to ensure the increasing costs of delivery are equitably distributed as the city grows.

Strategy: Minimise conflict between land use and key infrastructure assets

Way forward: In order to minimise conflict between land use and key infrastructure assets:

- local planning strategies should promote the economic role of key industrial zones in providing employment diversity and support their retention, efficient operations and growth by ensuring compatible land use;
- apply appropriate planning reservations to minimise land use conflicts and maintain the long-term efficiency of the freight network; and
- provide appropriate planning reservations to accommodate the role of transport corridors as general infrastructure corridors (gas, power, water and sewerage, telecommunications).

Strategy: Improve the timing and coordination of infrastructure for new areas

Way forward:

Urban Development Program:

The purpose of the Department of Planning's Urban Development Program is to coordinate and promote the development of serviced land in a sustainable manner for the guidance of state infrastructure agencies, public utilities and local governments. The program also includes research on land development, and provides advice on land development.

The Urban Development Program was undertaken to develop a staging plan for infrastructure provision based on the metropolitan sub-regional strategies which are being developed to implement Directions 2031.

Infrastructure Coordinating Committee:

In order to facilitate planning for essential infrastructure throughout the state, the WAPC has established the Infrastructure Coordinating Committee (ICC). Membership of the ICC is sourced from a range of state government infrastructure providers and users to provide an integrated approach to infrastructure and land use planning. The ICC oversees the Department of Planning's Urban Development Program.

Strategy: Plan for an efficient and equitable distribution of social infrastructure

Way forward: Directions 2031 recognises the important role that social infrastructure plays in supporting the growth of the city and attracting business investment and skilled workers. Investigation of social infrastructure requirements will be in the metropolitan sub-regional strategies which implement the objectives of Directions 2031 at the local level.

Strategy: Engage with the development industry, state government agencies, local government and the community to implement the strategy

Way forward: The Department of Planning will establish a stakeholder engagement plan which will guide future consultation on urban growth issues affecting Perth and Peel. The plan will guide the ongoing consultation with key state infrastructure and service agencies, public utilities and local governments to address:

- new infrastructure projects or upgrades to existing services to support the expected level of growth through infill development;
- the provision of infrastructure to support the development of existing urban and urban deferred zoned land; and
- the medium to long-term requirements of providing essential infrastructure services to future urban expansion areas.

These tasks will be developed over time through the metropolitan sub-regional strategies and the proposed Department of Planning urban expansion management program.

The plan will enable the creation of a stakeholder map and an opportunity to record the raising and resolution of issues in urban growth as identified by stakeholders in state and local government, the development industry and the community.

Implementation

The strategies and ways forward, outlined above, are included in implementation tables, identifying each initiative, a time frame, the lead agency and partners/stakeholders. The WAPC and/or Department of Planning are the lead agency for most initiatives.

2.2.3.7 Outer Metropolitan Perth and Peel Sub-regional Strategy

The *Outer Metropolitan Perth and Peel Sub-regional Strategy* was prepared by the Commission and the Department of Planning, was released in August 2010, in conjunction with *Directions 2031 and Beyond* (see section 2.2.3.6 above).

While *Directions 2031 and Beyond* provides the highest level of strategic metropolitan planning, the complexity of strategic planning for the metropolitan area requires sub-regional strategies to provide guidance at the local level. The WAPC and Department of Planning have prepared and released two sub-regional strategies. One is for the Central Metropolitan Perth sub-region. The Outer Metropolitan Perth and Peel Sub-regional Strategy is for the five other sub-regions within the Perth and Peel region, including the North-east sub-region. The North-east sub-region comprises the Shire of Mundaring, City of Swan and Shire of Kalamunda.

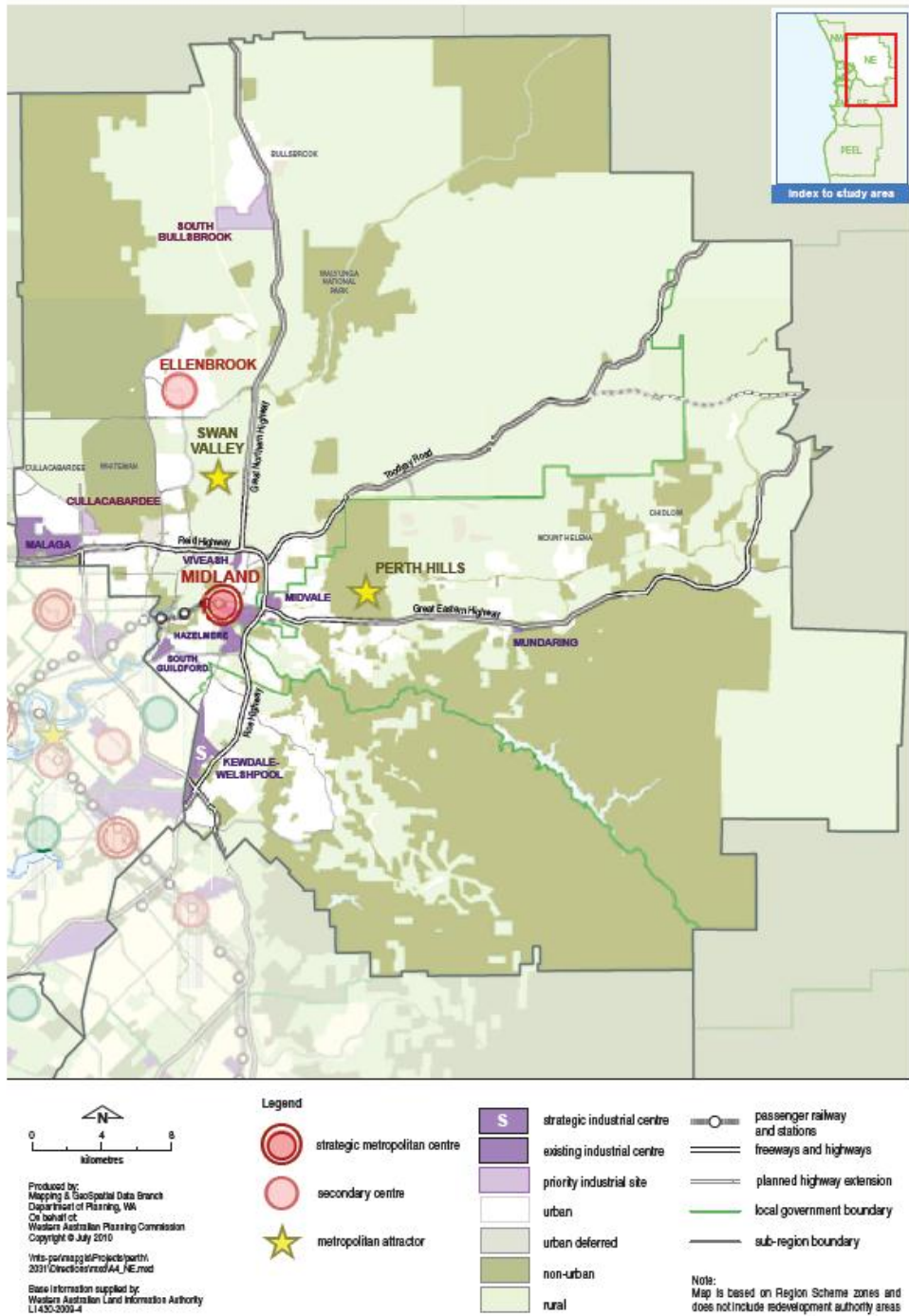


Figure 15: North-east sub-region

Figure 8: Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon - North-East Sub-Region

Housing targets

As outlined in section 2.2.3.6 above, Directions 2031 and Beyond anticipates the following changes in population and dwellings for the North-east sub-region:

	2008	2031	Change (2008-2031)
Population	189,000	258,000	69,000
Dwellings	73,000	113,000	40,000

Urban expansion management program

Directions 2031 and Beyond identifies the need to establish an urban expansion management program. This program will be responsible for ensuring at least an ongoing 15 year land supply pipeline of current urban and urban deferred zoned land and a 10 year buffer of urban expansion areas. To ensure this supply, the urban expansion management program will need to:

- identify land ahead of the rezoning process;
- stage the rezoning of that land in response to future growth trends;
- ensure that there is sufficient land available for development at all times, without the need for blanket rezonings;
- identify land for rezoning to take place at the appropriate time in the most suitable locations; and
- complement the Urban Development Program, which coordinates the planning and release of serviced land in response to population growth trends and emerging development and planning opportunities and barriers.

The urban expansion management program will use five categories to describe planned or potential urban expansion areas:

1. Undeveloped Urban zoned land
2. Undeveloped Urban Deferred zoned land
3. Areas in the process of Region Scheme rezoning
4. Urban expansion areas
5. Investigation areas

Urban expansion areas are areas identified as potential urban expansion areas for rezoning in the short term (within five years). Investigation areas are identified for potential rezoning within the medium term (within five to ten years).

The Strategy explores various scenarios (considering factors such as rates of infill development and residential densities) for the development of the city to a point where its population reaches 3.5 million. Based on these scenarios, the approximate amount of additional land required for urban development to accommodate 3.5 million people ranges from 12,900 ha to 44,600 ha. The Strategy, and Directions 2031 and Beyond, adopt a connected city scenario, which would result in a need for around 20,300 ha of additional urban land.

The Strategy incorporates a draft urban expansion plan which indicates a spread of urban expansion areas or investigation areas across the five outer Perth and Peel sub-regions (North-west, North-east, South-east, South-west, Peel). These areas have been identified based on opportunities and constraints mapping, a range of performance indicators and the appropriate allocation of urban expansion and investigation areas between the sub-regions.

The performance indicators used to determine the suitability of areas for future development are as follows:

1. The proposal demonstrates compliance with the WAPC's planning framework, including any relevant policies and endorsed strategies.
2. The proposed area represents a logical expansion of the urban area and does not result in land use conflict.
3. The land is capable of being provided with essential services and that the expansion of the servicing infrastructure is logical and economically efficient and has the agreement of the service providers with regard to the staging and financing of the infrastructure.
4. The development of the area will not have significant impact on the environment and natural resources which cannot be appropriately managed.
5. The proposal is able to integrate and provide for regional needs; for example movement networks such as road, rail and public transport, and regional social infrastructure such as hospitals and tertiary institutions.
6. The proposed area satisfactorily demonstrates through an employment strategy where the resulting community's employment will be located and the degree of self sufficiency that could be achieved.

Additionally, the Strategy indicates that the WAPC considers agricultural land and the resources that sustain it to be finite State resources that must be conserved and managed for the future. Accordingly, farming and agricultural land needs to be protected from rural residential development and urban development that leads to alienation or fragmentation of this land, resulting in diminished productivity.

The Strategy makes clear that it should not be assumed that urban expansion areas and investigation areas indicated in the draft urban expansion plan will be rezoned for urban or industrial development at any time.

North-east sub-region

The Strategy contains detailed information and guidance for each of the five outer sub-regions. Only that information relating to the North-east sub-region, of which the Shire of Mundaring is a part, is included here, and information relating to the Shire of Mundaring is emphasised.

Across the Perth and Peel region, 32,300 ha of land is identified in the urban expansion plan. Approximately 22,000 ha of this is undeveloped land currently zoned Urban or Urban Deferred. Approximately 3,800 ha of land is indicated as urban expansion areas, and approximately 6,500 ha as investigation areas. In the North-east sub-region, 400 ha are identified as urban expansion areas and 600 ha as investigation areas. Only one such area is identified within the Shire of Mundaring – 22 ha of land in Bellevue is identified as an urban investigation area (see section 5.2.4 below). A 52 ha site on the former Bushmead Rifle Range, in the City of Swan adjacent to the Shire of Mundaring, is also identified as an urban investigation area. These sites are shown on the Strategy's North-east sub-region spatial framework map (see Figure 9).

Other planned urban growth areas, urban expansion areas and urban investigation areas identified in the North-east sub-region include the Swan urban growth corridor (Albion, West Swan, Caversham), development within the Midland Redevelopment Authority area, Bullsbrook, Uppers Swan, Gidgegannup and Forrestfield.

Importantly, the Outer Metropolitan Perth and Peel Sub-regional Strategy recognises that the Shire's Local Planning Strategy indicates several areas for minor, incremental urban growth and that these areas are not shown on the draft urban expansion plan. This recognition means that possible incremental expansion of some townsites, identified in Part 4 of this Local Planning Strategy, can be pursued notwithstanding their omission from the draft urban expansion plan.

The Strategy estimates that between 3,950 and 4,970 additional dwellings can be built in the Shire of Mundaring based on currently identified infill opportunities, existing Urban and Urban Deferred zoned land and urban expansion and investigation areas.

Figure 17: Draft urban expansion plan

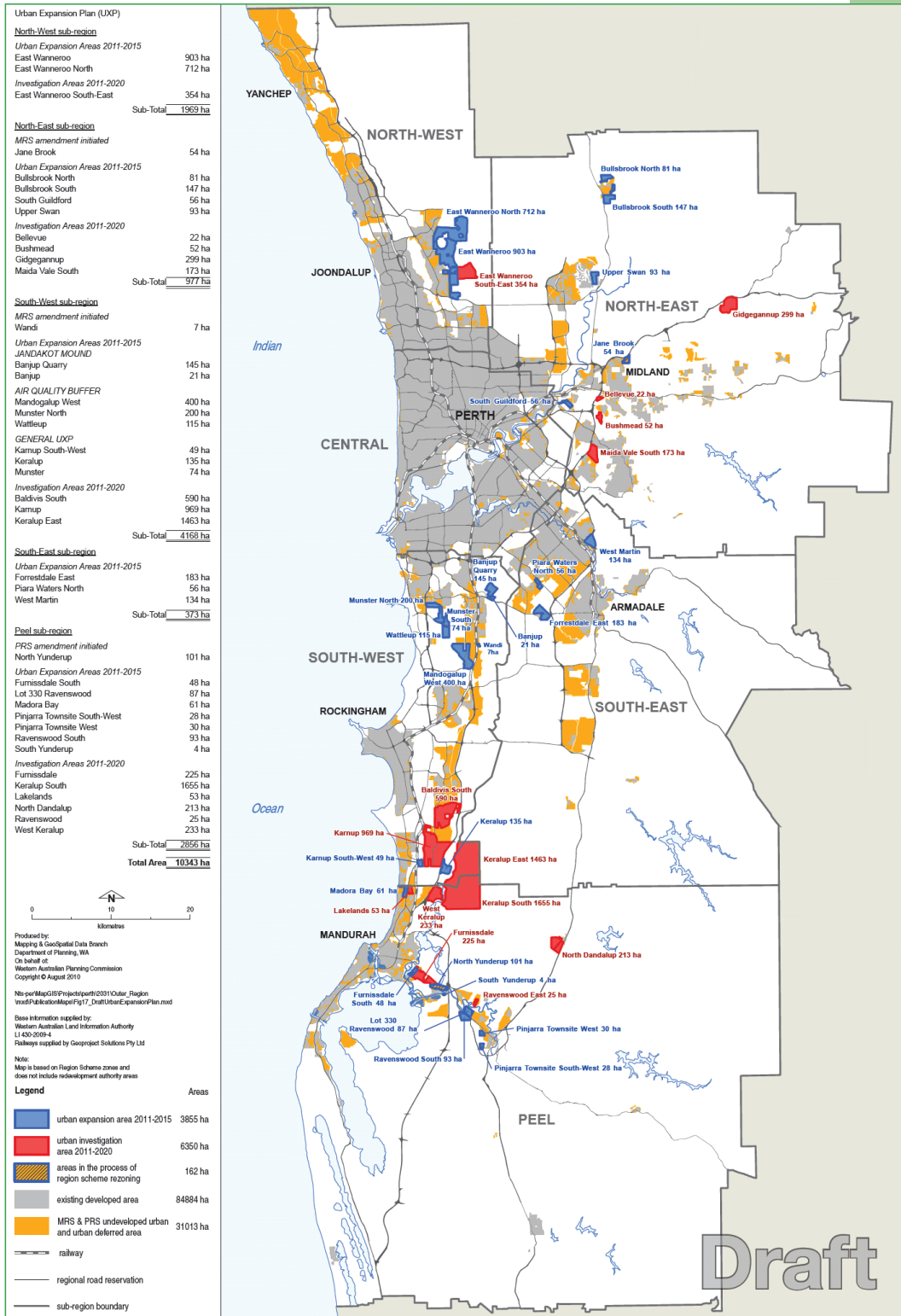


Figure 9: Outer Metropolitan Perth and Peel Sub-regional Strategy: North-east sub-region spatial framework map

The Strategy indicates that the current employment self-sufficiency rate for the North-east sub-region is 63%. To raise this to 75%, the target set in Directions 2031 and Beyond, an estimated 53,000 to 64,000 additional jobs will be required in the sub-region over the next 25 years. The Strategy identifies the need for a Metropolitan and Peel Region economic development and employment strategy which will, among other things, address providing increased local employment in the Shire of Mundaring, and identifying additional industrial and employment land and the potential for increased tourism opportunities across the North-east sub-region.

With respect to infrastructure, the Strategy notes the currently proposed doubling of the capacity of the Mundaring Wastewater Treatment Plant, and the proposed grade separation of the Great Eastern Highway/Roe Highway intersection. The Strategy states that an upgrade of Great Eastern Highway to a four-lane road between Roe Highway and The Lakes roadhouse is required; all of that section is already a four-lane road, however, other than a short section through the Sawyers Valley townsite. The Strategy also notes that it may be many years before the future Perth – Adelaide Highway replaces the existing regional role of the Great Eastern Highway. Lastly, with respect to the proposed Hills Spine Road, the Strategy notes that if urban development proceeds in North Parkerville and North Stoneville, an east-west road will be required between Roland Road and Stoneville Road; however, planning for this road has also included a section from Toodyay Road (future Perth – Adelaide Highway) to Roland Road, not mentioned in the Strategy.

2.2.4 Strategic Policies

2.2.4.1 Government Sewerage Policy: Perth Metropolitan Region

The *Government Sewerage Policy: Perth Metropolitan Region*, was most recently revised in 1995. It breaks the Metropolitan Region into the Inner Metropolitan Area and Outer Metropolitan Area; the entire Shire of Mundaring is within the Outer Metropolitan Area.

The Policy requires that all subdivision (including strata subdivision) or “density development” be provided with reticulated sewerage. Density development is defined as any residential development greater than a single house, or a non-residential development likely to generate wastewater at a rate greater than a single residential equivalent (a predicted output of up to 540 litres per day).

The Policy specifies certain exceptions to this general requirement. Those exceptions that apply within the Shire of Mundaring are:

- *small infill:*

This refers to proposals for small infill subdivision or development that do not have potential for creation of more than four additional lots, dwellings or single residential equivalents in the immediate vicinity (generally interpreted as within the street block), so that the proposal completes rather than extends an existing pattern of subdivision or development (lot sizes and land use are to be consistent with the existing pattern of subdivision or development).

- *large lots:*

This refers to proposals for subdivision to create lots no less than 2000 m² or density development not exceeding that permissible under the R5 residential design code (the responsible authorities must be satisfied there is no significant detriment to the environment and no further opportunity for subdivision without sewerage).

- *remote and isolated:*

This refers to proposals for remote and isolated subdivision or density development, meaning subdivision or density development of land remote from existing or proposed urban land, being land zoned Urban or Urban Deferred in the Metropolitan Region Scheme and/or which may be developed at a density of R5 or greater (ie. lot sizes of 2000 m² or less). These are an exception if the proposals do not involve the potential for creation of more than 25 lots, dwellings or single residential equivalents and the applicant can demonstrate to the satisfaction of the responsible authorities that:

- (i) site conditions allow for effective on-site wastewater disposal on a long-term basis;
- (ii) residential development does not exceed the R12.5 density, with no wastewater to be disposed on any individual lot of less than 700 m²; and
- (iii) connection to reticulated sewer is not economical or practical within the foreseeable future.

- *aged persons' accommodation developments:*

This refers to proposals for aged or dependent persons' accommodation:

- (i) which does not exceed a density of R12.5;
- (ii) for which the proponent has demonstrated to the satisfaction of the local government a community need for such development in that location, and that the location is suitable for such development;
- (iii) where the local government is satisfied there is no better alternative site for such development in the locality which could reasonably be connected to sewerage;

- (iv) where an appropriate wastewater treatment system approved the Executive Director, Public Health is used;
- (v) where the wastewater treatment and disposal systems is owned and operated by a single identifiable person or body, with an acceptable maintenance program in place; and
- (vi) internal wastewater reticulation system is of an acceptable standard and includes provision for connection to sewer when it becomes available.

The policy goes on to indicate implementation measures, and contains appendices setting site requirements for on-site wastewater disposal and for aged persons' accommodation.

2.2.4.2 Metropolitan Rural Policy

The *Metropolitan Rural Policy* (Ministry For Planning, December 1995) applies to land zoned Rural in the Metropolitan Region Scheme. A substantial portion of the Shire of Mundaring falls within this area (see section 2.3 below).

The Policy contains policy measures on a range of topics. These refer to local rural strategies, as the policy pre-dates the introduction of local planning strategies. These references can now be taken to refer to local planning strategies. The policy measures for each topic include:

Agricultural land

- Commercial agriculture, particularly horticulture, is a legitimate and necessary use in the metropolitan region and local rural strategies and town planning schemes should encourage the continued use of better quality agricultural land for agricultural purposes.
- Local authorities should develop appropriate policies for land which they wish to retain in agricultural production and ensure that appropriate zoning and planning controls are applied to the area.
- There should be restrictions on the subdivision of productive agricultural land except where subdivisions are intended for genuine agricultural purposes and lot sizes are capable of sustaining long-term agricultural uses.

Basic raw materials

- Land identified as Basic Raw Materials Resource Areas, Priority Resource Areas, Extraction Areas and Key Extraction Areas in the *Basic Raw Materials Policy Statement for the Perth Metropolitan Region* should be identified in local rural strategies and towns planning schemes and appropriate measures included for their protection and exploitation in accordance with that policy.
- Existing and future extractive operations should be controlled to minimise detriment to the region's environment, landscape, water resources and amenity. Rehabilitation of all sites should be carried out in accordance with a rehabilitation program recognising the ultimate long-term use of the land.
- Subdivision and development of land will not normally be permitted within Resource Areas (unless exempted due to alternative land use commitments), Priority Resource Areas or Key Extraction Areas and associated buffer zones, except where it can be demonstrated that the proposal will not prejudice the long-term exploitation of the resource.

Future Urban land

- Local rural strategies and town planning schemes, where appropriate, should identify and protect land required for future urban purposes.
- Existing lot sizes should be retained by restricting further subdivision.

Major public uses and installations

- Local rural strategies and town planning schemes should identify and protect sites for existing major public uses and installations and protect options for the siting of such facilities which may be required in the future.

Land uses requiring special consideration

- Local rural strategies and town planning schemes should identify those areas suitable for rural uses with off-site impacts which should avoid existing and future urban areas and rural-residential development.
- Suitable measures should be introduced to minimise the impact of rural uses on residential and rural-residential development which may include conditions on the operation of the rural use, buffer zones, site design requirements, boundary treatment and landscaping.

- Suitable measures should be introduced to minimise the impacts of rural uses on surface and groundwater catchments, land adjacent to wetlands and water courses, areas of landscape and scenic values and areas of high bushfire risk.
- Rural uses with potential off-site impacts should be discretionary rather than as of right in the Rural zone, or included in a separate Special Use zone, and be prohibited in all other zones.
- Local governments should take steps to advise prospective purchasers and the general public of rural uses in the locality with off-site impacts by way of brochures, advice notes and other means.

Landscape and conservation areas

- Local rural strategies and local planning schemes should recognise and protect important bushland and environmentally sensitive land which exhibits vegetation, wildlife habitat and landscape quality.
- General planning controls in rural conservation areas should include:
 - control on the subdivision of land
 - careful planning and location of development to protect conservation values
 - retention of trees and vegetation
 - controls on intensive agriculture and animal stocking rates
 - protection against environmental degradation
- General planning controls in rural landscape interest areas should include:
 - careful selection of permissible uses
 - ensuring subdivisions are compatible with retention of the landscape interest of the area
 - controls over removal of trees and vegetation
 - development to be designed to blend with the scale and character of the rural landscape
 - development to avoid prominent locations such as ridgelines, escarpments, hill tops or visually exposed valleys
 - conditions on development to incorporate non-reflective surfaces, screen planting and setbacks from road frontages
 - designation of building envelopes

Water resource management

- Local rural strategies and town planning schemes should recognise water catchment areas and incorporate appropriate controls over the nature and intensity of land use and development.

Rural-residential development

- Local rural strategies and town planning schemes should identify opportunities for rural-residential subdivision taking into account the capability and suitability of the land for this purpose and having regard to the need to protect the open character of rural land, safeguard environmentally sensitive areas and rural resources, maintain future urban options and generally achieve a more contained pattern of metropolitan development. While accepting there is a market demand for rural residential and rural retreats, these wider metropolitan concerns dictate that the over-riding emphasis should be on a policy of restraint. Provision for rural-residential development should be based on a genuine demand for this type of property.
- Rural-residential development should accord with land capability assessment and avoid land with problems or risks relating to effluent disposal, water pollution, soil erosion, waterlogging and inundation, slope and ground stability, and bushfire.
- Rural-residential development should exclude productive agricultural land, important basic raw material deposits, regionally significant landscapes, other environmentally sensitive areas and future urban areas.
- In identifying opportunities for rural-residential development, preference should be given to existing settlements which already provide community services and facilities
- Local governments should be satisfied there is a genuine demand before allocating land in local rural strategies or initiating rezoning amendments for rural-residential development. Demand should be based on the annual average rate of development of rural-residential lots over the previous five or ten years. Evidence of development should be derived from building approvals for houses and other improvements, and the actual use of the land.

2.2.4.3 Bush Forever

Bush Forever (December 2000), was prepared by the then Ministry for Planning, Department of Environmental Protection, Department of Conservation and Land Management and Water and Rivers Commission. The document was a ten-year strategic plan to protect over 50,000 ha of regionally significant bushland, representing, where achievable, a target of at least 10 percent of each of the original 26 vegetation complexes of the Swan Coastal Plain portion of the Perth Metropolitan Region (plus a small portion of the Shire of Gingin). *Bush Forever* does not include locally significant bushland sites. Only a small portion of the Shire of Mundaring falls within the area covered by *Bush Forever*.

The document conveys the recommendation that all new planning and development strategies, development proposals and operational activities should seek to avoid, wherever possible, any adverse impacts on regionally significant bushland identified in *Bush Forever*, consistent with the implementation recommendations for each site.

Bush Forever sites

The document identifies 287 Bush Forever Sites within its study area. Of these, only two are in the Shire of Mundaring, both in Helena Valley (location map at Figure 10). Those sites, their attributes, and the recommendations for each in *Bush Forever*, are:

Site 215: Helena River, Helena Valley

Attributes:

- partly within areas M33 and M34 of System 6
- vegetation condition: 30% very good, 30% good, 40% degraded
- contains significant flora: *Anthocercis gracilis* (rare), *Hakea myrtoides*
- site for significant mammal species: quenda
- linkages: is adjacent to bushland in the north and part of a regionally significant fragmented bushland/wetland linkage
- naturally vegetated watercourses have particular conservation value in providing habitat for fauna and linkage between larger more intact areas of bushland
- contains open space of regional significance
- contains 4.86 km of regionally significant river (Water and Rivers Commission, 1996)
- is a location of conservation category wetlands
- contains C Class Crown reserve

- contains privately owned land
- identified in Perth's Greenways

Recommendations:

The site is divided into Parts A and B. Part A is mostly within the Parks and Recreation Reserve in the Metropolitan Region (MRS) Scheme, while Part B is zoned Rural under the MRS. *Bush Forever* contains specific recommendations for the categories of land the site falls within (see below).

Site 216: Adelaide Crescent Bushland, Helena Valley

Attributes:

- vegetation condition: 70% excellent, under 25% very good (with areas of severe localised disturbance)
- site for significant mammal species: quenda
- linkages: is adjacent to bushland in the south (Bush Forever Site 213) and east, and part of a regionally significant fragmented bushland/wetland linkage
- contains plant communities representative of the eastern side of the Swan Coastal Plain
- contains Ridge Hill Sandstone, a thin (10 m) sequence of shoreline sandstone and conglomerate, forming a geomorphic feature which is a reference level for global eustatic sea-level correlations; deposits are remnants of the oldest and highest shoreline feature in the Perth basin, thought to have been formed during the early Pleistocene
- contains C Class Crown reserve
- contains privately owned land

Recommendations:

The site is divided into Parts A and B. Part A is reserved for Public Open Space under the Shire of Mundaring Town Planning Scheme No. 3, but zoned Rural under the MRS. *Bush Forever* recommends Part A be included in the Parks and Recreation Reserve under the MRS. Part B is zoned Rural Landscape Living under TPS No. 3, and Rural under the MRS. *Bush Forever* recommends complementary mechanisms for Rural zoned lands in the MRS (see below).

Site implementation guidelines

Bush Forever contains specific recommendations in the form of implementation guidelines and actions which outline the various options and approaches for implementing the site recommendations for each Bush Forever Site. These are contained in summary form in Table 2 of *Bush Forever*, with more detailed practice notes in a separate appendix to the document.

The site implementation guidelines fall under several broad categories, each of which has a number of sub-categories. The broad categories are:

- negotiated planning solutions
- complementary mechanisms for Rural Zoned land
- Parks and Recreation Reserves
- other ownerships and land use interests

Table 3 of *Bush Forever* indicates which of these site implementation guidelines apply to each of the 287 Bush Forever Sites. The relevant guidelines and actions in Table 2 which apply to the two Bush Forever Sites in the Shire of Mundaring are as follows:

Site 215:

Existing Parks and Recreation Reserves (Practice Note No. 14)

- The WAPC will consider future case-by-case reviews of Parks and Recreation reserves in the MRS, which achieve wider conservation, planning and community outcomes, subject to other planning and environmental considerations.
- Future planned recreational development, management and service provision should avoid regionally significant bushland within Parks and Recreation reserves, where possible. Where no alternative exists, proposals will be subject to an assessment of vegetation against the regional criteria of Bush Forever, where required, and planning and environmental considerations beyond bushland protection.

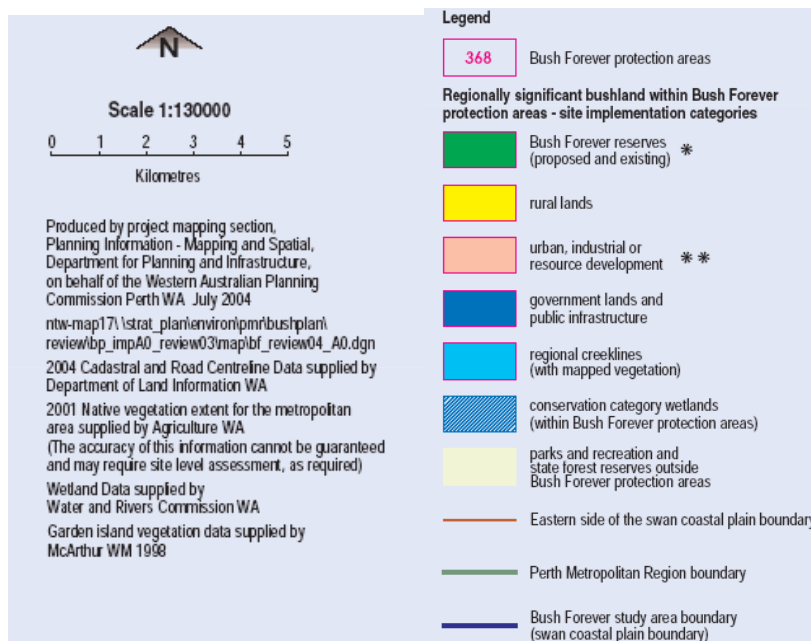
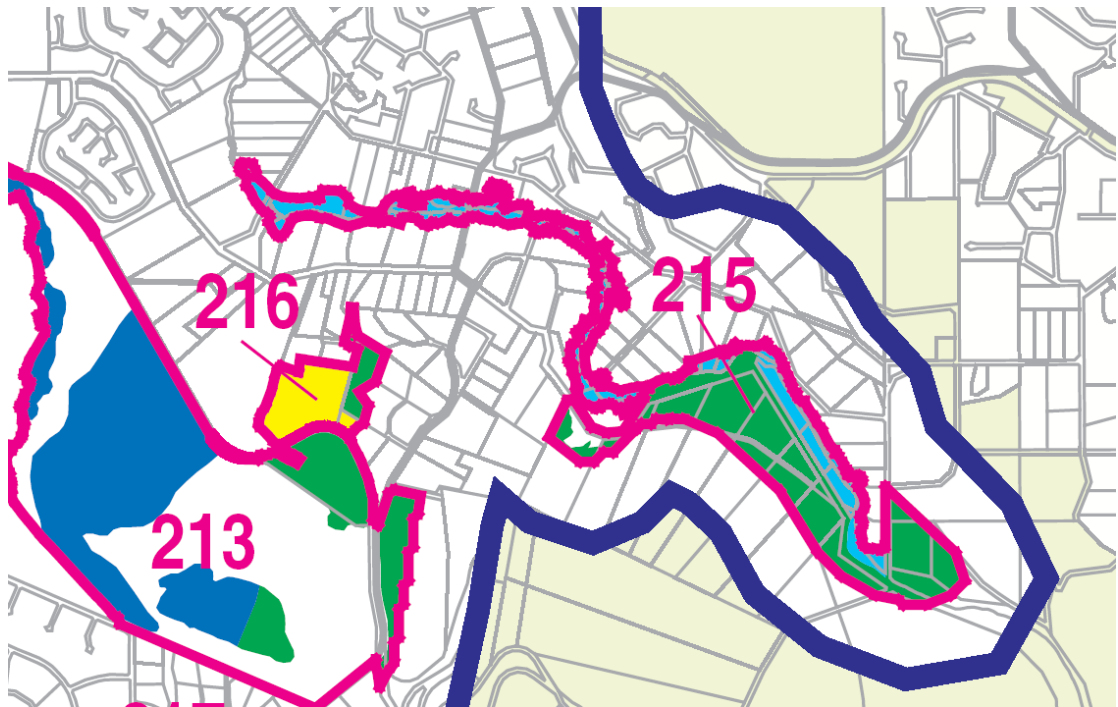


Figure 10: Location of Bush Forever Sites with the Shire of Mundaring
(note: Site 213, former Bushmead Rifle Range, is in the City of Swan)

Site 216:

Complementary mechanisms for Rural zoned land – general guiding principles (Practice Note No. 7)

- Bush Forever will seek to maximise the retention of vegetation in rural areas through liaison and negotiation with individual landowners on a case-by-case basis in order to achieve a reasonable outcome.

Bushland management support, funding incentives and protection mechanisms (Practice Note No. 8)

- The government will support landowners seeking advice, agreements, statutory protection and financial assistance from existing programs, where possible, to offer a suite of complementary mechanisms suited to individual circumstances.

Rural negotiated planning solutions – future rural subdivision for conservation (Planning Practice Note No. 9)

- Bush Forever Sites identified for complementary mechanisms may be considered for a form of rural negotiated outcome, such as limited conservation-compatible rural subdivision for large bush blocks or low-key rural cluster development, provided there is an overriding conservation outcome involving statutory conservation covenants, but subject to other planning and environmental considerations and the performance and design criteria established in Practice Note No. 10 (to be used as an interim guide pending the preparation of detailed bushland-sensitive design guidelines).
- Lot sizes for bush blocks and cluster development will be subject to the bushland protection objectives, management and marketing considerations, prevailing site conditions and environmental constraints, including drainage, water supply and quality, erosion, road and wastewater services, fire, visual amenity, heritage and other planning considerations.

Rural negotiated planning solutions – low-impact rural living in a bushland setting (Practice Note No. 11)

- The WAPC will develop general guidelines and provisions for complementary bushland protection zoning or Special Control Areas through a Statement of Planning Policy.

- Future intensive rural living subdivision without prior planning approvals or commitments for Bush Forever Sites will not be supported unless it provides an overriding conservation outcome, and will be subject to other planning and environmental considerations and site-specific requirements.

Rural negotiated planning solutions – low-impact rural development in a bushland setting (Practice Note No. 12)

- Rural development (including single residential building envelopes) within cleared or degraded areas of Bush Forever Sites will be accommodated where it is compatible with bushland protection and the regionally significant bushland can be secured for conservation as part of any approval.

2.2.5 Operational Policies

The WAPC has many Development Control policies affecting land use planning, development and subdivision. While many of these are relevant to the Shire of Mundaring in its day to day exercise of its planning functions, a few have specific relevance to the preparation of a Local Planning Strategy and a town planning scheme.

2.2.5.1 WAPC DC 1.6: Planning to Support Transit Use and Transit Oriented Development

This policy is not directly applicable to the Shire of Mundaring, because it specifically applies to identified transit oriented precincts, none of which occur in the Shire of Mundaring. The policy gives guidance on land use, including residential densities, and design to support transit (ie. to support high-frequency public transport services). The policy applies to the development of town planning schemes in all local governments in the Perth Metropolitan Region except the Shires of Mundaring and Serpentine-Jarrahdale (the only local government areas with no identified transit-oriented precinct).

2.2.5.2 WAPC DC 2.3: Public Open Space in Residential Areas

This policy sets out the WAPC's requirements for creation of Public Open Space in the subdivision of land for residential purposes. The policy indicates the WAPC's normal requirement that for residential subdivision, where practicable, 10% of the gross subdivisible area be given up free of cost and ceded to the Crown as Public Open Space. A few aspects of the policy are directly relevant to town planning schemes.

Subdivisions creating five lots or less

It is pointed out that the WAPC will not normally require an open space contribution for subdivisions creating five lots or less where:

- such a contribution is not required by a provision of a town planning scheme or approved structure plan; and
- the applicant demonstrates that land has already been given up for open space in an earlier subdivision; or
- the proposal is in a locality where the WAPC, on the advice of the local government after assessing the locality, concludes there is sufficient open space in the locality.

The WAPC may impose a requirement for open space for creation of five lots or less where:

- the resultant area is considered adequate and suitable for public open space purposes by WAPC and the local government;
- the local government has identified an existing or potential deficiency of public open space and has an adopted strategy to improve or provide open space by land acquisition in the locality; or
- similar proposals containing five lots or less would be likely to eventuate in the locality.

Public open space credit for community facilities sites

The WAPC may, at the request of a local government, reduce the proportion of public open space required below 10%, where an area of land equivalent to the reduction is made available free of cost to the local government as a community facilities site. The WAPC will require the local government to justify the need for the site and give some details of the intended use, timing and operation of, and parking for, the development on the site. Such community facilities sites should adjoin public open space, be at least 2000 m² but no more than one fifth of the overall public open space requirement. As a prerequisite to the transfer in fee simple free of cost of such a site to the local government, the WAPC will require that the land is appropriately reserved under the local government's town planning scheme.

Other matters

The policy also addresses foreshore reserves, Regional Open Space, public utility uses, development of open space and cash-in-lieu of open space.

2.2.5.3 WAPC DC 2.5: Special Residential Zones

This policy applies to the creation of lots of between 2000 m² and 1 hectare. While not specifically called Special Residential zones, the Residential zoned land in the Shire of Mundaring coded R5 and R2.5, which includes to the great majority of urban land in the hills and scarp portions of the Shire, are effectively Special Residential zones and hence affected by this policy. The policy notes that while Special Residential zones represent an intermediate zoning between residential and rural living, the Commission considers them to be essentially residential.

The policy sets locational requirements for Special Residential zones, including:

- should be adjacent to existing or planned residential areas and have good access to schools, community facilities and other urban services;
- should avoid good agricultural land, State Forests and water catchment areas, and not prejudice important mineral or stone deposits; and
- should generally avoid landscape worthy of preservation and/or which is clearly visible from roads of regional or national importance.

The policy also specifies that, in the Perth metropolitan region, such zones will generally only be approved for land which is zoned Urban in the Metropolitan Region Scheme.

The policy supports a range of lot sizes between 2000 m² and 1 ha, reflecting the topographical and environmental characteristics of the land concerned.

The policy specifies that reticulated water will be a requirement for lots in any such zone, but that reticulated sewerage connection may not be required, provided the land is suitable for on-site effluent disposal.

With respect to public open space, the policy indicates that the Commission does not specify a standard open space contribution for such zones, but that public open space will be required when the provision of recreational open space is considered desirable or when it can include an important topographical feature (such as a creek, lake or group of trees) which is to be retained as a recreational amenity for residents of the subdivision and the wider district.

The policy indicates local government town planning scheme provisions which should apply to Special Residential zones, including:

- a requirement for Council approval to commence development for all development, including a single house;
- only a single dwelling being allowed per lot;
- permitted uses should be confined to those consistent with maintaining the amenity of the residential environment;
- an indication that once a subdivision has been established in such a zone, further subdivision of created lots will not be allowed; and
- requiring subdivision guide plans to show contours, approximate areas and dimensions, proposed staging of development, public open space, areas of substantial vegetation cover to be preserved, building envelopes and any other appropriate details.

It should be noted that the requirement for Council planning approval for all development including single houses has not previously been supported by the Shire of Mundaring, and runs contrary to the Commission's currently stated intention, at the time of writing, to minimise the number of single houses requiring planning approval, as part of proposed reforms to the Western Australian planning system.

2.2.5.4 WAPC DC 3.4: Subdivision of Rural Land

This policy sets out the principles used by the Commission in determining applications to subdivide rural land. The policy is mostly applicable to broadacre agricultural areas outside of the Perth Metropolitan Region, but some sections of the policy are relevant to the Shire of Mundaring. The policy was revised in February 2008.

The policy contains three policy measures specific to closer settlement and more intensive agricultural uses in rural areas:

General policy requirement

It is Commission policy that subdivision of rural and agricultural land for closer settlement (rural residential and rural small holdings) and more intensive agricultural uses should be properly planned through preparation of regional and local planning strategies and provided for in local planning schemes prior to subdivision.

Strata proposals

The policy recognises that strata subdivision is particularly useful in clustering dwellings to achieve farm management or environmental protection objectives. The policy indicates that such strata subdivision should be on land identified for these purposes in a local planning strategy and appropriately zoned in a local planning scheme.

Water for rural residential development

The policy indicates that, when approving lots for rural residential development (lots from 1 to 4 ha), the Commission will generally require connection to a reticulated water supply where it is practical and reasonable to do so. However, where it is not practical or reasonable to connect to a reticulated water supply, the Commission may consider an alternative water supply. In making such a determination, the Commission may consider the cost differential between a reticulated and alternative water supply and the reliability of an alternative water supply.

2.2.5.5 Liveable Neighbourhoods

Liveable Neighbourhoods is an operational policy for the design and assessment of structure plans (regional, district and local) and subdivision for new urban (predominantly residential) areas in the metropolitan area and country centres, on greenfield and large urban infill sites. Originally introduced in 1998, the policy was updated in January 2009. The policy is largely performance-based.

Liveable Neighbourhoods provides comprehensive guidance on eight specific design elements:

- community design
- movement network
- lot layout
- public parkland
- urban water management
- utilities
- activity centres and employment
- schools

The aims of Liveable Neighbourhoods are:

1. to provide for an urban structure of walkable neighbourhoods clustering to form towns of compatible mixed uses in order to reduce car dependence for access to employment, retail and community facilities;

2. to ensure that walkable neighbourhoods and access to services and facilities are designed for all users, including those with disabilities;
3. to foster a sense of community and strong local identity and sense of place in neighbourhoods and towns;
4. to provide for access generally by way of an interconnected network of streets which facilitate safe, efficient and pleasant walking, cycling and driving;
5. to ensure active street-land use interfaces, with building frontages to streets to improve personal safety through increased surveillance and activity;
6. to facilitate new development which supports the efficiency of public transport systems where available, and provides safe, direct access to the system for residents;
7. to facilitate mixed-use urban development which provides for a wide range of living, employment and leisure opportunities, capable of adapting over time as the community changes and which reflects appropriate community standards of health, safety and amenity;
8. to provide a variety of lot sizes and housing types to cater for the diverse housing needs of the community at a density that can ultimately support the provision of local services;
9. to ensure the avoidance of key environmental areas and the incorporation of significant cultural and environmental features of a site into the design of an area;
10. to provide for a more integrated approach to the design of open space and urban water management;
11. to ensure cost-effective and resource-efficient development to promote affordable housing; and
12. to maximise land efficiency wherever possible.

2.3 Metropolitan Region Scheme

The Metropolitan Region Scheme (MRS), which has been operational since 1963, divides land throughout the Perth Metropolitan Region into broad zones and reservations. Local government town planning schemes apply more detailed zones and reserves to that land which is zoned in the MRS. It is a requirement of the *Planning and Development Act 2005* that local government town planning schemes are consistent with the MRS.

Land reserved under the MRS is referred to as a Regional Reserve.

MRS Zones and Reserves within the Shire of Mundaring

A copy of the MRS as it relates to the Shire of Mundaring, current at the time of writing, is at Figure 11. The MRS Zones and Reserves currently applying to land within the Shire of Mundaring are:

Zones:

Industrial
Rural
Urban
Urban Deferred

Reserves:

Parks and Recreation
Primary Regional Roads
Public Purposes
State Forests
Water Catchments
Waterways

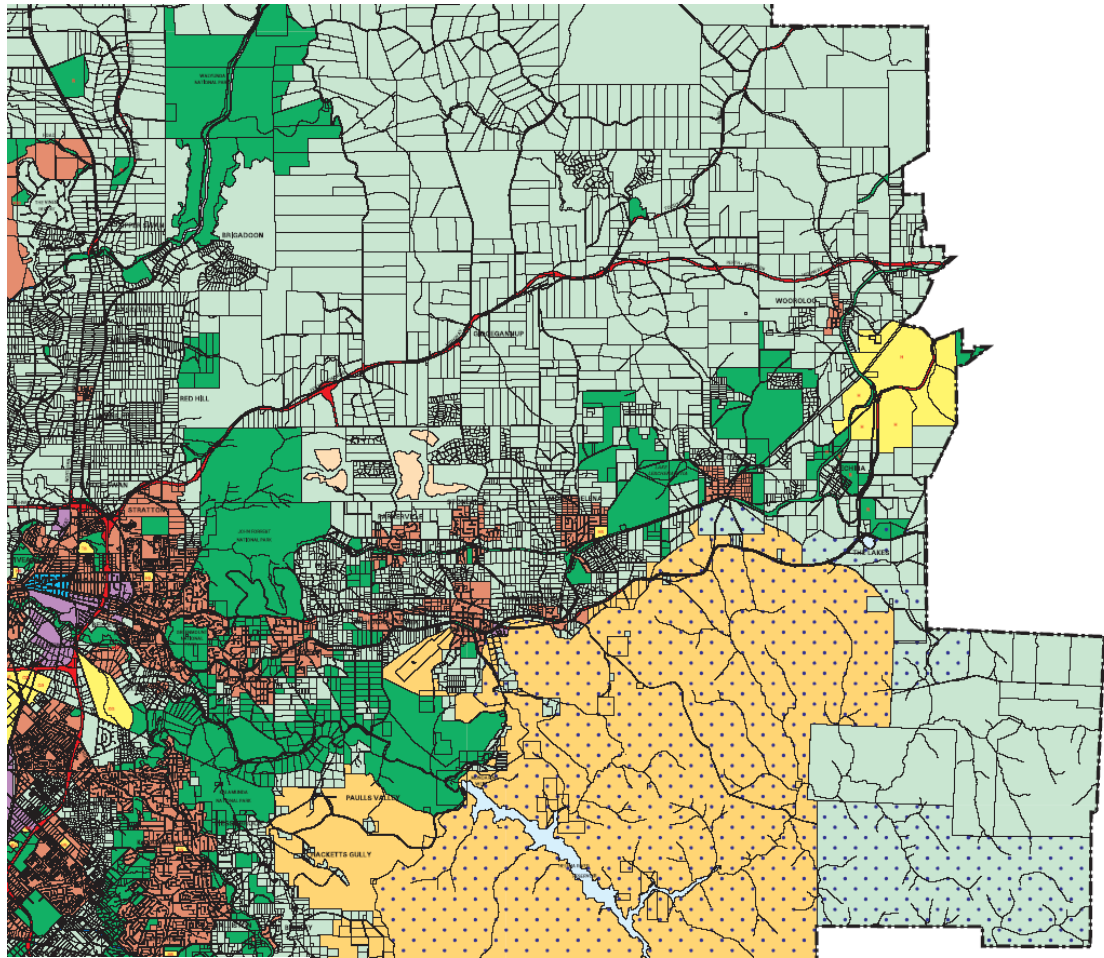
A range of local town planning scheme zonings are possible under these MRS zones, particularly Rural and Urban. However, there are some significant constraints that MRS zones place on local government schemes:

- residential zoning in a local government scheme requires Urban zoning in the MRS;
- rural residential, rural smallholdings or general agriculture zoning in a local government scheme requires Rural zoning in the MRS;
- industrial zoning in a local government scheme requires Industrial zoning in the MRS.

The MRS designates some Regional Reserves for Parks and Recreation as Restricted Public Access.

The Regional Reserve for Water Catchments operates as an overlay, hence it applies to each affected area concurrently with another Zone or Reserve under the MRS.

The MRS gives various designations to Regional Reserves for Public Purposes, indicating what the intended purpose is for each such reserve. Within the Shire of Mundaring there are three Regional Reserves for Public Purposes. Two are designated for High Schools (Swan View and Eastern Hills). The other is designated for Hospital, reflecting its historic use several decades ago, but is now used for prisons.



MRS LEGEND

--- SCHEME BOUNDARY

RESERVED LANDS

- PARKS AND RECREATION
- RESTRICTED PUBLIC ACCESS
- RAILWAYS
- PORT INSTALLATIONS
- STATE FORESTS
- WATER CATCHMENTS
- CIVIC AND CULTURAL
- WATERWAYS
- ROADS**
- PRIMARY REGIONAL ROADS
- OTHER REGIONAL ROADS
- PUBLIC PURPOSES - DENOTED AS FOLLOWS:
- H HOSPITAL
- HS HIGH SCHOOL
- TS TECHNICAL SCHOOL
- CP CAR PARK
- U UNIVERSITY
- CG COMMONWEALTH GOVERNMENT
- SEC STATE ENERGY COMMISSION
- SI SPECIAL USE
- WSD WATER AUTHORITY OF WA
- P PRISON

ZONES

- URBAN
- URBAN DEFERRED
- CENTRAL CITY AREA
- INDUSTRIAL
- SPECIAL INDUSTRIAL
- RURAL
- PRIVATE RECREATION
- RURAL + WATER PROTECTION

Figure 11: Metropolitan Region Scheme (excerpt) incorporating amendments to August 2009

Changes to the Metropolitan Region Scheme

The MRS is amended from time to time, either by Omnibus Amendments containing many different proposals, usually across a number of adjacent local governments, or by site-specific Amendments, usually classified as Major Amendments. Affected local governments are required to initiate an amendment to their local Schemes to reflect the amended MRS within 90 days of the gazettal of the MRS amendment. Land reserved by the MRS is automatically a Regional Reserve within a local government Scheme and hence a separate Scheme Amendment to the local Scheme is not required. However, where land is removed from a Regional Reserve and included in an MRS zone, or where land changes from one MRS zone to another, an Amendment to the local Scheme will usually be required.

At the time of writing, an Amendment to the MRS affecting the Shire of Mundaring has been recently gazetted (Amendment 1160/41 relating to Helena Valley), as has an omnibus Amendment which included proposals within the Shire of Mundaring (Amendment 1161/41 relating to Parks and Recreation Reserve proposals). Another proposed omnibus Amendment is, at the time of writing, nearing the point of being advertised for public comment. Draft Local Planning Scheme No. 4 will be updated to reflect all MRS Amendments completed and gazetted prior to the finalisation of LPS No. 4.

One change to the MRS that does not go through a formal MRS Amendment process is the lifting of Urban Deferment, whereby land is changed from the Urban Deferred zone to the Urban zone, generally when a constraint or prerequisite to urban subdivision and development has been resolved. Decisions on lifting the Urban Deferment rest with the Commission.

Two areas within the Shire are currently zoned Urban Deferred in the MRS – proposed townsite development areas for north Parkerville and north Stoneville (also known as, respectively, the Parkerville Townsite Development area and the Stoneville Townsite Development area). In September 2008, Council resolved to advise the Commission that it supports the request for the lifting of the Urban Deferred zone. This support was on the basis that the Local Subdivision and Infrastructure Plans for each townsite be reviewed prior to townsite development commencing. At the time of writing, the request to lift the Urban deferment on those areas (and thus to zone them Urban in the MRS) is still awaiting determination by the Commission.

Under section 126(3) of the *Planning and Development Act 2005*, where the MRS is amended to include land in the MRS Urban zone, the local planning scheme can be concurrently amended with the agreement of the local government, if that local planning scheme has an Urban Development (or equivalent) zone. This has not been possible under the Shire's Town Planning Scheme No. 3, but as LPS No. 4 contains a Development zone, it will enable concurrent amendments under section 126(3) of the Act to take place.

2.4 Swan Region Strategy for Natural Resource Management

The Swan Region Strategy for Natural Resource Management (December 2004) was developed by the Swan Catchment Council. The Swan Region covered by the Strategy comprises the Swan and Canning River catchments and some of the adjacent coastal plain, marine areas and islands. The region extends from the Shire of Victoria Plains in the north to the Shire of Wandering in the south. All of the Shire of Mundaring is part of the Swan Region.

The Strategy was one of six regional Natural Resource Management (NRM) strategies prepared throughout Western Australia. The Strategy's purposes include:

- providing an integrated planning framework for management of the Swan Region's natural resources;
- identifying and developing appropriate and sustainable management responses to the threatening process that have been identified as important strategic priorities for the Region; and
- providing a guide for investment in regional priorities by Government (including the distribution of Natural Heritage Trust funding), industry and the wider regional community.

The Strategy's overall vision for Natural Resource Management is:

"The natural resources of the Swan Region will be protected and managed sustainably in their own right and for the enhancement of the quality of life for present and future generations."

The Strategy sets out seven aspirational targets for the region's natural resources and their management (one for each of seven categories of assets). These targets are statements about the desired condition of natural resource assets in the long term (50+ years).

Asset category	Aspirational target
Land	Improve land condition in the Region and ensure land use planning and development is sustainable and appropriate to the land capability and sustainability.
Water	Improve the quality, ensure appropriate and environmentally sustainable use and minimize impacts to maintain water resources in all aquatic systems in the Region.
Biodiversity	Conserve, maintain and enhance the biodiversity and natural habitat of all species in the Region and the functionality of the ecosystems which contain these species.
Coastal and Marine	Conserve, maintain and enhance coastal and marine biodiversity, and improve marine water quality to ensure the ecological integrity of coastal and marine systems.

Air	Improve air quality in the Region to ensure healthy ecosystems.
Cultural Heritage	Protect, enhance and incorporate cultural heritage values within the Region to achieve sustainable natural resource management outcomes.
Regional Capacity	Build regional capacity to promote attitudinal, behavioural and institutional change to achieve sustainable natural resource management outcomes.

Resource condition targets, management action targets and management actions

The Strategy identifies Resource Condition Targets (RCTs), Management Action Targets (MATs) and Management Actions (MAs) for the Swan Region. The RCTs are medium or longer term targets (generally 10-20 years), while MATs are generally short term targets (1-5 years).

Those RCTs, MATs and MAs most relevant to land use planning in the Shire of Mundaring are as follows:

Resource Condition Target:

Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by December 2005).

Management Action Target	Management Action
All Local and State Government planning agencies using local area land capability and suitability information by 2009	Facilitate the inclusion of land salinity risk assessments as a component of the planning approval process
	Assist in the development and implementation of decision support tools for planners, identifying land use change scenarios and predicting impacts

Resource Condition Target:

Maintain and improve soil condition, as measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils, by 2020 (with quantified targets set by December 2005)

Establish benchmarks and monitoring at representative sites for water erosion, waterlogging and acid sulfate soils by 2005	Identify areas of agricultural land affected by water erosion and waterlogging and the level of application of best management practice
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	Identify priority areas for remedial actions based on risk assessment, including areas of high biodiversity value, high value water resources and land of high value for primary production
	Assessment of areas of acid sulfate soils risk, and implementation of Framework for Acid Sulfate Soils
100% of all relevant current NRM policy and legislation reviewed and recommended amendments to minimize risk of water erosion, waterlogging and acid sulfate soils made by 2006	Support the review of the policy and legislation, and recommend changes to Environmental Protection Policies, Statements of Planning Policy local planning policies to address water erosion, waterlogging and acid sulfate soils
	Facilitate the inclusion of ASS risk assessments as a component of the Local and State Government agencies planning approval process
	Assist in the development and implementation of decision support tools for planners, identifying land use change scenarios and predicting impacts

Resource Condition Target:

Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)

100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's major rivers and waterways by 2006	Support the review of the policy and legislation, including Environmental Protection Policies and Statements of Planning Policy
	Assist in the development and implementation of decision support tools for planners, identifying land use change scenarios and predicting impacts

Resource Condition Target:

Maximum concentrations, for priority waterways, do not exceed 0.1 mg/L for total phosphorus and 1.0 mg/L for total nitrogen, by 2020

100% of all relevant NRM legislation and policy reviewed and amendments recommended to address nutrient enrichment by 2006	Assist in the development and implementation of decision support tools for planners, identifying land use change scenarios and predicting impacts
	Adoption by Local Government Authorities of the Local Government NRM Policy Manual
Implement identified remedial actions to address nutrient enrichment by 2007	Incorporate Water Sensitive Design and Total Water Cycle management principles in all new developments and/or retrofits
	Completion of the Sewerage In-fill Program

Resource Condition Target:

Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity/suspended particulate matter set by 2005)

100% of all relevant NRM legislation and policy reviewed and amendments recommended to address turbidity/suspended particulate matter by 2006	Adoption by Local Government Authorities of the Local Government NRM Policy Manual and Darling Range Erosion Manual
	Develop decision-making tools for land use planners to identify and address turbidity/particulate matter impacts

Resource Condition Targets:

The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data.

Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data.

25% of priority areas in each IBRA sub-region have natural diversity conservation plans developed by 2006	Develop guidelines and plans for sustainable natural diversity management
	Commence Bush Forever Phase 2

100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's natural diversity by 2006	Establish and gain agreement on an urban growth boundary
	Review land planning process and identify cleared land suitable for development
	Review design codes for new urban areas
	Develop recommendations for local and regional structure planning processes
	Develop mechanisms to preferentially locate new developments on previously cleared land
	Prepare local natural diversity strategies and action plans in accordance with <i>Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region</i>
	Complete implementation of Bush Forever Phase 1

The Strategy's recommendation of the establishment of an urban growth boundary, in order to retain native vegetation and habitat, is noted. However, It should also be noted that, while supporting the concentration of new residential development within existing zoned or identified urban areas, *Network City* (see section 2.2.3.1 above) does not go so far as to support the setting of an ultimate urban growth boundary.

Resource Condition Target:

50% of critical habitat for identified significant species and ecological communities protected by 2014

100% of all relevant NRM legislation and policy reviewed and amendments recommended to provide increased consideration and protection for significant species and ecological communities by 2006	Prepare local natural diversity strategies and action plans in accordance with <i>Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region</i>
25% of all significant indigenous species have viable linkages established between populations over their original geographical extent by 2009	Establish a regional ecological linkage program

	Establish mechanisms to protect areas required for ecological linkages
	Revegetate cleared areas designated as ecological linkages

2.5 Eastern Metropolitan Regional Council Regional Integrated Transport Strategy

The Eastern Metropolitan Regional Council (EMRC) is a regional body working on behalf of six local governments (Cities of Bayswater, Belmont and Swan, Town of Bassendean and Shires of Kalamunda and Mundaring).

The EMRC commissioned a Regional Integrated Transport Strategy (RITS), to provide a blueprint for development of transport infrastructure in the region over the next 20 years. The final Strategy report was completed in December 2007.

The objectives of the RITS project were:

- to develop a regional integrated transport strategy that will provide a strategic framework and blueprint for the enhancement and development of the region's transport services and transport infrastructure;
- to establish regional transport infrastructure priorities based on an objective assessment of projects using economic, social and environmental criteria;
- to achieve consensus on the implementation of the strategy in order to assist governments and Councils in directing funding to those projects and activities that are mutually agreed upon as regional priorities; and
- to provide local Councils with the necessary information upon which they can plan for and implement local transport projects that connect to regional transport nodes.

In its current assessment of transport in the Eastern Metropolitan Region, the Strategy noted that levels of public transport, cycling and walking use are very low on the urban fringe and beyond. It notes that the outer urban fringe and areas beyond it (Ellenbrook, Mundaring and Kalamunda) are especially vulnerable to increases in oil prices, because of the lack of useable alternatives to the private car as well as the relatively low incomes across parts of these areas. It notes that areas remote from the main developed area of Perth are vulnerable as a result of the difficulty in providing economic public transport connections (across areas with little or no patronage generation) and over distances that are beyond practical walking and cycling capability.

The major areas of traffic congestion identified in the Eastern Metropolitan Region were not in the Shire of Mundaring. However, in its long term projections (to 2031), a high level of traffic congestion is predicted on Great Eastern Highway east from Roe Highway and on Morrison Road.

The Strategy identifies the intersection of Roe and Great Eastern Highways as a Priority 1 location from a traffic safety viewpoint, in that it rates 'very high' on both crash numbers and crash rates. A planned upgrade of this intersection should improve traffic safety (see section 4.6.3.1 below).

The Strategy noted that cycling network in the hills portion of the Shire of Mundaring is focussed on recreational trails. With respect to walking, the Strategy notes that pedestrian links can significantly shorten distances for pedestrians. The Strategy recommends that where pedestrian access links already exist, it is important that they are retained and maintained (and upgraded if necessary) to provide a high level of pedestrian amenity so that they are, and are perceived to be, attractive, safe and secure places for people to walk.

The Strategy notes the increasing price of oil and anticipates that as travel by car becomes more costly, people will react in four main ways:

- progressively buy more fuel-efficient cars or alternative-fuel cars;
- make fewer trips by undertaking more activities from home;
- undertake activities closer to home; and
- change from car driving to other transport modes (car passenger, public transport, walking/cycling).

Of these four, use of more fuel-efficient cars is likely to be a longer-term process. The remaining three place a greater importance on local access, either to local activities or facilities or to public transport.

The Strategy notes that extension of passenger rail services to Stratton is unlikely to be an effective initiative.

The Strategy makes the following conclusions and recommendations relevant to the Shire of Mundaring:

- The location and design of all levels of activity centres will need to have regard to and be implemented in conjunction with local and sub-regional access opportunities by public transport, walking and cycling. Local access links may join up to provide sub-regional and even regional opportunities.
- The proposed Perth–Adelaide Highway and expansion of rail capacity (through provision of more passing loops) between Perth and the Goldfields and the Eastern States are likely to be necessary to provide traffic relief to Toodyay Road and Great Eastern Highway.
- The Stratton/Swan View/Jane Brook area would benefit from a comprehensive and integrated travel demand management initiative, including voluntary travel behaviour change (TravelSmart) in conjunction with innovative public transport services and improved cycling/walking links, especially across the rail line.

- The Perth Bicycle Network Plan for the Region needs to be reviewed and updated and complemented by development or updating of local government bicycle facility plans across the Region.
- The amenity of all walking environments needs to be a priority concern if people are to be encouraged to walk on a regular basis. Of particular importance are weather protection, lighting and information/directional signage.
- Public transport service development (including actual service improvements) will be needed to move towards targets for increasing public transport usage and decreasing car dependency.
- The Region will need to develop public transport service patterns that take greater advantage of proximity and reduce the perceived need for residents to travel longer distances, especially for non-work journeys. This may require development of innovative public transport concepts, such as smaller buses or demand-responsive services, but also needs to recognise that public transport usage is highly dependent upon the level of service provided rather than being an inevitable consequence of the form and density of development.
- Because the Region has a high vulnerability to increased fuel prices, it will need to be proactive in developing and implementing comprehensive travel demand management initiatives, including voluntary travel behaviour change in households, workplaces, schools and other major travel generators.

In order to carry out its recommendations, the Strategy identifies required actions, a priority level, responsible agencies and timeframes. Key actions relevant to the Shire of Mundaring are:

Action	Priority	Who	When
Develop standards for provision of bicycle parking and end-of-trip facilities (eg. as a condition of development approvals).	Very high	Local govts with DPI and EMRC	2007-2010
Ensure new development meets <i>Liveable Neighbourhoods</i> and <i>Designing Out Crime</i> design principles.	Very high	DPI with local govts	2007 onwards
Promote pedestrian access opportunities to provide linked walking networks across the region.	Very high	DPI with local govts and EMRC	2007-2012
Appoint TravelSmart Officers for region	Very high	EMRC and local govts	2007-2009
Support DPI TravelSmart programs in the Region, including contributory funding from local govts	Very high	EMRC and local govts	2009-2012

Work with DPI TravelSmart to develop workforce programs that suit the specific needs of the Region.	Very high	EMRC and local govts	2010 onwards
Review the design, permeability and legibility of activity centres. Undertake walkable catchment analysis of activity centres and surrounding areas and identify measures to improve walkability.	High	DPI with local govts and EMRC	2007-2012
Undertake 'walkability audits' and appropriate remediation works in conjunction with road and street improvement projects, including: adequacy of footpath provision; safety and personal security audits; adequacy of street and/or path lighting for pedestrians; and weather protection.	Medium - High	DPI with EMRC and local govts	2009 onwards
Reflect freight corridors and adjoining land use limitations appropriately in Town Planning Schemes. Seek suitable policies and models from DPI/WAPC.	Medium - High	DPI with local govts	2008-2017
Undertake safety audits and develop safety improvement initiatives for locations within the EMR rating priority 1 in 2011.	Medium - High	MRWA with EMRC and local govts	2007-2009
TravelSmart Household program for Stratton/Swan View/Jane Brook area	Medium - High	EMRC with City of Swan and Shire of Mundaring	2009-2012
Improved bus services to/from Midland for Stratton/Swan View/Jane Brook, possibly using smaller buses to provide higher frequency.	Medium - High	PTA with City of Swan and Shire of Mundaring	2009-2012

Improve cycle access to Midland from Stratton/Swan View/Jane Brook - rail crossings; and dedicated cycle facilities (off-road and on-road)	Medium - High	DPI with City of Swan and Shire of Mundaring	2009-2012
Review planning and justification for Perth-Adelaide Highway, with a view to determining key criteria that can form the basis for monitoring of traffic, economic factors and social factors.	Medium - Low	DPI with EMRC and Shire of Mundaring, City of Swan and City of Belmont	2007-2010
Identify cost-effective ways of providing public transport within the Region. These may include smaller buses, demand-responsive services and 'jitney' (mini bus or route taxi) services to provide short-distance connections to activity centres and regional public transport links.	Medium - Low	PTA with EMRC and local govts	2007 onwards
Develop proposals for funding trials of innovative public transport service, possibly on a 'use it or lose it' basis.	Medium - Low	PTA with EMRC and local govts	2009 onwards

2.6 Better Urban Water Management

Better Urban Water Management (October 2008), published by the Western Australian Planning Commission, provides guidance on the implementation of State Planning Policy 2.9 Water Resources (see section 2.2.2.6 above). The document provides a framework for how water resources should be considered at each stage of the planning process by identifying the various actions and investigations required to support the particular planning decision being made. The document indicates that the approach outlined in *Better Urban Water Management* should be applied to both new greenfield and urban renewal projects where residential, commercial, industrial and rural residential uses and development are proposed, including in rural townsites areas.

The document indicates different levels of water management reports that should ideally accompany and inform each level of the planning process, as follows:

Planning process level	Water management report
Region Scheme; regional or sub-regional strategy; regional or sub-regional structure plan	Regional Water Management Strategy
Local Planning Strategy; Region Scheme amendment; district structure plan	District Water Management Strategy
Local Town Planning Scheme amendment; local structure plan	Local Water Management Strategy
Subdivision	Urban Water Management Plan

The intent of this is to ensure that issues are dealt with at the appropriate stage in the planning process rather than being delayed until later stages.

Due to the nature of the investigations and information, the document recommends that all water management strategies and the urban water management plans are prepared and approved by suitably qualified personnel. In particular, hydrological and hydraulic analyses or design of drainage assets are to be undertaken by a design engineer or engineering firm (the design engineer is to be a person qualified to be a chartered professional engineer; an engineering firm is an organisation which primarily employs engineers).

The document indicates that the broadest level of water management planning, the Regional Water Management Strategy, is a state government responsibility. The document anticipates that the regional surface and groundwater investigations, including mapping of the catchment and regionally significant water dependent environments, will be undertaken by the relevant state government agency (Department of Water and Department of Environment and Conservation respectively), as part of preparation of a regional water plan. The document notes that regional groundwater investigations should consider the range of groundwater levels likely to result from climate scenarios, including wet, long-term average and dry sequences.

The subsequent levels of the planning process and the corresponding levels of water management reports are relevant to the Shire of Mundaring and the recommendations of *Better Urban Water Management* relating to each of these are outlined below.

District Water Management Strategies

The document indicates that completion of a District Water Management Strategy should be a prerequisite for rezoning land to Urban, or of lifting of the Urban Deferred zone, under the Metropolitan Region Scheme, although minor amendments supported by a reduced level of information may be acceptable, on the advice of Dept of Water and other relevant agencies including the Department of Environment and Conservation. This is necessary to demonstrate that the land is capable of supporting urban development and able to achieve appropriate urban water management outcomes. A regional or district structure plan should also be supported by a District Water Management Strategy.

The document indicates that the responsibility for preparing a District Water Management Strategy rests with either local government or with state government agencies, depending on the initiator of the corresponding planning action. Any broad level water planning that has already taken place in a Regional Water Management Strategy should be used as the foundation for developing the District Water Management Strategy, as it will highlight the need for further investigation and identify areas requiring special protection.

A District Water Management Strategy should:

- state water quantity and quality management objectives to be achieved, addressing all elements of the total water cycle;
- broadly describe issues likely to influence the water management strategy (eg. existing infrastructure, existing land uses, possible groundwater pollution plumes, groundwater capture zones of significant wetlands and other water dependent ecosystems);
- detailed desktop analysis (where necessary) of past land use with potential for contamination, including high levels of nutrients;
- identify areas affected or potentially affected by Acid Sulfate Soils;
- discuss potential water sources for drinking water and other uses (including POS irrigation), highlighting preferred option for supply of non-potable water;
- report broadscale ecological and surface and groundwater investigations (monitoring of at least 18 months, including two winters required for greenfield areas and unmodified ecosystems), modelling and analysis to provide:
 - i) hydrogeological parameters of the study area and relevant catchments, including groundwater level fluctuations over time and regional groundwater flow directions;
 - ii) an assessment of regional groundwater quality, including resident catchment and aquifer conditions;
 - iii) the hydrological regimes (ecological water requirements) of water dependent ecosystems to be protected so that they can be maintained; and
 - iv) an assessment of the recommended land use scenario based on the above elements and any suggested modifications;

- provide an arterial drainage plan identifying 100 year flow paths and levels, peak flow rates and storage requirements, including a discussion of appropriate (and likely) stormwater best practice options to better manage water quantity and quality;
- identify specific issues/areas likely to require specialised investigation and management at later stages of planning;
- demonstrate understanding of appropriate water sensitive urban design best management practices, including for potable and non-potable water usage and likely best planning practices to be utilised in the study area;
- use planning precinct strategies and recommendations to guide land use and development, where necessary;
- recommended strategies and responsibilities for local ecological, surface water and groundwater monitoring, both pre- and post-development; and
- recommend an implementation framework identifying funding and ongoing maintenance responsibilities, including monitoring and technical review of the strategy.

Local Planning Strategies

Better Urban Water Management indicates that a Local Planning Strategy should identify objectives for water resource management, together with other environmental, social and economic issues in the local government area, and propose strategies to achieve these objectives. The document anticipates that the required information would be obtained from other sources, such as Regional or District Water Management Strategies, regional water plans or from state government departments.

The document specifies that, as minimum requirements, a Local Planning Strategy should:

- apply the requirements of state and regional planning policy, including State Planning Policy 2.9 Water Resources;
- propose local and regional catchment management objectives and preliminary design objectives for all elements of the total water cycle (general design criteria are provided in section 1.3 of the document);
- map the surface and groundwater catchments and sub-catchments, including significant water resources such as waterways and wetlands, and identify critical water resource management issues, including water quality;
- undertake a desktop analysis of past land use with the potential for contamination, including high levels of nutrients and develop a strategy to address at an appropriate time;
- discuss water sources for drinking and other water needs, including future settlement needs, identifying any existing or future proclaimed water source catchments and major infrastructure needs (eg. wastewater treatment plants);
- depict the location of future conservation reserves, multi-use open space corridors, urban bushland belts and greenways, waterway corridors and wetlands to be protected; and

- propose a strategy to ensure that surface and groundwater quality and quantity information is available at an appropriate time to inform future land use planning decisions.

The document indicates that, where supported by a Regional or District Water Management Strategy, a Local Planning Strategy may address water resource management in more detail, indicating current conditions, identifying risk areas and making recommendations for future action.

Local Water Management Strategies

The document indicates that Local Scheme Amendments and/or Local Structure Plans should be accompanied by a Local Water Management Strategy (with Scheme provisions requiring such a strategy to accompany structure plans). It also recommends that a Local Water Management Strategy be advertised for public comment, including referral to specialist agencies, as part of either of these processes. Structure plans associated with proposed new residential, commercial or industrial areas should, in addition to the usual requirements for such structure plans, include detailed information relating to potable and non-potable water use and surface water and groundwater management, outlined in a Local Water Management Strategy appended to the local structure plan. The Local Water Management Strategy should be consistent with any Regional or District Water management Strategy.

The responsibility for a Local Water Management Strategy rests with either the local government or with the landowner/developer, depending on which is the initiator (ie. proponent) of the associated planning action.

A Local Water Management Strategy should address:

- principles, objectives and requirements for total water cycle management (including the decision process for stormwater management);
- existing site characteristics such as geology, hydrogeology and groundwater characteristics in more detail than the Regional or District Water Management Strategies (it is anticipated that preliminary site investigations are completed including geotechnical analysis and surface and groundwater sampling to identify site conditions which have relevance to water management design);
- site constraints and opportunities (such as water-dependent environments, remnant vegetation, landscape and landform), identifying the critical issues and how they are proposed to be managed;
- demonstration of the capacity of the land to sustain the proposed land uses including any management responses required to address:
 - the likely extent and severity of Acid Sulfate Soils;
 - potential impacts on surface and groundwater quality and quantity;
 - potential impacts on ecosystems and biodiversity;
 - potential impacts on existing land uses in the vicinity;
 - any likely engineering constraints and impacts on infrastructure;
 and

- cumulative impacts;
- conceptual urban water management system including:
 - fit-for-purpose water use strategy (mechanisms to conserve potable water, minimise wastewater and reuse all forms of water, including stormwater);
 - quantification of land required for storage (detention) of stormwater for the 1 in100 year average recurrence interval (ARI) and 1 in 5 or 1 in 10 year ARI;
 - calculation of the proportion of constructed impervious surface;
 - map of existing groundwater levels and any proposed controlled groundwater level (including use of subsoil drains and treatment prior to discharge) with justification for this control;
 - demonstrated understanding of the concepts and key issues associated with choice of stormwater controls (identification of types of best management practices for managing water quality and quantity, and indicative drawings of possible treatment trains and design approaches);
 - infrastructure and management requirements and proposed locations for proposed water, wastewater and stormwater systems (considering existing infrastructure and identifying any necessary approvals); and
 - if wastewater reuse is to be undertaken, a wastewater reuse management plan;
- landscape concept for any Public Open Space which identifies strategies to be used to minimise water and nutrient use;
- depiction of any proposed constructed water body on the structure plan together with information in the Local Water Management Strategy outlining the purpose and design of the water body and a proposed schedule for management and ongoing maintenance;
- issues to be addressed at subdivision stage (included in an Urban Water Management Plan);
- recommended monitoring framework, pre- and post-development; and
- proposed implementation of Strategy.

The document suggests that in greenfield areas and unmodified catchments, at least 12 months monitoring is required to establish accurate baselines and to support recommendations, particularly for groundwater levels, although 18 months, including two winters, is preferred.

The document notes that, where a landowner/developer is proposing a Scheme Amendment or structure plan, work required to identify local conditions should be undertaken by the landowner/developer. Where an area has fragmented ownership, the document suggests it is likely that the most effective and efficient outcome would be achieved if this program was coordinated by the local government, with an agreed mechanism or arrangement between landowners for funding of the study. The document indicates that where local government budgets permit, the work may be pre-funded by the local government, with costs recouped through development contributions schemes, but that a coordinated approach by several landowners to employ suitably qualified professionals to undertake the work would also be effective.

Local Scheme Amendments

The document indicates that Local Scheme Amendments should be accompanied by a Local Water Management Strategy, but that where such a strategy is not provided, the following information is necessary to support a Local Scheme Amendment rezoning land for an urban use:

- objectives for total water cycle management to be met through identified mechanisms, including future roles and responsibilities for demonstration of achievement;
- identification of water dependent ecosystems, final determination and mapping of buffers, and demonstrations that changes to the water quality and hydrological regime of water dependent ecosystems to be protected, have been avoided or minimised;
- detailed pre- and post-development total water balance, including consideration of imported scheme water, wastewater, stormwater and groundwater and how these interact with the environment, including the ocean;
- likely sources and infrastructure requirements for water supply and infrastructure for wastewater and stormwater management;
- discussion of existing groundwater quality and quantity based on a refinement of the regional/district level information (it is anticipated that preliminary site investigative work is undertaken including geotechnical investigation and groundwater sampling);
- a more detailed assessment of past land use in high-risk areas, including soil types and nutrient pathways;
- description of existing stormwater management infrastructure and natural systems (including wetlands) and its impact on groundwater levels;
- identification of the capacity of the receiving infrastructure and downstream environment to adapt to the post-development water balance, ensuring pre-development conditions are maintained or improved in water-dependent environments to be protected;
- broad assessment of any requirement for landform modification (fill) based on the above points, including an approach that avoids impacts on water-dependent environments to be protected;

- description of how the development will meet the criteria in the arterial drainage plan (or Department of Water drainage and water management plan), supported by additional information indicating land requirements for flood management and how stormwater quality will be addressed; and
- issues to be addressed through local structure planning, subdivision and development.

The document also recommends that consideration be given to specific zone provisions to achieve stated outcomes of the Local Water Management Strategy. These may include requirements for new houses to be water efficient, have domestic rainwater tanks plumbed into water supply or to incorporate lot-level greywater systems. The document notes that consideration will need to be given to these sorts of provisions early in the process, to ensure that they are supported by the relevant water service provider and the Department of Health.

Subdivision applications

Better Urban Water Management indicates that large subdivisions should be supported by an Urban Water Management Plan, as should small subdivisions in priority catchments or where there are significant risks to water resources. Also, where an approved Local Water Management Strategy does not exist, an Urban Water Management Plan will be required to be lodged with the subdivision application. An Urban Water Management Plan is the responsibility of the landowner/developer. Subdivision where an Urban Water Management Plan is not required should still be consistent with the principles of State Planning Policy 2.9.

An Urban Water Management Plan should address:

- compliance with the design objectives and other requirements outlined in the Local Water Management Strategy (demonstration of compliance should be achieved through appropriate assessment tools, calculations or assessments to the satisfaction of the Department of Water);
- site context – adjacent land use, soil profile, linkages between neighbouring lots, environmentally significant areas and buffers;
- agreed and approved measures to achieve water conservation and efficiencies of use, including non-potable supply (all approvals, designs, controls, management and operation of the proposed system to be outlined);
- management of groundwater levels and any proposed dewatering, including maintenance of ecosystem health (proposals to demonstrate that predevelopment hydrological regime of water-dependent ecosystems to be protected will be maintained), including the following figures:
 - existing surface level and existing groundwater levels; and
 - final surface level and final groundwater levels (amount of fill required);

- management of groundwater contamination “hot spots” and other specific site conditions, including Acid Sulfate Soils and the potential for and management of increased expert of contaminants;
- detailed stormwater management design, including size, location and design of Public Open Space areas, integrating major and minor flood management capability, and area of directly connected impervious surface (this includes maps of areas inundated in 1 year, 5 year and 100 year ARI events, information outlining required storages, invert levels, top water and peak flow levels, information required to ensure integration with upstream and downstream systems, and staging of infrastructure provision where proposed);
- mapped locations and details of structural and non-structural best management practices to be implemented, including maintenance, expected performance and agreed ongoing management arrangements;
- management measures to be implemented to achieve protection of waterways, wetlands and their buffers, remnant vegetation and ecological linkages;
- strategies to minimise the use and application of nutrients in subdivision on public and private open space;
- detailed information supporting the purpose, design and management of any proposed constructed water body, including an assessment of life cycle costs (including replacement);
- management of subdivisional works to prevent or ameliorate erosion (wind and water), sedimentation and turbidity;
- management of disease vector and nuisance insects such as mosquitoes and midges;
- monitoring program and/or contribution; and
- implementation plan.

The document provides recommended wording for conditions of subdivision approval requiring the lodgement and approval of an Urban Water Management Plan prior to any site works, and requiring implementation of the Urban Water Management Plan.

2.7 Acid Sulfate Soils Planning Guidelines

The document *Acid Sulfate Soils Planning Guidelines* (January 2009), published by the Western Australian Planning Commission, replace those in the Commission’s Planning Bulletin No. 64 on Acid Sulfate Soils. Identifying existing and potential areas affected by acid sulfate soils is a requirement of State Planning Policy No. 2 Environment and Natural Resources Policy (see section 2.2.2.1 above), while preventing or ameliorating the leaching of acid sulfate soils is a requirement of State Planning Policy No. 2.9 Water Resources (see section 2.2.2.6 above).

The guidelines are to be used on any areas with a High to Moderate risk of acid sulfate soils as delineated on DEC or Landgate data. Within the Shire of Mundaring, there are limited instances of such areas – along the Helena River, in Lake Leschenaultia, Glen Brook Dam, Lake Manaring and Red Swamp in Bailup. A few wider areas, in Helena Valley and Swan View, have a low to moderate risk.

An underlying assumption in the guidelines is that acid sulfate soils are technically manageable in the majority of cases, but it must be recognised that the technical management of acid sulfate soils comes at an economic cost.

There are four general principles underlying the guidelines:

1. Acid sulfate soils should be considered in all planning decisions to avoid potential adverse affects on the natural and built environment.
2. Disturbance of acid sulfate soils should be avoided wherever practicable.
3. Where the disturbance of acid sulfate soils is unavoidable, subdivision and development should be undertaken in a manner that:
 - mitigates the potential adverse affects on the natural and built environment using the most appropriate mitigation strategies and management techniques; and
 - achieves acceptable soil and water quality outcomes.
4. The rehabilitation of previously disturbed acid sulfate soils and existing acid drainage should be encouraged.

The guidelines contain guidance statements for different stages of the planning process. Those guidance statements of relevance to the Shire of Mundaring are as follows:

(Guidance statements for local Schemes, local planning strategies or local Scheme Amendments)

Guidance Statement A1: Avoidance of disturbance where practicable

Where practicable strategies, schemes or amendments proposing any change of zoning that will lead to the introduction of, or an intensification of, development that is likely to result in significant amounts of excavation, drainage or groundwater extraction on land identified (in DEC or Landgate mapping) as being wholly or partially within an area of High to Moderate risk of Acid Sulfate Soils should be avoided.

(Guidance statements for structure plans)

Guidance Statement B1: Acid sulfate soils investigation

Any structure plan involving land identified (in DEC or Landgate mapping) as being wholly or partially within an area of High to Moderate risk of Acid Sulfate Soils should address the issue of acid sulphate soils, and include an acid sulfate soils investigation that:

- Determines the likely presence and distribution of acid sulfate soils on the land, or alternatively, the absence of acid sulfate soils, based on at least Step 1 of the DEC's *Identification and Investigation of Acid Sulfate Soils* guideline.
- Demonstrates the capacity of the land to sustain the pattern and distribution of proposed land uses having regard to:
 1. the likely extent and severity of acid sulfate soils;
 2. potential impacts on surface and groundwater quality and quantity;
 3. potential impacts on ecosystems and biodiversity;
 4. potential impacts on existing land uses in the vicinity;
 5. any likely engineering constraints and impacts on infrastructure; and
 6. cumulative impacts.

Guidance Statement B2: Acid sulfate soils report

The results of the acid sulfate soils investigation should be documented in a separate acid sulfate soils report or, alternatively, in the written report required to accompany the structure plan.

Guidance Statement B3: Avoidance of disturbance where practicable

Where practicable, the pattern and distribution of proposed land uses within the plan area should seek to avoid the introduction, or an intensification, of development that is likely to result in significant amounts of excavation, drainage or groundwater extraction on land where the presence of acid sulfate soils has been confirmed by an acid sulfate soils investigation.

(Guidance statements for subdivision, strata and development applications)

These are broken down into guidance statements for applicants and guidance statements for decision makers.

For applicants:

Guidance Statement C1: Acid sulfate soils investigation should ideally be undertaken at the application stage of the planning process

An acid sulfate soils investigation should be carried out if any dewatering or drainage works (temporary or permanent), or the excavation of 100 cubic metres or more of soils is proposed:

- on land identified (in DEC or Landgate mapping) as being wholly or partially within an area of High to Moderate risk of Acid Sulfate Soils; or
- on land where site characteristics or local knowledge lead the applicant to form the view that there is a high to moderate risk of disturbing acid sulphate soils at this location.

Guidance Statement C2: Acid sulfate soils investigation should ideally be taken into account in the design of the proposal

The results of the acid sulfate soils investigation should be taken into account in the design of the proposal, and disturbance of acid sulfate soils should be avoided wherever practicable.

For decision makers:

Guidance Statement C4: Approval conditions

Conditions drafted along the lines set out below should be imposed on any approval issued in response to an application involving land:

- identified (in DEC or Landgate mapping) as being wholly or partially within an area of High to Moderate risk of Acid Sulfate Soils; or
- where site characteristics or local knowledge lead the applicant to form the view that there is a high to moderate risk of disturbing acid sulfate soils at this location.

Subdivision and strata condition:

An acid sulfate soils self-assessment form and, if required as a result of the self-assessment, an acid sulfate soils report and an acid sulfate soils management plan shall be submitted to and approved by the Department of Environment and Conservation before any site works are commenced. Where an acid sulfate soils management plan is required to be submitted, all site works shall be carried out in accordance with the approved management plan.

Development condition:

An acid sulfate soils self-assessment form and, if required as a result of the self-assessment, an acid sulfate soils report and an acid sulfate soils management plan shall be submitted to and approved by the Department of Environment and Conservation before the development is commenced. Where an acid sulfate soils management plan is required to be submitted, all development shall be carried out in accordance with the approved management plan.

2.8 Planning for Bush Fire Protection Guidelines

In May 2010, the *Planning for Bush Fire Protection Guidelines (Edition 2)* were released. These guidelines, prepared by the WAPC, Fire and Emergency Services Authority of WA (FESA) and the Department of Planning, supersede the 2001 document, *Planning for Bush Fire Protection*. The new guidelines also supersede the WAPC Development Control Policy DC 3.7 Fire Planning, which was rescinded upon the release of the guidelines. The guidelines are, at the time of writing, interim guidelines subject to further review.

The guidelines are intended to be used as a tool to ensure fire protection is integrated in the early stages of land development and apply to all levels of planning decisions and proposals which result in the intensification of land use, including strategic and structure planning, through to subdivision and development.

With respect to the issue of retrospectivity, the document indicates that:

The performance criteria and acceptable solutions contained in the guidelines are not intended to be enforced retrospectively on existing development in established urban areas, existing townsites or existing subdivisions. Therefore, they are not designed to deal with the bush fire protection requirements of:

- *existing buildings in established subdivisions;*
- *new subdivisions where the subdivision is based on a structure plan, outline development plan, subdivision guide plan or similar that was approved by a local government and the WAPC prior to the introduction of Planning for Bush Fire Protection in December 2001; or*
- *subdivisions that already have a valid approval by the WAPC, but have not yet been developed.*

Despite this, the exercise of statutory planning discretions, such as planning approval and subdivision approval involving land that has a moderate or extreme bush fire attack level (BAL) between BAL-12.5 and BAL-FZ is likely to impose a duty of care on decision-making authorities. In these circumstances the information contained in the guidelines should be applied wherever practicable by both applicants and government decision-makers to achieve the acceptable fire protection outcomes, so that life and property are adequately protected from the risk of bush fires.

It should be noted that this Local Planning Strategy, and the Shire's Local Planning Scheme No. 4, were prepared under the previous *Planning for Bush Fire Protection* and DC 3.7.

Objectives and general principles

The three objectives of the guidelines are to:

- identify areas where fire poses a significant threat to life and property, and through the use of an assessment methodology determine the level of bush fire hazard applying to those areas;
- avoid increased fire risk to life and property through inappropriately located or designed land use, subdivision and development; and
- ensure that land use, subdivision and development takes into account fire protection requirements and includes specified fire protection measures where there is any risk from fires, especially involving land that has a moderate or extreme bush fire hazard level or a bush fire attack level between BAL-12.5 and BAL– FZ.

The five general principles underlying the guidelines are as follows:

- Bush fire hazards must be considered in planning decisions at all stages of the planning process to avoid increased fire risk to life and property through inappropriately located or designed land use and development.
- Local governments are to identify bush fire hazard levels in their structure plans, local planning strategies and local planning schemes, based on the bush fire hazard assessment methodology in the guidelines. A detailed assessment is to be undertaken to review the accuracy of a 'broad brush' assessment, as a basis for determining land use and zoning for specific development proposals. The advice of FESA is to be sought in this regard.
- Subdivision and development in areas with an extreme bush fire hazard level or a bush fire attack level between BAL-40 and BAL–FZ is to be avoided unless certain fire protection requirements can be implemented to the satisfaction of the WAPC, FESA and/or the local government.
- In areas with an extreme bush fire hazard level where more intensive subdivision/development, such as residential, rural-residential, hobby farms, tourist and industrial developments, is considered unavoidable, permanent hazard reduction measures need to be implemented to the satisfaction of the decision-making authorities (ie FESA, the WAPC, and/or the relevant local government) to reduce the hazard level to low to moderate or bush fire attack levels between BAL–Low and BAL-29.
- Structure plans, subdivision and development in areas with a moderate to extreme (or BAL-12.5 to BAL–FZ) bush fire hazard level needs to be supported by an assessment of the bush fire risk and compliance with the performance criteria and acceptable solutions set out in these guidelines. If such development cannot achieve compliance with the performance criteria and acceptable solutions, any alternative acceptable solutions have to be jointly agreed by FESA, the WAPC, and the relevant local government.

Guidance statements – strategies, schemes and amendments, strategic plans and structure plans

There are eight guidance statements relating to these levels of planning. These are as follows:

1. Bush fire hazard assessment and analysis required

Unless it is clear to the decision-making authority that the land in question is not in area that has a moderate or extreme bush fire hazard level, any new proposals or proposals which will effect a change of land use or design resulting in the introduction of, or an intensification of development should:

- include a bush fire hazard assessment based on the fire hazard assessment methodology and classifications set out in Appendix 1 of the guidelines;
- identify any bush fire hazard issues arising from that assessment; and
- address those issues, in accordance with the general principles that underpin these guidelines, in a statement or report which demonstrates that all fire protection requirements can be achieved to the satisfaction of the WAPC.

2. Areas with extreme bush fire hazard levels

Any change of zoning/planning provisions or design resulting in the introduction of, or an intensification of, development in an area that has an extreme bush fire hazard level will normally not be approved.

3. Areas with extreme bush fire hazard levels where the introduction, or intensification, of land use is unavoidable

Any new proposals or proposed land use, zoning or design change that will result in the introduction of, or an intensification of, development in an area that has an extreme bush fire hazard level, but which are considered unavoidable, will only be approved where it can be demonstrated that acceptable, permanent hazard reduction measures can be implemented at some subsequent stage in the planning process to reduce the hazard level to an acceptable level, and that the development can be undertaken in accordance with the general principles and building construction standards that underpin these guidelines. This may include an appropriate building protection zone, hazard separation zone and construction to an appropriate standard as specified in AS 3959 and as supported by a satisfactory risk assessment and analysis.

4. Areas with moderate bush fire hazard levels

Any new proposals or proposed changes of zoning or design that will result in the introduction of, or an intensification of, development in an area that has a moderate bush fire hazard level will only be approved where the development can be undertaken in accordance with the general principles that underpin these guidelines. In the case of structure plans, where the bush fire hazard was addressed at the time of the zoning of the land, the information on that hazard may be re-used, if the information is still relevant.

5. Incorporating bush fire hazard controls in local planning strategies and local planning schemes

Consideration is still to be given to providing measures in local planning schemes and their amendments, and local planning strategies to identify bush fire hazard areas and ensure that development in these areas addresses bush fire hazard issues. Special Control Areas can be linked to the boundaries of the bush fire hazard areas established through a strategic bush fire hazard assessment.

6. Consult with FESA for planning matters and strategic bush fire hazard assessments

The advice of FESA is to be sought where compliance with the guidelines is unlikely to be achieved or additional/alternative measures are proposed to achieve the objectives. FESA is also to be consulted to provide advice on a strategic bush fire hazard assessment and the selection of areas suitable for more intensive development from a bush fire hazard safety point of view.

7. Referral to DEC and other decision-making authorities

Where the land that is the subject of a new proposal or proposed changes of zoning or design that will result in the introduction of, or an intensification of, development in an area that abuts vegetated land managed by DEC or other relevant management agency, the application is to be referred to the DEC (or relevant agency) for advice, regarding the potential impact of their fire management practices on the amenity of future occupants, prior to a decision being made by the decision-making authority.

8. Matters to be taken into consideration

In addition to the matters normally required to be taken into consideration, any advice received from FESA, the DEC (regarding potential impacts of their fire regime on amenity) or other relevant authority regarding fire management practices is to be taken into consideration before a decision is made by the decision-making authority on that application. When assessing new proposals or proposed changes of zoning or design that will result in the introduction of, or an intensification of, development in an area that abuts land vested in the DEC, FESA will consider input from DEC on bush fire management prior to providing final advice on fire management practices to the decision-making authority.

Guidance statements – development, subdivision and strata applications

There are twelve guidance statements relating to these levels of planning. These are as follows:

1. Diligence required with regard to the guidelines

The decision-making authority will have regard to the objectives and provisions of these guidelines in determining subdivision, strata and development applications in areas where there is a bush fire risk above the 'low' bush fire hazard.

2. Bush fire hazard assessment required

Unless it is clear to the decision-making authority that the land in question is not in area that has a moderate or extreme bush fire hazard level or a bush fire attack level between BAL-12.5 and BAL-FZ, subdivision applications, strata applications and development applications should:

- include a bush fire hazard assessment based on the detailed fire hazard assessment methodology and classifications set out in Appendix 1 of the guidelines;
- identify any bush fire hazard issues arising from that assessment;
- address those issues, in accordance with the general principles that underpin these guidelines, in a statement or report which demonstrates that all fire protection requirements can be achieved to the satisfaction of the decision making authority; and
- be accompanied by a fully completed and signed compliance checklist for performance criteria and acceptable solutions form (contained in Appendix 3 of the guidelines).

3. Areas with extreme bush fire hazard levels

Subdivision/development in an area that has an extreme bush fire hazard land classification and requires construction standards between BAL-40 and BAL-FZ will normally not be approved.

4. Areas with extreme bush fire hazard levels where the introduction, or intensification, of residential land use is unavoidable

Where subdivision/development in an area that has an extreme bush fire hazard land classification and requires construction standards between BAL-40 and BAL-FZ is considered unavoidable, the application will only be approved where it can be demonstrated that acceptable, permanent hazard reduction measures can be implemented to reduce the hazard level to an acceptable level, and that the development can be undertaken in accordance with the general principles and building construction standards that underpin these guidelines.

5. Areas with moderate bush fire hazard levels

Subdivision or development in an area that has a moderate bush fire hazard land classification and requires construction standards between BAL-12.5 and BAL-29 will only be approved where it can be undertaken in accordance with the general principles that underpin these guidelines.

6. Referral to FESA

Any application that does not fully comply with the acceptable solutions set out in Appendix 2 of these guidelines (ie. involving a performance criteria assessment) is to be referred to FESA for advice prior to a decision being made.

7. Referral to DEC and other decision-making authorities

Where the land that is the subject of the application for subdivision or development abuts vegetated land managed by DEC or other relevant management agency, the application is to be referred to the DEC (or relevant agency) for advice, regarding the potential impact of their fire management practices on the amenity of future occupants, prior to a decision being made by the decision-making authority.

8. Matters to be taken into consideration

In addition to the matters normally required to be taken into consideration in the determination of a subdivision application, strata application or development application, any advice received from FESA, the DEC (regarding potential impacts of their fire regime on amenity) or other relevant authority regarding fire management practices is to be taken into consideration before a decision is made by the decision-making authority on that application. When assessing new proposals or proposed changes of design that will result in the introduction of, or an intensification of, development that abuts land vested in the DEC, FESA will consider input from DEC on bush fire management prior to providing final advice on fire management practices to the decision-making authority.

9. WAPC general subdivision/development conditions

The WAPC may impose conditions on subdivisions, strata applications or development applications to address fire protection issues including, but not limited to:

- the provision of fire fighting water supply and fire hydrants;
- the provision of fire services access;
- the preparation of a fire management plan and implementation of the specific fire protection measures set out in the plan (a model fire management plan is included in Appendix 4 of the guidelines);
- the allocation of a site for the location of a fire fighting facility; or
- the implementation of measures to ensure that prospective purchasers are aware of relevant scheme provisions, fire management plan and publications addressing fire safety.

10. WAPC financial contribution subdivision/development conditions

The WAPC may also impose a condition on subdivisions, strata applications or development applications requiring financial contributions for on-going fire protection where the condition is required to give effect to a fire equipment strategy that has been prepared and adopted by a local government and which identifies:

- areas where fire equipment is required;
- the fire equipment to be provided;
- the estimated cost of the fire equipment;
- the timing of the provision of the fire equipment; or
- the contributions to be levied on future subdivisions in areas covered by the strategy to provide that fire equipment.

11. Local government planning approval conditions

Local governments may also impose similar conditions as those listed in guidance statements 9 and 10 above, with the exception of conditions relating to the provision of hydrants and allocation of land for a fire fighting facility, on the development of land, where such conditions have not previously been imposed by the WAPC at the time of subdivision, strata application or development application.

12. Re-use of previous bush fire hazard assessment information

If the issue of a detailed bush fire hazard assessment was addressed at the time of the zoning of the land, the information on that hazard may be re-used for the purpose of guidance statement 2 above, if that information is still relevant.

Appendices

There are five Appendices to the guidelines. These provide essential information integral to the implementation of the guidelines. The Appendices address, respectively:

1. Methodology for determining bush fire hazard level
2. Bush fire protection performance criteria and acceptable solutions
3. Compliance checklist for performance criteria and acceptable solutions
4. Model fire management plan
5. Suggested Special Control Area provisions for Bush Fire Hazard

The methodology for determining bush fire hazard level differs from that in the earlier *Planning for Bush Fire Protection (2001)* in that it now details two specific levels of assessment – classifying bush fire hazard level at the strategic level, and classifying the bush fire attack level (at subdivision and development stages). The former is similar to the assessment carried out by the Shire in preparing Local Planning Scheme No. 4.

The performance criteria and acceptable solutions in Appendix 2 address the following:

- location
- vehicular access
- water
- siting of development
- design of development

3.0 LOCAL GOVERNMENT POLICY AND STRATEGIC CONTEXT

3.1 Corporate Business Plan 2013/14 – 2016/17

The Shire of Mundaring's Corporate Business Plan (CBP) 2013/14 – 2016/17 is a key part of the Shire's fulfilment of the Integrated Planning and Reporting Framework, implemented by the State Government's Local Government Reform Program. The CBP is informed by the Shire of Mundaring 2013 – 2023 Strategic Community Plan, which sets out a vision and priorities for the coming decade. The CBP identifies what will be delivered in the first four years and how that will be resourced, and fully integrated with the Shire's Asset Management Plans, Workforce Plan and Long Term Financial Plan.

Vision

The overall Community Vision for the Shire is:

Connecting community and environment

Summary of overall 10 year priorities

After considering community feedback on the overall priorities for increased focus over the next ten years, the following priorities were selected:

- the natural environment
- community and sporting facilities, playground, halls and buildings for community groups
- improved community outcomes in the areas of public transport, services for seniors, youth and people with a disability
- bushfire and emergency management

Strategy and planning priorities: Strategic Land Use Planning

The CBP summarises strategies and planning priorities for all of the Shire's service areas. For Strategic Land Use Planning, these are:

- outbuildings policy development
- light industrial investigation (Stone House service station and surrounds)
- preparation of Limited Rural Strategy for Bailup and Wooroloo
- preparation of Building Envelopes Register
- Mundaring Town Centre Precinct Plan*
- Darlington Precinct Plan*
- Access strategy for bushfire prone areas
- Watercourse Hierarchy Strategy*
- Mundaring Town Centre sewerage allocation study
- Local Commercial Strategy review
- Helena Valley Structure Plan/Urban Expansion Strategy

- Review of Municipal Heritage Inventory

The priorities denoted with an asterisk are subject to a mini strategic review.

Activities: Strategic Land Use Planning

The CBP includes summaries of Directorate Plans for the different Directorates within the Shire, listing the activities of each service area and assessing service levels and service level changes. For Strategic Land Use Planning, the activities listed are:

- Develop and maintain the Shire's strategic planning framework which guides forward planning and informs statutory planning decisions (LPS 4 will replace TPS 3 as the principal planning mechanism which guides development in the Shire)
- Assess and report on proposed amendments to the Metropolitan Region Scheme (MRS) triggered by the new Local Planning Strategy (LPS)
- Review precinct plans
- Provide strategic planning advice and input into proposed new State Government planning documents affecting the Shire, Scheme Amendments, Structure Plans and major subdivisions, development applications
- Actively advocate improved public transport within the Shire and promote/secure new road connections in association with new subdivisions

3.2 Local Rural Strategy (1994)

The Shire's Local Rural Strategy (adopted January 1994) was prepared as a supplementary report to Town Planning Scheme No. 3. The document essentially reflects and justifies the zoning proposals and Scheme controls in Town Planning Scheme No. 3 at the time of its gazettal in 1994. In its introduction, the Strategy notes that

"...long-term rural development strategies for the Shire have not been fully addressed in this document. Given that this Report relates to a Scheme with a limited life-span (statutory review requirements), the areas identified for future development in the Scheme as a result of this Strategy are those proposed by the year 2000. Longer term policies will be developed henceforth to ensure long-term goals are not prejudiced. The factors determining the areas for immediate development are, however, considered on a Shire-wide basis having regard to regional demands."

Subsequent to the gazettal of Town Planning Scheme No. 3, Council adopted "Planning Policy No. 1", which proposed, in the longer term, rural residential subdivision over a much more extensive area than that identified in the Local Rural Strategy. Planning Policy No. 1 was never adopted by the Commission and has since been rescinded by Council.

From a 1991 estimated Shire population of 31460, the Local Rural Strategy estimated that the population would reach 37650 by 2000. However, as of 30 June 2007, the Estimated Resident Population of the Shire was only 36931.

The Local Rural Strategy contains an analysis of the following elements:

- Physical assessment (physiography, geology, soils, climate, vegetation);
- Committed areas (existing development, proposed residential land, regional reserves and other reserved land, state forests);
- Constraining factors, infrastructure and management (visual resource analysis, water catchments, water supply, effluent disposal, roads, community facilities, open space, drainage);
- Population (population growth, growth by localities, population characteristics);
- Land Use and Economic Evaluation (overview, extractive industry, agriculture, forestry, tourism); and
- Market Demand (lot sizes, preferred house types, preferred locations, facilities requested by purchasers, lot demand).

Findings of the analysis, with respect to rural land in the Shire, include:

- no portion of the Shire can be regarded as a significant agricultural production area, in either State or Regional terms;
- although there are tourism assets within the Shire, tourism is not a major economic resource in the Shire;
- demand analysis indicated that the maximum desired commuting distance is approximately a 50km radius from Perth; and
- demand analysis indicated that people purchasing rural properties in the outer areas of the Shire accept the lack of services and facilities in those areas.

The Local Rural Strategy document is now around fifteen years old, and includes analysis that is even older. Many of its findings and recommendations are now obsolete.

3.3 Local Commercial Strategy (1992)

The Shire's Local Commercial Strategy (LCS) was prepared to complement Town Planning Scheme No. 3 and was adopted by Council in December 1992. It was envisaged as providing policy direction over a 15 to 20 year period.

The LCS produced a series of Commercial Strategy Statements, for the Shire overall, for each of the localities with a commercial function, for Great Eastern Highway generally and for industrial areas. In short, the LCS reinforced the then existing commercial structure within the Shire, with the Mundaring Town Centre as the major focal point in the Shire for commercial activity and a local centre in each village and suburb.

At the time of its writing, the LCS envisaged one commercial centre for new townsite development at Lot 81 Beacon Road and Pt Lot 69 Roland Road.

Some of the key recommendations in the Commercial Strategy Statements include:

- primarily maintain local commercial centres at the current rate of net lettable area per capita and direct any major commercial development to the Mundaring Town Centre;
- consolidate development of commercial centres with particular emphasis on accommodating commercial development other than retail and establish a broader base of community, cultural and recreational activities within or adjacent to such centres;
- prepare Precinct Plans for those commercial centres requiring a more comprehensive planning approach for the purpose of rationalisation or likely further growth;
- local commercial centres in Swan View (Marlboro Road and Morrison Road) be retained at current retail floorspace;
- the local centre for the “Cedar Woods” development in Helena Valley be limited to a floorspace of 1000 m²;
- local commercial centres in Darlington (Owen Road and Montrose Avenue) be considered jointly as a function of a large single commercial centre for Darlington, but be retained at their current retail floorspace, with a high level of protection given to retaining the centre in terms of its current role and function;
- local commercial centres in Glen Forrest (Hardey Road and Railway Parade) be retained at current retail floorspace, with any future expansion emphasising non-retail commercial business and possibly aged housing for the Hardey Road centre and social/community facilities and low-key commercial activities for the Railway Parade centre;
- the Owen Road local commercial centre in Parkerville should provide an option for low-key retail development to meet projected population growth, but with an emphasis on other commercial and community facilities, included aged housing;
- the local commercial centre in Stoneville be retained at current retail floorspace;
- the local commercial centre in Sawyers Valley be retained at current retail floorspace, with commercial land north of Great Eastern Highway developed for non-retail commercial activities, community purposes or aged housing and any future retail development to be directed to the southern side of the Highway;

- the local commercial centre (McVicar Place) and convenience store (Keane St) in Mount Helena be retained at current retail floorspace;
- all future retail and other commercial, community and cultural facilities in Chidlow be directed to the Thomas Street local commercial centre;
- the local commercial centre in Wooroloo to have a floorspace of 2500 m² to cater for the estimated maximum population of 5000;
- rural buffer areas between the settlements be protected from any intrusion of commercial activities to retain the function of separation between the settlements; and
- the Mundaring and Midvale industrial areas be protected from the intrusion of retail activities that are not commercial/industrial based.

A provision in Town Planning Scheme No. 3 reinforces the recommendations of the LCS, requiring an economic impact statement to be prepared for any proposal for additional retail floorspace within local centres. The provision requires that, for an approval to be issued, Council must be satisfied that the proposed expansion is justified and would preserve the existing level of service available to the local community.

3.4 Public Open Space Strategy (2001)

The Shire's Public Open Space Strategy was adopted by Council in May 2001. The Strategy's intent was to coordinate provision of Public Open Space (POS) within the Shire, recognising that application of standard legislation and policy measures fails to meet the community's needs due to the unique nature of settlement within the Shire.

The objectives of the POS Strategy are to:

- provide useable POS to meet the active and passive recreation needs of the residential and rural-residential communities within the Shire;
- reserve land where such is needed to ensure protection of unique or irreplaceable features of the natural environment;
- promote linkages between reserves to foster movement of native fauna and reduce the risk of pollution of waterways;
- identify POS areas over landscape and conservation features and watercourses and land for recreation, bridle trails, pedestrian links and buffer areas or designated rural-residential zoned lots with potential for subdivision; and
- identify existing POS areas in need of upgrading to serve the additional residents generated by nearby subdivision.

The Strategy identifies that cash-in-lieu of POS, rather than ceding of land for POS, would be beneficial in many small subdivisions within the Shire, but notes the difficulty in obtaining cash-in-lieu under the *Town Planning and Development Act* where cash-in-lieu could only be required if agreed by the subdivider. Since the Strategy was adopted, this issue has been resolved by the *Planning and Development Act 2005*, with the WAPC now able to require cash-in-lieu of POS without first obtaining agreement of the subdivider.

The Strategy indicates that when identifying POS to be ceded in subdivisions, preference will be given to land that:

- is contiguous with existing POS and/or watercourses;
- has environmental significance; or
- in the opinion of Council has special historical or cultural significance.

The Strategy identified some unconstructed road reserves to be closed and converted to POS.

The Strategy makes its recommendations based on a standard POS requirement of 10% in Residential zones (including all areas coded R5 and R2.5) and 5% in Rural Landscape Living zones.

The Strategy is comprised mainly of a series of recommendations relating to each of numerous residential and rural-residential cells (called “Locations”) throughout the Shire delineated on copies of maps in the Strategy. For each cell, the Strategy provides a paragraph indicating where POS should be located, the function and purposes it should serve, where payment of cash-in-lieu is desirable and where such cash-in-lieu should be used (often somewhere nearby but outside of that particular cell).

Since its adoption, the Strategy has guided the Shire in its assessment of structure plans (referred to as Local Subdivision and Infrastructure Plans under Town Planning Scheme No. 3) and subdivision applications.

3.5 Shire of Mundaring Environmental Management Strategy

The Shire’s Environmental Management Strategy (1996) was prepared to provide the primary focus for protecting and managing the Shire’s environment. The Environmental Management Strategy was developed with the community through a range of consultation forums.

The Strategy identifies and prioritises actions across a range of environmental issue categories and incorporates a range of Implementation Strategies:

- Integrated Catchment Management Plan
- Erosion and Sediment Control Policy
- Recycling Strategy
- Community Education Strategy
- Urban Drainage Strategy

- Landcare Strategy
- Friends Group Strategy
- Reserves Management Strategy
- Tree Preservation and Revegetation Strategy
- Ribbons of Blue Project
- TPS Compliance Audit
- Environmental Position Paper
- Wildlife Corridor Strategy
- Integrated Pest and Weed Control Program
- Domestic and Feral Animal Control Program

Subsequent environmental policies prepared by or for the Shire include Environment Guidelines for the Construction of Dams (2000), a Weed Control Strategy (2002) and a Watercourse Protection Policy (2004).

The Environmental Management Strategy is currently under review. To this end, the Shire has recently prepared a State of the Environment Report (see section 3.7 below).

3.6 Precinct Plans

The Shire has adopted a number of Precinct Plans as Town Planning Scheme Codes under Town Planning Scheme No. 3 to guide development in particular town or village centres.

Town Planning Scheme No. 3 applies land use and development standards to various zones across the entire municipality, but for the most part does not address the particular form of land use and patterns of development that characterise or are proposed for specific areas or precincts. However, Precinct Plans have been adopted as Town Planning Scheme Codes under the Scheme, which makes provision for adoption of Town Planning Scheme Codes to, among other things, designate planning precincts and establish specific planning and design controls within those precincts.

3.6.1 Mundaring

The Mundaring town centre is the major focal point within the Shire for commercial activity. The Mundaring town centre has two precinct plans, based on the different zones applying to the area in Town Planning Scheme No. 3.

3.6.1.1 Mundaring – District Shopping Zone

In April 1997 Council resolved to adopt the *Precinct Plan for the District Shopping Zone in the Shire of Mundaring*. This precinct plan covers the whole of the District Shopping zone, bounded by Mann Street, Hartung Street, Stoneville Road and Great Eastern Highway. A copy of the plan is at Figure 12.

The main objectives of the precinct plan are to:

- promote, facilitate and strengthen the District Shopping zone as the principal shopping focus of the district;
- accommodate a diversity of retail facilities ranging from large supermarkets to small specialty shops to meet the major weekly and comparison needs of the district;
- reinforce the retailing function of the zone by limited professional, administration and other commercial functions; and
- encourage the integration of existing and proposed facilities within the zone so as to promote ease of pedestrian movement and the sharing of infrastructure facilities as well as to retain the opportunity for any further expansion of the area as a whole.

The precinct plan sets a land use framework for the precinct and makes recommendations regarding vehicle access and car parking, pedestrian movement, building form and landscaping.

Many of the proposals shown in the precinct plan have now been built. However, the north-west of the precinct has yet to be fully developed, and the precinct plan identifies a mix of retail, service industry and residential use and car parking in this area.

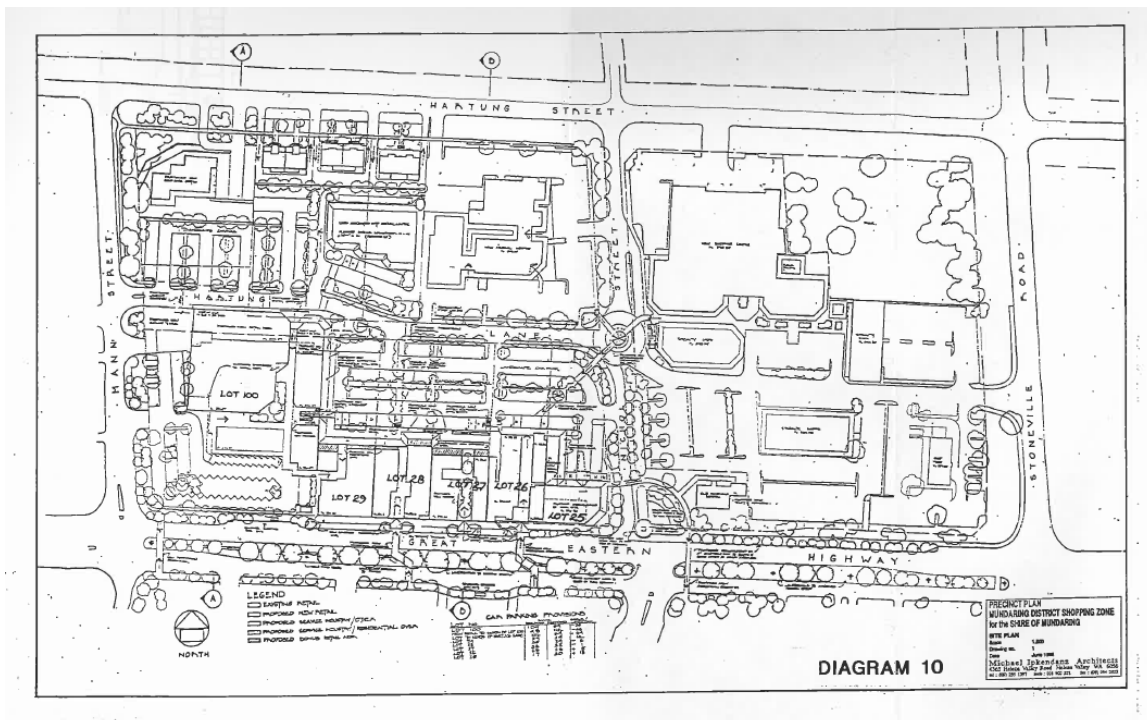


Figure 12: Precinct Plan for the Mundaring District Shopping Zone

3.6.1.2 Mundaring – District Business Zone

The most detailed of the Shire's precinct plans is the *Shire of Mundaring Precinct Structure Plan for The Business District Zone & The Civic & Cultural Precinct in the Mundaring Townsite* (December 1997). The Precinct Structure Plan applies to the whole of the District Business zone. It covers land bounded by Great Eastern Highway to the north, Fenton Street to the east, Jacoby Street to the south and Mindyah Court to the west (see Figure 13 below). The document also contains a more detailed precinct plan for the Civic and Cultural Precinct, which is the street block bounded by Nichol Street, Craig Street, Mundaring Weir Road (formerly Hodgson Street) and Jacoby Street (see Figure 14 below), but additionally makes recommendations regarding the town hall, opposite Mundaring Hotel on the western side of Nichol Street.

The Precinct Structure Plan anticipates that it will cater for business, commercial and professional development over the next 20 to 30 years, although it is to be reviewed at regular intervals.

The document has a wide range of objectives, including, but not limited to, the following:

- to promote variety, vitality and life within the Mundaring townsite;
- to facilitate a diversity of functions, including administrative, professional, office, entertainment, cultural and other business activities, together with a limited number of specialty shops;
- to restrict retail development to the shopping precinct on the north side of Great Eastern Highway;
- to encourage some residential accommodation, particularly in the form of hotels, motel/holiday, single residential and group housing (for a diversity of age groups) whilst recognising that business activities will be the main focus;
- to achieve safety and efficiency in traffic circulation;
- to provide landscaping appropriate to the scale of development whilst providing a link from within the urban cell to the surrounding natural environment;
- to encourage cyclists to visit the Town Centre and to make civic and cultural facilities accessible by bicycle;
- to provide easy and safe access between the Shopping Precinct and the Business and Civic and Cultural Precincts;
- to provide adequate parking space for all events;
- to integrate car parking into the built and landscape spaces of the precincts and to reduce the impact of large central car parking locations;

- to retain significant existing vegetation, to enhance the Town Centre;
- to provide opportunities for art in public places throughout the District Business Zone and extend the sculpture park into the Civic and Cultural Precinct;
- to present a collection of buildings of various forms and functions as a recognisable Town Centre; and
- to provide public spaces that are accessible, inviting and safe for residents and visitors to the Mundaring town centre and the District Business Zone.

From a statutory planning viewpoint, the most important recommendation of the document is in the form of a Land Use Table for the District Business Zone. This Table divides the Zone into ten smaller precincts and applies different permissibilities for a range of use classes, in the same way as the Zoning Table in the Shire's Town Planning Scheme. As the Precinct Structure Plan is a Town Planning Scheme Code under Town Planning Scheme No. 3, the Land Use Table has, in effect, been the Zoning Table for the District Business Zone.

In addition to the Land Use Table, the Precinct Structure Plan makes a series of detailed land use recommendations for each of the ten identified precincts within the District Business Zone.

The Precinct Structure Plan also makes detailed recommendations regarding:

- pedestrian/bicycle/wheelchair movement;
- vehicle movement/parking/service;
- landscaping and urban design;
- building form;
- public spaces;
- public artwork;
- street furniture;
- staging of development; and
- design guidelines.

The Precinct Structure Plan proposes a range of civic and cultural land uses, including a new library, an art gallery, a civic building/function centre and several other community facilities buildings. It proposes retention and restoration of the Mundaring Hotel building (though possibly for another use). It recommends the town hall be upgraded and converted into a regional museum. The plan proposes a new alfresco cafe/bistro and a new function centre/restaurant.

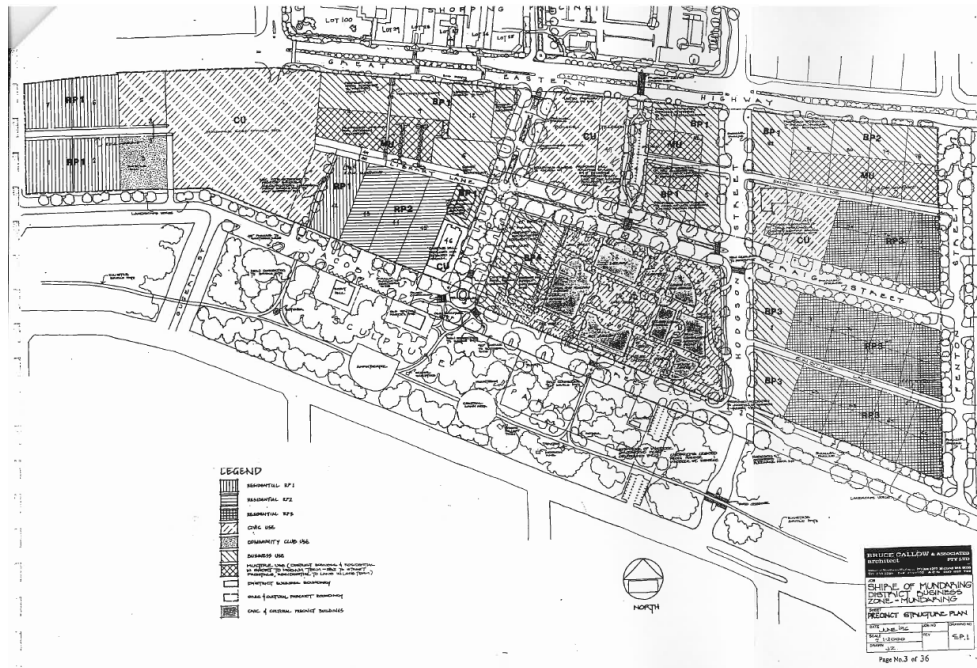


Figure 13: Precinct Structure Plan for the Mundaring District Business Zone

The objectives for the detailed precinct plan for the Civic and Cultural Precinct include:

- to create a friendly, diverse and inviting precinct which is easily accessible to all people and which fulfils the cultural and civic needs of the community;
- to allow for redevelopment of the site over an extended time-frame with the most ease and efficiency;
- to ensure advantage is taken of solar orientation for passive heating and cooling and that buildings do not shadow others;
- to place buildings on the site so they allow visual transparency but at the same time create a well balanced composition;
- to create a built environment forming a cohesive Civic and Cultural Precinct which belongs in its environment;
- to provide safe and efficient access within a friendly and comfortable environment;
- to provide safe and efficient vehicle access to the Precinct along with sufficient parking within easy range of facilities and adequate service access;
- to unify the Precinct to create a setting for the buildings and parks and to assist in creating a unique identity;
- to have the Civic and Cultural Precinct of the Shire sympathise with the natural hills environment;
- to provide green links between facilities, through the town centre and with other park and recreation spaces;
- to incorporate artwork as an integral part of the development of the Precinct; and

- to develop opportunities to share facilities and infrastructure costs.

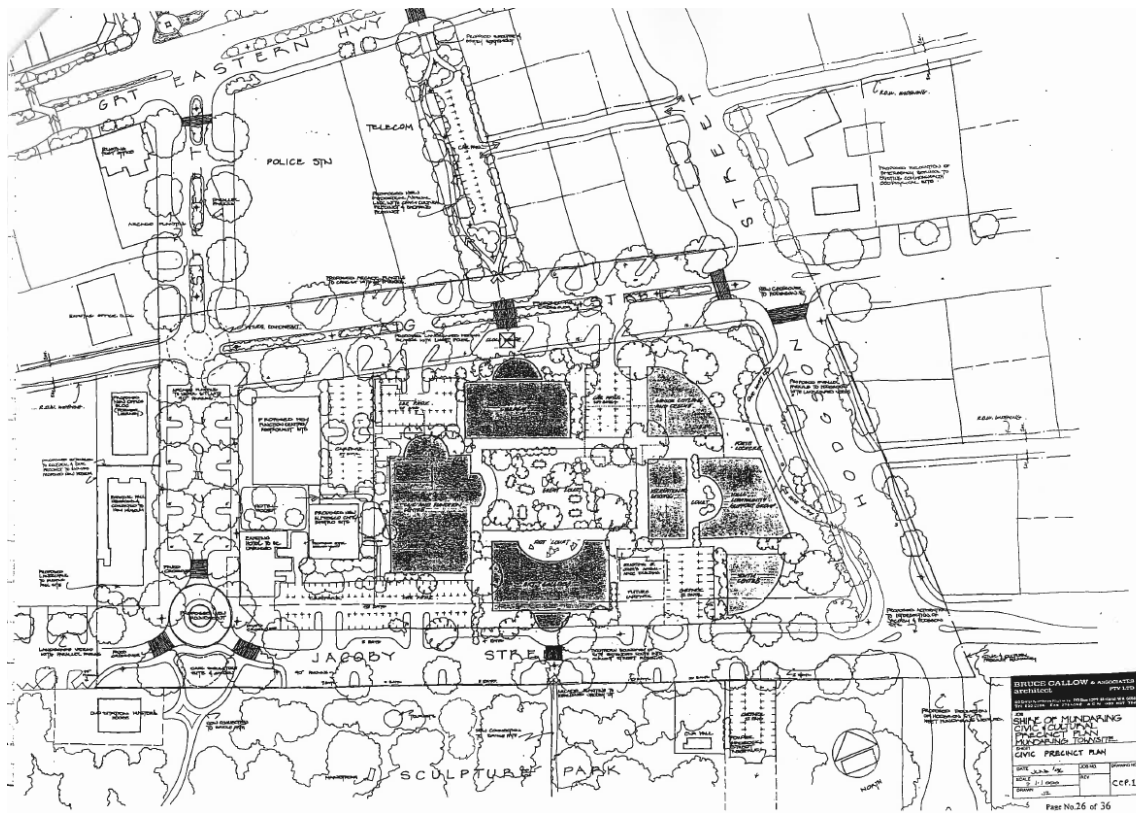


Figure 14: Mundaring Civic and Cultural Precinct Plan

The desired disposition of land uses, car parking and public spaces within the Precinct are shown on the precinct plan (see Figure 14 above). Detailed recommendations are made to achieve these objectives, including design guidelines for the Precinct.

3.6.2 Darlington

The *Darlington Village Precinct Plan* was prepared between 1994 and 1997, with guidance from a Darlington Precinct Advisory Committee (DPAC), and arose from an earlier 1987 precinct plan of the same name. The precinct plan was advertised for public comment in May 1997 and in June 1997 Council resolved to adopt the precinct plan subject to modifications to address concerns raised by the community. The modifications were made and the precinct plan finalised in July 1998.

DPAC determined that the precinct plan should cover a wider area than the 1987 plan, so the precinct plan extends beyond the traditional village centre of Darlington, containing the shops and recreation areas on Owen Road and Pine Terrace, to also incorporate the immediately surrounding area. The area chosen was based on the inclusion of landmarks considered significant to the local community (see Figure 15 below).

The precinct plan identifies the land use characteristics that make up the character of the Darlington Village Precinct.

The aim of the precinct plan is:

“To preserve and enhance the existing character and amenity of the Precinct, and in so doing maintain it as a unique, identifiable and special place within the hills.”

The objectives of the precinct plan are:

- all development to complement natural landform;
- the built environment should not dominate the landscape;
- to achieve a strong sense of place and community focus on the historic and social significant of the village centre;
- to maintain low building density;
- to encourage rehabilitation of degraded areas and sites;
- to encourage a high standard of maintenance of landscape and the built environment;
- to encourage and maintain diversity and variety in the landscape and the built environment;
- to use all available means to minimize noise and environmental pollution;
- to encourage an open and accessible community where motor vehicle movements do not dominate; and
- to maintain public accessibility to public open spaces and reserves.

The precinct plan identifies a range of strategies, with explanatory guidelines. These strategies are broken into sections addressing the residential, commercial areas of the precinct as well as public spaces (recreational reserves and road reserves). The strategies address such matters as fencing, building setbacks, fill and excavation, driveways and drainage, tree preservation, building appearance, car parking, signage and lighting.

A strategy on land use within the residential area within the precinct sets out a range of land uses which Council shall generally not support - notwithstanding those uses being discretionary within the Residential zone under Town Planning Scheme No. 3.

With respect to the commercial area, the precinct plan supports the recommendations in the Shire's 1992 Local Commercial Strategy for Darlington (essentially that the two small centres on Owen Road and Montrose Avenue be retained at current floorspace levels with any upgrading and/or extensions to be of a minor nature).

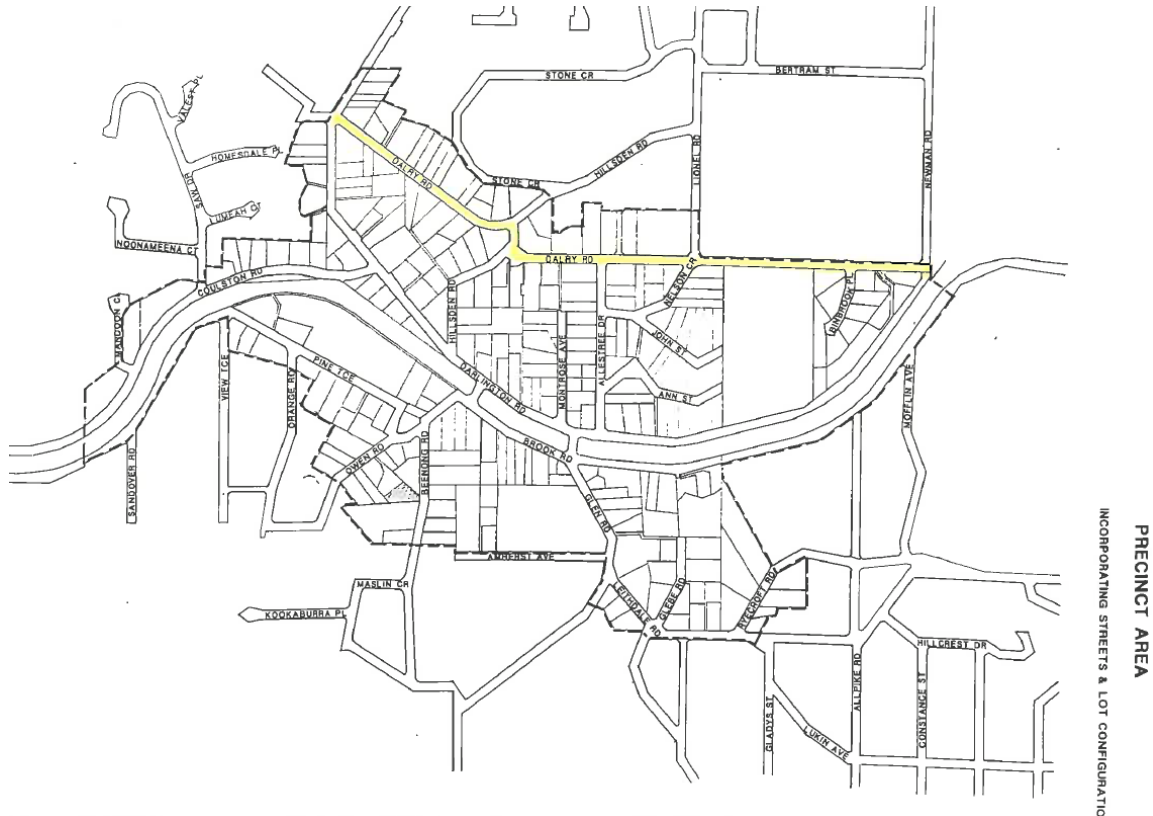


Figure 15: Darlington Village Precinct Plan - Precinct Area

3.6.3 Glen Forrest

The *Glen Forrest Village Centre Precinct Plan* was adopted by Council on 26 June 2001. Covering a wide area, the precinct plan extends from Great Eastern Highway south to the Glen Forrest Primary School, incorporating significant local features, the two separate commercial areas, heritage sites and the immediately surrounding residential area (see Figure 16 below).

The precinct plan identified the land use characteristics that made up the character of the Glen Forrest Village Centre.

As with the Darlington Village Precinct Plan, the aim of the precinct plan is to:

“Preserve and enhance the existing character and amenity of the Precinct, and in so doing maintain it as a unique, identifiable and special place within the hills.”

The objectives of the precinct plan are:

- protect and enhance the Precinct's village atmosphere within a bushland setting;
- protect and enhance the quality of life for residents;
- identify, protect and enhance the significant historical, environmental, aesthetic and recreational components of the Precinct;
- maintain a low density built environment that does not dominate the streetscape;
- all development to complement the Precinct's bushland setting;
- achieve a strong sense of place and community focus on the significant environmental, historic, social and commercial aspects of the Village Centre;
- ensure that all buildings and surrounds are maintained to a high standard;
- maintain and improve the streetscape;
- improve the safety, circulation and integration of the road network with surrounding land uses, pedestrians and cyclists so that motor vehicle movements do not dominate;
- rehabilitate degraded areas, using local community resources;
- minimise noise and environmental pollution;
- maintain and consolidate services provided at the existing local centres.

The precinct plan identifies a range of guidelines and strategies. These guidelines and strategies are broken into sections addressing the residential areas, commercial areas ("Local Centres"), heritage, environmental issues, public spaces and movement systems. The strategies address such detailed matters as fencing, building setbacks, fill and excavation, driveways and crossovers, building appearance, size and future expansion of local commercial centres, signage and lighting, heritage assessment, tree preservation, bushland reserves, Nyaania Creek, streetscape, roads and pedestrian and cycle paths.

With respect to the local commercial centres, the precinct plan supports the recommendations in the Shire's 1992 Local Commercial Strategy for Glen Forrest (that the two local centres on Hardey Road and Railway Parade be retained at current floorspace levels to service everyday convenience shopping needs of the local community; and that in any future expansion, the emphasis for the Hardey Road centre to be on complementary commercial business other than retail, and the emphasis for Railway Parade to be on social/community facilities and other associated low key commercial activities).

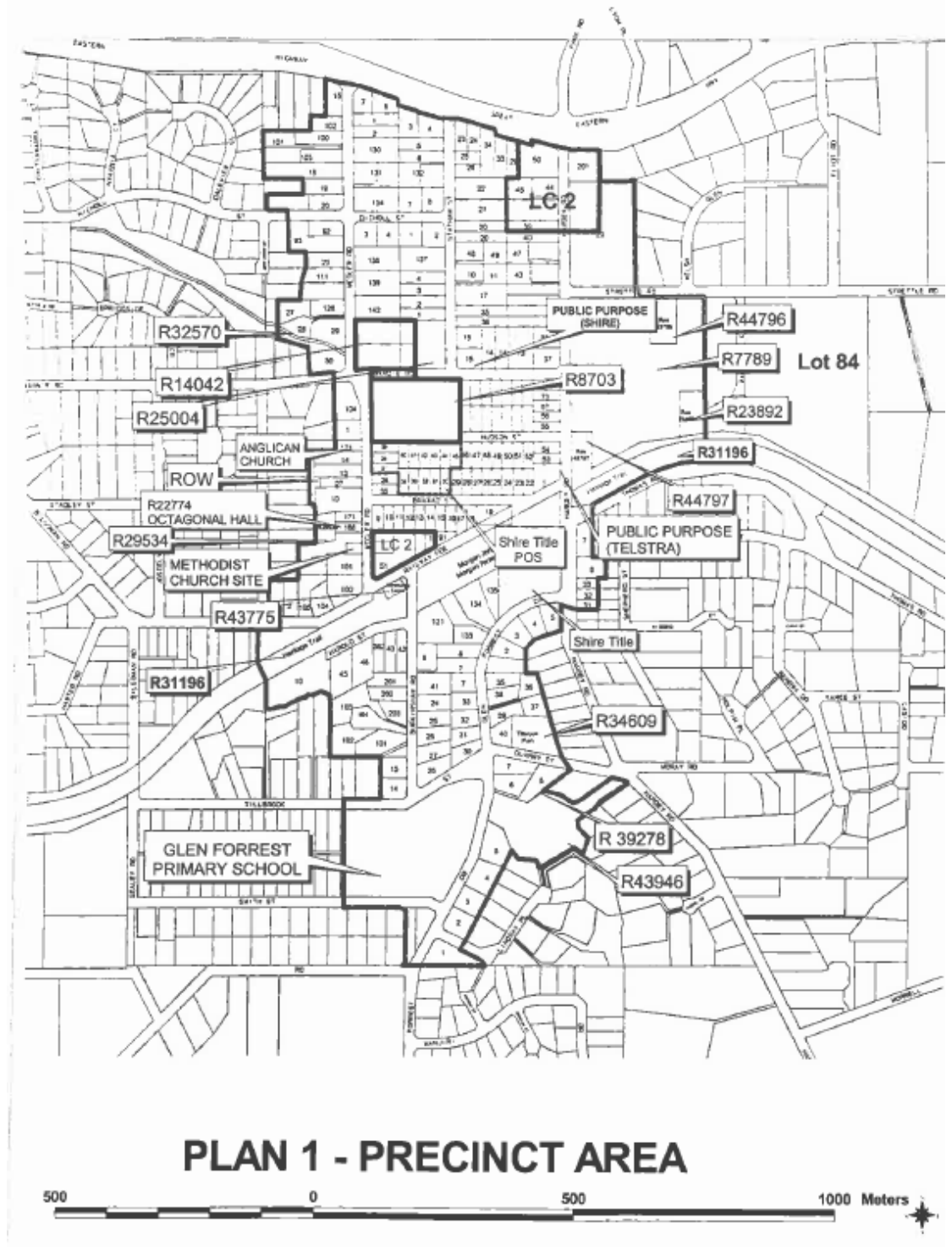


Figure 16: Glen Forrest Village Centre Precinct Plan - Precinct Area

3.6.4 Parkerville

The *Parkerville Village Centre Precinct Plan* was adopted by Council in February 2002. Covering a wide area, the precinct plan includes all Residential zoned land in Parkerville, as well as the Parkerville Primary School, Parkerville Children's Home, local commercial centre and various reserves (see Figure 17 below).

The precinct plan identified the land use characteristics that made up the character of the Parkerville Village Centre.

The aim of the precinct plan is to:

“Preserve and extend the existing character and amenity of the Precinct, and in doing so maintain and enhance the community identity and sense of place in this unique picturesque village.”

The objectives of the precinct plan are to:

- protect and enhance the Precinct's village atmosphere and lifestyle within a rural bushland setting;
- protect and enhance the quality of life for residents;
- identify, protect and enhance the significant environmental, aesthetic, recreational and historical components of the Precinct, and in doing so maintain and enhance community identity;
- maintain and promote the country town atmosphere by protecting prominent rural/bushland buffers by maintaining the discrete rural residential setting;
- promote the importance of protecting native trees and understorey areas, especially in respect to managing erosion and drainage issues;
- maintain and enhance the community identify and sense of place by focusing on the significant environmental, historical, social and commercial features of the Village Centre;
- promote variety in residential building designs whilst being sympathetic to the site features and the rural bushland setting;
- maintain the informal rural characteristics of the streetscape;
- improve the safety, circulation and integration of the road network with surrounding land uses, to achieve pedestrian/vehicular segregation where practical;
- rehabilitate degraded areas, utilising local community resources;
- minimise noise, environmental pollution and degradation in all forms through responsible land management practices; and
- provide guidance for the provision of adequate services to accommodate future populations, and integrating future commercial development into the existing historical character, with an emphasis on fitting in with the landscape amenity.

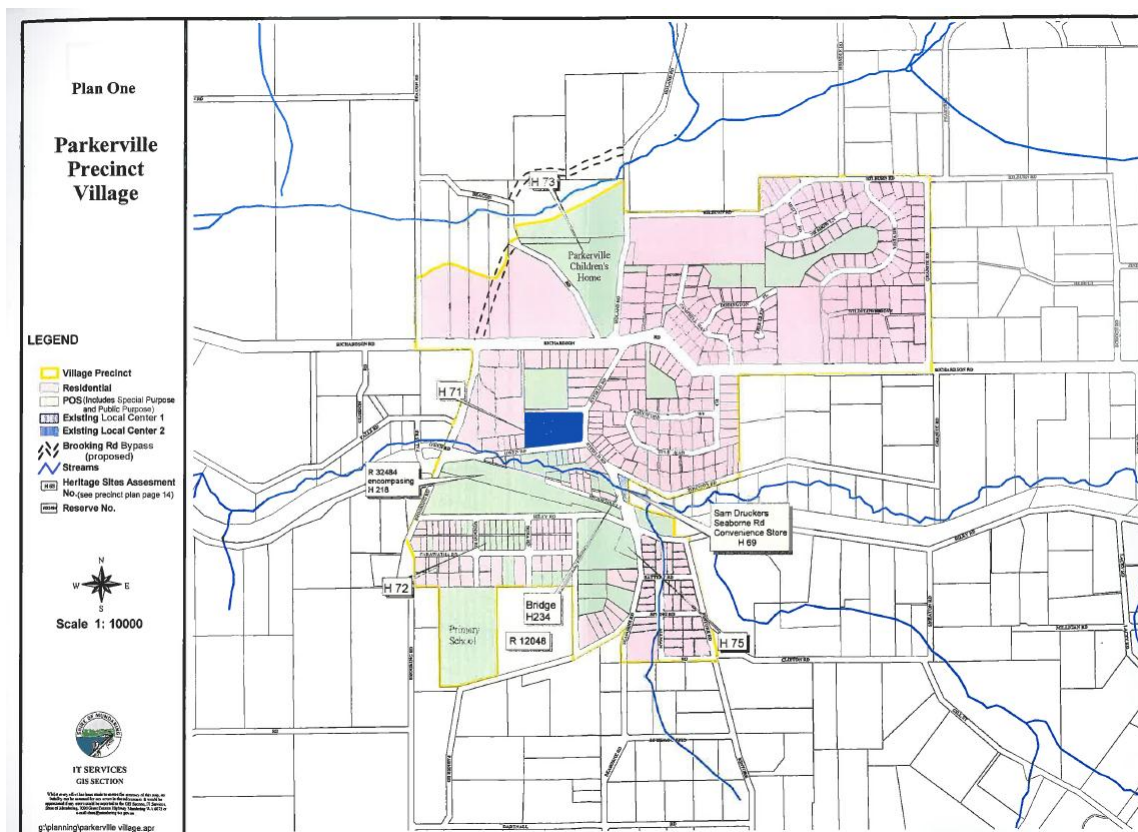


Figure 17: Parkerville Village Centre Precinct Plan

The precinct plan identifies a range of guidelines and strategies. These guidelines and strategies are broken into sections addressing the residential areas, commercial areas (“Local Centres”), heritage, environmental issues, public spaces and movement systems.

The strategies address such detailed matters as fencing, building setbacks, fill and excavation, driveways and crossovers, building appearance, size and future expansion of the local commercial centre on Owen Road and Seaborne Street, drainage and kerbing, signage and lighting, heritage assessment, tree preservation, bushland reserves, Jane Brook, streetscape, roads and pedestrian and cycle paths.

With respect to the local commercial centre, the precinct plan notes that while Parkerville has an undersupply of retail floorspace, there may be little community demand for additional floorspace. However, it gives guidance on longer term expansion and commercial development.

- identifying, preserving and enhancing the significant historical and environmental components of the precinct.

The precinct plan makes recommendations relating to the road network, vehicle access and car parking, pedestrian and cycle access, landscaping, buildings and infrastructure and Pioneer Park.

3.6.6 Chidlow

The *Chidlow Village Centre Precinct Plan* was advertised for public comment in 2001 and adopted by Council in December 2002, subject to modifications. The modified precinct plan is dated November 2003. The precinct plan covers most of the Residential zoned land in Chidlow, as well as the primary school, commercial area and some recreational reserves (see Figure 19 below).

The objectives of the precinct plan are to:

- develop a coherent and integrated precinct that will provide a sense of place and main the identity and tranquillity of the area;
- improve pedestrian and cycle access and safety;
- identify and preserve the significant historical components and physical features of the precinct;
- enhance the general streetscape of the precinct; and
- make general recommendations for the future development of the precinct area.

The precinct plan identifies a wide range of guidelines and strategies (90 in total). These guidelines and strategies are broken into sections addressing the residential areas, commercial (“Local Centre”) areas, heritage places and buildings, public education and medical facilities, environmental issues, bushland reserves and Public Open Space and movement systems.

The guidelines and strategies address such detailed matters as fencing, building setbacks, fill and excavation, driveways and crossovers. The precinct plan also makes specific recommendations about each commercial area and many roads, heritage buildings and reserves.

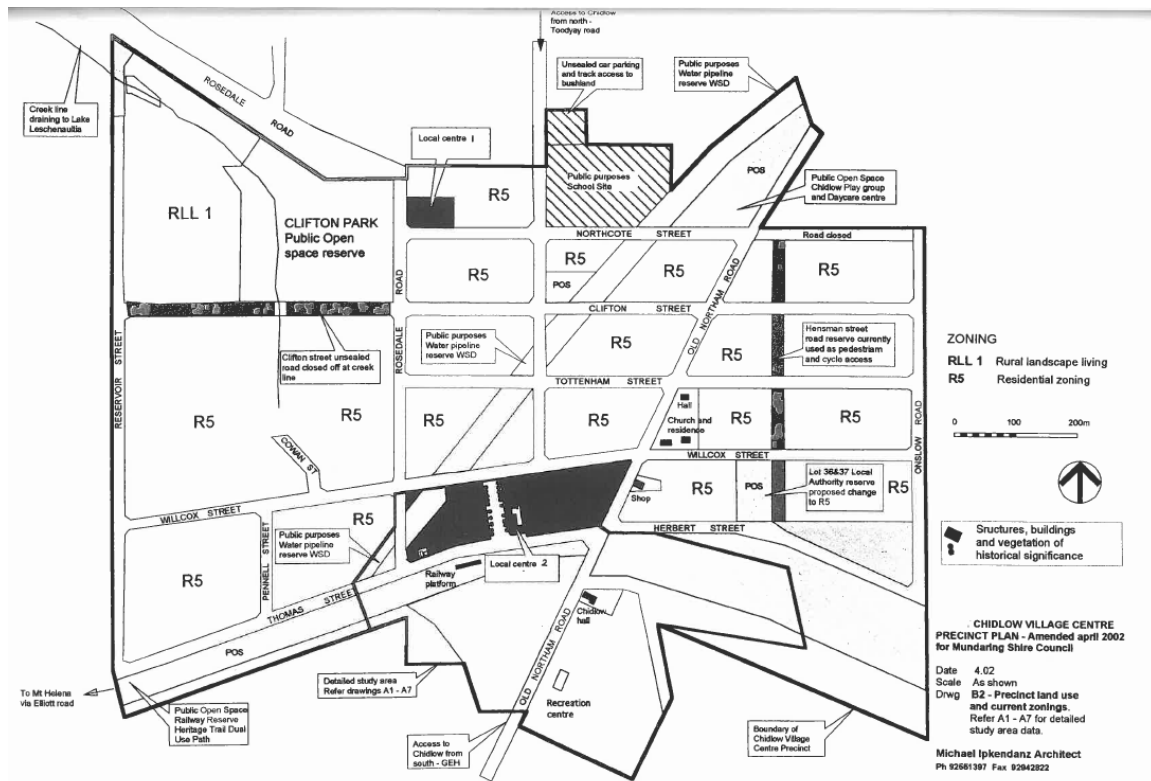


Figure 19: Chidlow Village Centre Precinct Plan

3.7 State of the Environment Report 2008

The Shire's *State of the Environment Report 2008* provides a snapshot of the state of the environment throughout the Shire. Among the aims of the document are to provide baseline data for the region in order to track changes over time, measure the effectiveness of Shire-initiated programs and strategies, and to establish new directions for future environmental planning.

Key issues

The key environmental issues for the Shire, identified in a community workshop and incorporated into the State of the Environment Report, and are:

- Loss of biodiversity and heritage due to:
 - vegetation clearing
 - weeds and disease
 - inadequate or insufficient management
- Protection of water quality and water supply
- Land degradation resulting in erosion and salinisation
- Appropriate land use and indigenous consultation

Summaries for each environmental theme

The report assesses threats and indicators for each of six environmental themes, which are a grouping of environmental issues affecting a certain aspect of the environment.

The six environmental themes are:

- Atmosphere
- Biodiversity
- Heritage
- Human Impact
- Land
- Inland Water

A summary of the findings for each of these environmental themes is as follows:

Atmosphere:

- The community is concerned about vegetation clearing due to urban sprawl, smoke from fires and greenhouse gases.
- Detailed data for smoke statistics is not available.
- The Shire Corporate activities reduced greenhouse gases by 13% from 1998-2003 through the CCP program.
- The Shire of Mundaring has converted 25.6% of its fleet to gas powered vehicles.
- A very small percentage of adults in the suburb of Mundaring use public transport to travel to work.

Other data that the Shire of Mundaring could investigate collecting to measure response to the greenhouse effect includes:

- Percentage of houses with solar hot water systems;
- Percentage of households participating in green energy schemes; and
- Percentage of houses incorporating energy efficient design techniques

Biodiversity:

- Biodiversity is under pressure from growing urbanisation within the Shire of Mundaring.
- The community is concerned about the loss of biodiversity and the pressures of exotic species.
- The three vegetation complexes of Guildford, Forrestfield and Southern River are present in the Shire of Mundaring, as small areas in Helena Valley.
- The other vegetation complexes in the Shire of Mundaring are present in sufficient quantities to maintain ecosystem processes.

- There are two declared rare plant species in the Shire.
- There are 20 species of bird listed as in need of special protection or are in danger of becoming extinct.
- 75% of the Shire is covered in vegetation.
- 2.4% of the total area of the Shire is managed by the Shire of Mundaring.
- Four of the 60 weed species recorded in the Reserve Study Stage 2 are declared weeds.
- There are 17 pest animal species recorded in the Shire of Mundaring.
- All naturally vegetated land is under threat of dieback disease.
- The Shire of Mundaring manages 39 out of the top 100 reserves (ranked on environmental value).
- There are three private properties with conservation covenants and 103 properties registered with the Land for Wildlife program.

Heritage:

Heritage places in the Shire of Mundaring fall into three categories of natural, historic and indigenous. Data on these heritage places indicates:

- Seventeen places in the Shire of Mundaring are identified in the Register of the National Estate. Eleven are historical and six natural heritage places, eight are Registered with the remaining places identified as Indicative Places.
- There are 123 historical places listed in the State Register of Heritage Places.
- The Shire of Mundaring has management orders over 39 of the Top 100 Reserves.
- There are 103 sites in the Shire of Mundaring on the Register of Aboriginal Sites list.

Human Impact:

- The Shire of Mundaring population has grown from 33,438 to 35,718 in 4 years; an increase of 0.5%.
- The Shire has the second largest area of local natural area in the metropolitan region after the City of Wanneroo.
- There is 0.046 ha of Shire managed local natural area per resident.
- 80% of land managed by the Shire is vegetated.
- The Shire has reduced its greenhouse emissions by 13%.
- The Shire has met their 2007/2008 water use reduction targets with a corporate reduction of 46.2% and residential reduction of 21%.
- The Shire allocated \$231 per hectare for reserve management in 2006/07.
- The allocation for natural area management equates to 3.5% of the Shire budget.
- Friends Groups manage 24% of the Shire's Reserves by area (371.6 ha).

- The Friends Groups provide in kind value to reserve management of over \$100,000 per annum.
- The Shire distributed 62,568 plants to 1329 households in 2006 as part of the Tree Canopy and Understorey Program.

Land:

- 4.16 ha of land in the north-eastern part of the Shire is salt-affected.
- 24.66% of the Shire is unvegetated.
- Trends in groundwater levels show water levels dropping under vegetated areas and rising in cleared rural areas.

Inland water:

- Clearing and loss of vegetation are priorities to the local community.
- Foreshore assessments indicate 65 and 50% of healthy fringing vegetation along the Helena River and Jane Brook respectively.
- Foreshore assessment (WRC) indicate that sedimentation and erosion is a problem at half of the assessed sites.
- More than 50% of sites assessed were considered to have excellent to moderate overall stream health.
- Water quality for creeklines meets or exceeds targets set by the Swan River Trust for Nitrogen, Phosphorus and conductivity.
- The Shire has exceeded their corporate and community water reductions targets set in the Water Action Plan.
- Thirty one Friends Groups work on or near creeklines.

Key conclusions

From the above information, the Report identified a key conclusion for each of the six environmental themes:

Atmosphere: Greenhouse Gas emissions from Shire operations are decreasing

Biodiversity: The Shire of Mundaring has no threatened ecological communities (TEC) and two declared rare flora species on Shire managed land.

Human impact: The population is gradually increasing: from 33438 in 2001 to an estimated 35178 in 2005. Despite this increase, water consumption has decreased by 21% over a similar timeframe.

Heritage: Shire of Mundaring Friends Groups care for 24% of Shire of Mundaring Reserves by area.

Land: Salinity affects 4.16 ha of land in the Shire of Mundaring. Groundwater data is variable.

Inland water: Water quality parameters are meeting targets set by the Swan River Trust. Only 50% of foreshore assessments indicate moderate to good quality condition.

Key recommendations

The Report noted that the Environmental Management Strategy (1996) set a clear direction for many of the programs and projects undertaken by the Shire to protect the environment, and that the majority of the projects within this strategy have been implemented. The Report recommends that the Environmental Management Strategy be updated for the next ten years of environmental management.

Other key recommendations of the Report include:

- Ensure identification and protection of all declared rare flora (DRF), threatened ecological communities (TEC's) and specially protected flora (SPF) by evaluating and updating the Reserves Study (1996).
- Revise and enhance the Weed Control Strategy (2001) to include provision for high priority weeds on public land and to target sleeper weeds before they take over.
- Support the preparation of a private land conservation strategy.
- Support and link into regional dieback mapping and control projects.
- Continue involvement with ICLEI programs including Cities for Climate Protection (CCP) and the Water Campaign (WC).
- Continue to support community involvement and indigenous input into the environment through friends groups and catchment networks.
- Continue raising awareness and capacity building within the Shire and wider community.

3.8 Housing Options: Seniors and People with Disabilities (2006)

The Shire of Mundaring commissioned a study into housing options for seniors and people with disabilities within the Shire. The report was considered by Council in April 2006. The following recommendations from the report were adopted by Council:

1. Officers investigate the opportunities for either:
 - upgrading the existing capacity of sewer in areas that are suitable for smaller lots and medium density development; and/or
 - utilising the provisions of the Metropolitan Sewer Policy to identify strategic opportunities for facilitating the provision of housing for seniors and for people with disabilities in well-located areas throughout the Shire.
2. Encouragement be given to the use of alternative effluent disposal systems where all relevant legislative requirements can be met.

3. The Shire, in association with other local governments in the Eastern Metropolitan Regional Council, collaborate to ensure that a full range of housing options for seniors and people with disabilities are provided in the region.
4. The Shire, in association with both Department of Housing and Works and the Eastern Metropolitan Housing Association, identify opportunities for increasing public housing stocks for seniors and people with disabilities within the Shire of Mundaring.
5. As part of the preparation of Town Planning Scheme No. 4*, officers identify and include opportunities for smaller residential lots, including medium density housing, around existing townsites, especially the Mundaring townsite.
6. As part of the preparation of Town Planning Scheme No. 4*, appropriate provisions be included to support approvals for granny flats and ancillary housing for seniors and people with disabilities, when they are appropriately located.
7. As part of the preparation of Town Planning Scheme No. 4*, officers identify opportunities for retirement communities and lifestyle villages.
8. The Shire continues to actively encourage and facilitate a range of social support services through provision of:
 - recreational opportunities;
 - access to facilities;
 - financial support to Home and Community Care service providers;
 - support to local groups to assist them in recruiting and retaining volunteers; and
 - grant funding applications for local groups.

* Note: The report was prepared prior to the direction to rename the Shire's new Scheme as Local Planning Scheme No. 4.

3.9 Strategic Transport Plan (2009)

The Strategic Transport Plan was commissioned by the Shire to provide a framework outlining strategies and recommendations for the future of transport service options within the Shire. The Strategic Transport Plan was adopted by Council in February 2009.

The document compiled and drew the following conclusions from 2006 census data relating to transport:

- Private car use for the journey to work within the Shire is higher than the Perth Metropolitan Region as a whole.
- Bus use for the journey to work is far below the PMR average, reflecting the sparse and infrequent local bus service.
- Train use for the journey to work is marginally higher than the PMR average, reflecting multiple-mode trips (primarily private car then rail from the Midland Train Station).
- Private car use for the journey to work increased over the 2001-2006 period, while cycling, walking and working from home decreased.

- Only 25% of employed Shire of Mundaring residents work within the Shire.
- A further 19% of employed Shire of Mundaring residents work within the adjacent City of Swan.
- Shire of Mundaring residents make up around 60% of those people working within the Shire.

The report outlines Public Transport Authority (PTA) bus services (through Transperth) operating throughout most of the Shire (but not those within Swan View). At best, some services operate roughly hourly on weekdays; east of Mundaring services are far less frequent. The report notes that, based on Transperth timetables and communication with residents, “bus services within the Shire are infrequent and erratic with many express services and changes to termini which make successful trip planning difficult” and that “essentially, the low number of services in the area attempt to cover a large catchment area, with limited success”.

The report was prepared based on close consultation with the PTA. The report concludes that due to the large catchment area and the relatively small population within the Shire, that it is unlikely that sufficient demand exists to profitably increase bus service within the area. The report notes that in the near future it is unlikely that the frequency of Transperth services will be increased. It notes that future developments in the western area of the Shire of Mundaring may induce a rerouting of the existing bus routes with a possibility of future increases in the frequency of these services (but with the viability of public transport services dependent upon the location and density of future development). The report notes that in the near future it is unlikely that the frequency of Transperth services will be increased.

The report noted two main challenges related to transport infrastructure planning for the future: the ageing population of the Shire, and increasing transport costs due to future fuel price rises. With respect to the latter, the report notes that while Shire residents may have a perceived resilience to fuel price pressures that may limit uptake of non-car transport modes in the near term, residents (particularly those with longer distances to travel to access services and facilities) will ultimately need to revise their transport options.

The recommendations of the Strategic Transport Plan are as follows:

Issue	Recommendations	Timeframe
Footpath legibility near bus stops	Review existing bus stop access to determine priorities and necessary improvements	Short term
Improvement to bus stop architecture	Identify the most used bus stops and upgrade where appropriate to covered stops	Short term

Public transport education	Advise community of existing public transport options, including seniors, youth and working population	Short to medium term
	Provide information on Journey Planner and TravelEasy services	Short to medium term
Park 'n Ride options	Assess underutilised car parking that might be suitable for long-stay Park 'n Ride near bus routes.	Medium term
	Promote the use of local Park 'n Ride options.	Medium term
Footpath Plan	Assess the critical pedestrian links along the existing road network and across major roads (eg. Great Eastern Highway) with short, medium and long-term capital works suggestions.	Medium term
Footpath infrastructure implementation	Expand the existing footpath upgrade and maintenance plan to reflect the outcomes of a footpath infrastructure study.	Medium to long term
	Upgrade main crossing points to improve access and safety.	Medium to long term
Bicycle plan	In concert with the Footpath Plan, assess the shared path and dual use paths within the Shire to establish the ability for resident and visitors to access local facilities.	Medium term
Bicycle infrastructure implementation	Expand and upgrade the existing footpath network to incorporate bicycle access to services and other foci.	Medium to long term

The Strategic Transport Plan also made recommendations regarding provision of a community bus by the Shire, but when adopting the document in February 2009, Council specifically resolved not to consider this component of the Strategy.

3.10 Local Biodiversity Strategy (2009)

The Shire's Local Biodiversity Strategy (LBS) was commissioned by the Shire as a major step towards protecting or retaining most of the Local Natural Areas found within the Shire. The LBS is a significant component in achieving the Shire's key strategic objective of encouraging environmentally sustainable development.

The LBS was carefully prepared so as to be consistent with this Local Planning Strategy. It is intended to implement many recommendations of the LBS through this Local Planning Strategy and the Shire's proposed new Local Planning Scheme No. 4. After a period of public comment (from May to July 2009), the LBS was adopted by the Shire, subject to minor modifications, in August 2009.

Given the level of detail in the LBS and its integral importance to this Local Planning Strategy and Local Planning Scheme No. 4, its contents and implications are not outlined in this section, but are discussed in detail in section 4.2.2.2 below, along with recommendations flowing from the LBS.

3.11 Economic Development Strategy (2009)

The Shire's Economic Development Strategy (EDS) was produced to ensure that a comprehensive and effective economic development structure is implemented for the Shire, supported by clearly identified objectives, strategies and action plans. The EDS supports sustainable growth in business, tourism, employment and population within the Shire to enable the Shire to provide the services required by residents and ensure future financial viability. The EDS will contribute to achieving two Key Strategic Objectives of the Shire's Strategic Plan (encouraging environmentally sustainable development; and increasing business and employment opportunities in the Shire of Mundaring).

The EDS identifies strategic objectives and actions for each of seven key themes:

- Development
- Marketing and Branding
- Employment and Skills Development
- Transport
- Tourism
- Business Development
- Business Support and Facilitation

The strategic objectives and actions identified in the EDS that have most relevance to land use planning are as follows:

Theme: Development

Strategic objective: Encourage sustainable development and effective land use

High Priority Actions:

- Finalise Town Planning Scheme 4* & Local Planning Scheme
- Identify land suitable for new industrial/commercial development
- In conjunction with the completion of the TPS4 deliver an educational and consultation process on the TPS4 and supporting ethos
- Develop partnerships with Tourism WA, neighbouring councils and key stakeholders to match potential investors with suitable available land

Medium Priority Actions

- Identify land suitable for development as caravan parks / camping sites
- Support expansion of wastewater treatment capacity in Mundaring to facilitate commercial development

* Note: The report was prepared prior to the direction to rename the Shire's new Scheme as Local Planning Scheme No. 4.

Theme: Transport

Strategic objective: Improve access to public transport within the Shire of Mundaring.

High Priority Actions:

- Support the implementation of the Regional Transport Strategy in conjunction with the EMRC and member Councils
- Facilitate a review of the existing public transport situation servicing the Shire of Mundaring

Medium Priority Actions

- Develop an action plan to increase access to public transport provision
- Continue to lobby public transport providers to increase and/or maintain current levels of public transport provision
- Investigate provision of a Shire operated community facility to enhance public transport and stimulate demand

Theme: Tourism

Strategic Objective: Develop and promote the tourism industry within the Shire of Mundaring in order to achieve greater tourism yield.

High Priority Actions:

- Review alternative locations for the Mundaring Visitor Centre
- Investigate inhibitors to tourism development within Shire policies & procedures
- Develop and implement Perth Hills Trails Master Plan in conjunction with Shire of Kalamunda, DEC, Water Corporation and other key stakeholders
- Continue to implement the Railway Reserves Heritage Trail management plan

Medium Priority Actions:

- Participate in study with key stakeholders including DEC, Water Corp, Shire of Kalamunda and National Trust to determine feasibility of a visitor interpretive facility at the Mundaring Weir Precinct
- Support the identification of suitable sites for, and the development of, caravan parks
- Identify opportunities for new tourism products and tourism infrastructure, particularly those that can be developed in partnership ventures with other stakeholders:
 - major events
 - transport connections (eg. to bike and walking trails)
 - accommodation
 - built attractions
 - supporting infrastructure (roads, parking, toilets)

3.12 Private Land Conservation Incentives Strategy

In June 2009, the Shire adopted a Private Land Conservation Incentives Strategy and Action Plan. Funding from the Perth Biodiversity Project assisted in the preparation of the document.

Noting the importance of conserving the large proportion of natural areas occurring on privately land throughout the Shire (over 6700 ha), the Strategy explores various options for assisting private landowners to conserve biodiversity on their land.

The Strategy makes recommendations in three broad areas:

- a stewardship program;
- a devolved grants program; and
- linkages to existing programs.

3.13 Access and Inclusion Plan 2011 – 2016

The Shire's Access and Inclusion Plan 2011 – 2016 (AIP) was prepared in accordance with the requirements of the *Disability Services Act 1993*. It replaced the earlier Access and Inclusion Plan 2006 – 2010.

The AIP identifies barriers to access and inclusion and proposes solutions to ensure that people with disability have equality of access to services and facilities. It also assists the Shire in mitigating risk and meeting its obligations under the *Disability Discrimination Act 1992*, the *Disability Services Act 1993* and the *Equal Opportunity Act 1984*.

The AIP identifies seven outcomes:

- People with disability have the same opportunities as others to access the services of, and events organised by, the Shire of Mundaring
- People with disability have the same opportunities as others to access buildings, playgrounds, outdoor spaces and other facilities of the Shire of Mundaring
- People with disability receive information from the Shire of Mundaring in a format that will enable them to access the information as readily as others
- People with disability receive the same level and quality of service from the employees and Elected Members of the Shire of Mundaring as others
- People with disability have the same opportunities as others to make complaints to the relevant public authority
- People with disability have the same opportunities as others to participate in any public consultation conducted by the Shire of Mundaring
- People with disability have the same opportunities as others to seek employment with the Shire of Mundaring

For each outcome, the AIP identifies a range of strategies. Among those strategies with the most direct relevance to land use planning are the following:

- Lobby transport service providers for improved and additional accessible transport for people with disability within the Shire
- Include non-car travel consideration in land-use planning
- Implement the recommendations outlined in the Housing Options for Seniors and People with Disability Report 2006
- Include footpath/pavement links from town centres to highly used sites by people with disability in planning and upgrade priorities for new footpaths/pavements (footpaths/pavements need to link local areas including libraries, shopping centres and bus pick up/drop off sites)

- Ensure that accessible parking bays are provided as part of development or upgrade of new and existing Shire facilities, playgrounds and outdoor spaces

A community questionnaire conducted in the preparation of the AIP highlighted the following issues and access barriers:

- lack of accessible public transport;
- lack of accessible playgrounds, parks, outdoor spaces, seating;
- lack of accessible footpaths; and
- lack of housing for people with disability.

4.0 SHIRE PROFILE AND KEY ISSUES

The Shire of Mundaring is located in the north-east of the Perth Metropolitan Region and extends from Midvale in the west, near Midland, east to Wooroloo and north to Bailup. A small portion of the Shire is located on the Swan Coastal Plain, but the majority of the Shire is on or east of the Darling Scarp in the Perth Hills. A large proportion (around 69%) of the Shire is uncleared, with over half of the Shire comprised of National Parks, Nature Reserves or Regional Parks, State Forest or Water Catchment land. Urban development in the Shire comprises residential suburbs on the Swan Coastal Plain and, in the hills, a series of discreet villages separated by rural buffers that has developed over time, at first naturally as each village developed around stations on the two railway lines through the Shire, and then as a deliberate Council policy. Rural residential and rural land use takes up most of the balance of the Shire, particularly in the north and north-east.

Part 4 of this Strategy provides a detailed profile of the Shire, outlines and analyses key issues and identifies recommended strategies. The recommended strategies are also compiled in the *Local Planning Strategy: Strategies Document*.

The issues in this Part are broken down into the following sections:

- Physical features and environment
- Key environmental issues
- Population and housing
- Community facilities, recreation and open space
- Economy and employment
- Infrastructure

The key issue of the Shire's settlement pattern is addressed separately in Part 5 of this Strategy.

4.1 Physical features and environment

4.1.1 Landforms and geology

This section briefly sets out the major landforms and geological features of the Shire, as well as mineral prospectivity. Implications and recommendations arising from these are addressed separately in other parts of this Strategy.

Landforms

The dominant landform in the Shire of Mundaring is the Darling Scarp, which is the surface expression of the Darling Fault. It traverses the Shire of Mundaring and also extends well to the north and south, and forms a dramatic eastern skyline to the Swan Coastal Plain, visible from much of the Perth Metropolitan Region.

The Darling Fault is a major regional fault line which separates the mainly igneous and metamorphic rocks of the Darling Plateau from the geologically more recent sedimentary material of the Perth Basin to the west (see Geology below).

West of the Darling Scarp, a small portion of the Shire is located on the Swan Coastal Plain, either on the moderate slopes of the foothills or the Guildford alluvial plain. East of the scarp lies the Darling Plateau, within which most of the Shire is located.

Elevations within the Shire range from less than 10 m AHD in Helena Valley in the south-west of the Shire to around 375 m AHD in Bailup, in the north-east of the Shire. The elevation rises steeply on the Darling Scarp; elevations on the Darling Plateau east of the Scarp generally range from 270 m to 375 m.

Drainage systems dissecting the Darling Plateau within the Shire flow towards the Avon and Swan Rivers to the north and north-west (the major watercourses being Jane Brook, Susannah Brook and Woorloo Brook, each having several tributaries), or to the Helena River to the south (see also section 4.1.2 below). The valleys along these rivers and their tributaries are generally steepest just east of the Darling Scarp, with valleys tending to become broader further east.

Geology

The Shire comprises two distinct areas geologically: younger sediments, west of the Darling Scarp, and older crystalline rocks east of the Darling Scarp.

West of the Darling Scarp

West of the scarp, the geological features are fossil beaches and colluvial fans, forming the foot of the scarp. The fans are comprised of unsorted material ranging from clays to boulders, mainly derived from the pre-Cambrian rock immediately uphill. Generally, the coarser material is found on the higher portions of the fans with clays in the lower portions, such as sections of Greenmount and Boya. Reversals of this trend occur, especially where large dolerite dykes have contributed to higher percentages of clay, as is evident in Swan View and Bellevue.

A small area of Ridge Hill sandstone occurs on the Scarp face near Ridge Hill Road. This is heavily ferruginised beach sand with local conglomerate.

East of the Darling Scarp

East of the scarp, the major part of the Plateau is formed by Achaean granites, usually with a capping of brown, ferruginous laterite formed by in-situ weathering. The granites have been deeply dissected by a widespread dendritic system which is now marked by valley-fill and alluvial deposits which flow intermittently.

These features give rise to the characteristic steep-sided valleys with bare granite faces and rounded hill tops with shallow sandy soils over pisolitic gravel or massive laterite, such as in Darlington, Glen Forrest and Hovea.

Extensive but local dolerite dykes intrude into the granites and also occur under the lateritic cover. The dolerites are usually dense hard rocks, becoming softer and clayey on weathering.

Mineral prospectivity

Information in this section has been provided by the Department of Industry and Resources.

The Shire is mostly underlain by granites and gneisses of the Yilgarn Craton. These have potential as a crushed rock source. Millions of years of weathering of the granitic rocks of the Yilgarn Craton have produced an aluminium-rich or bauxitic laterite caprock that covers most of the Darling Plateau throughout the Shire. The bauxite laterite is a potential source of the bauxite ore which is used to produce aluminium. Previous exploration has identified a number of areas of higher-grade bauxitic laterite within the Shire, particularly in the Chidlow to Wooroloo area. Nevertheless, the best bauxite ore occurs south of the Shire where it is currently being mined. The laterite is also a good source for ironstone gravel which is widespread throughout the Shire. Sand is much less common than gravel within the Shire, and occurs mostly in the heads of valleys and on the mid to upper slopes of the hills. Another mineral derived from the weathering of granite is white kaolinic clay which has been produced from a number of now abandoned pits in the Glen Forrest region, and a pit at Mount Helena.

An area north and east of Wooroloo is underlain by the Jimperding-Chittering Complex, which forms a highly deformed and metamorphosed part of the Yilgarn Craton consisting of migmatite, with minor metamorphosed basalt and banded iron formation. This area has moderate to high potential for gold mineralization and hosts the undeveloped Wundowie gold deposit which is located about 5 km west of Wundowie, within the Shire of Mundaring.

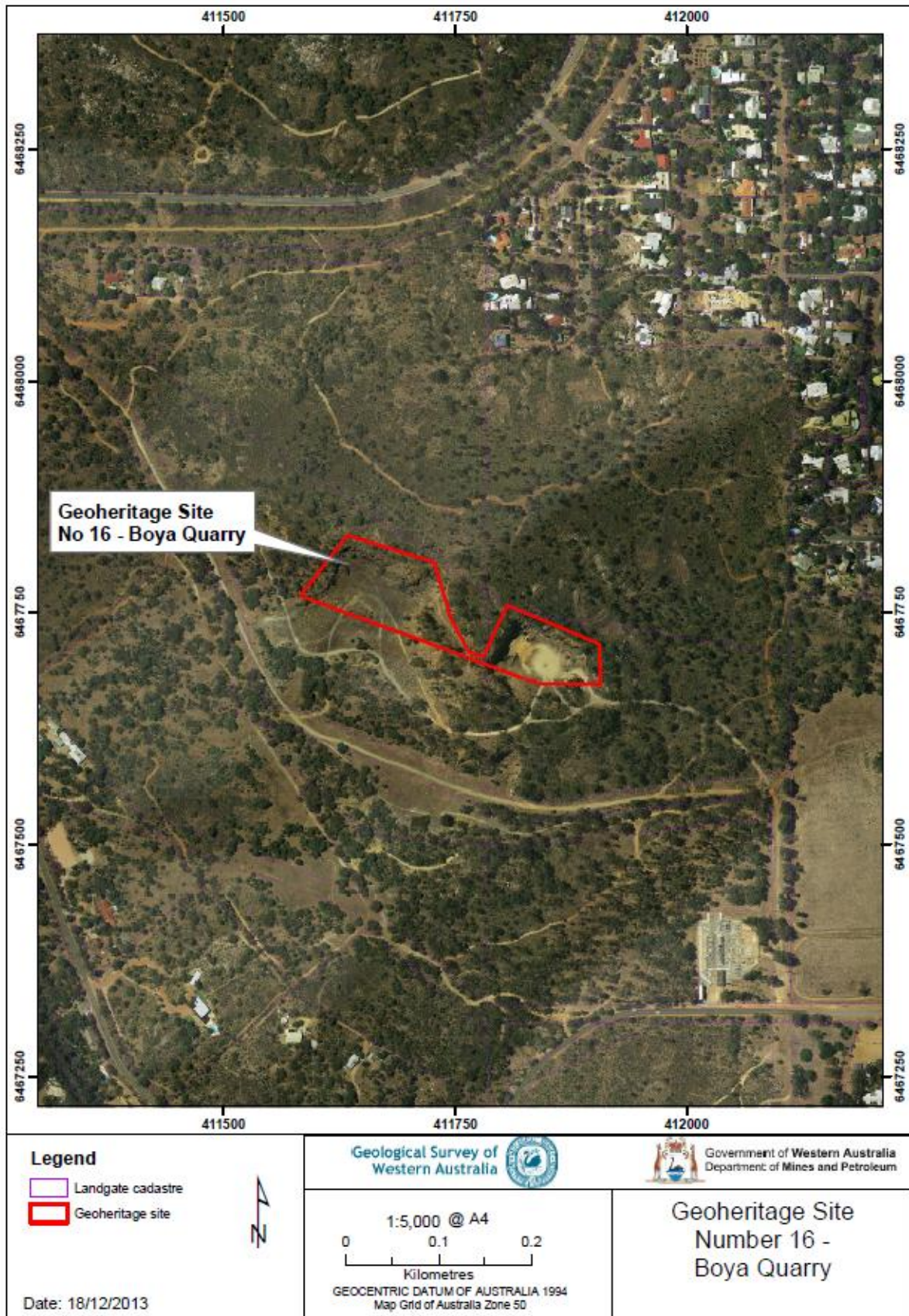


Figure 20: Geoh heritage Site 16: Boya Quarry (Hudman Road, Boya/Darlington)

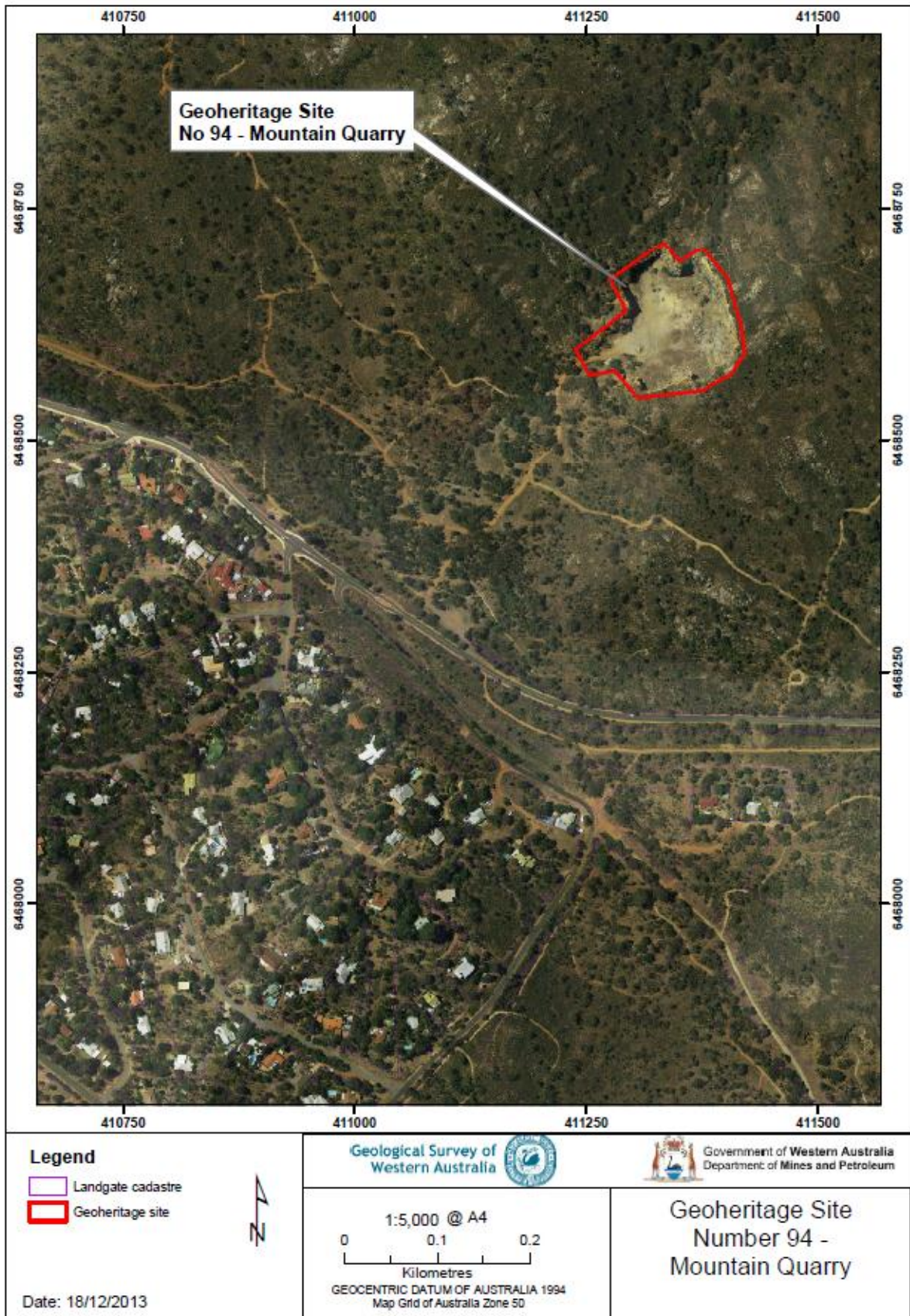


Figure 211: Geoheritage Site 94: Mountain Quarry, Boya

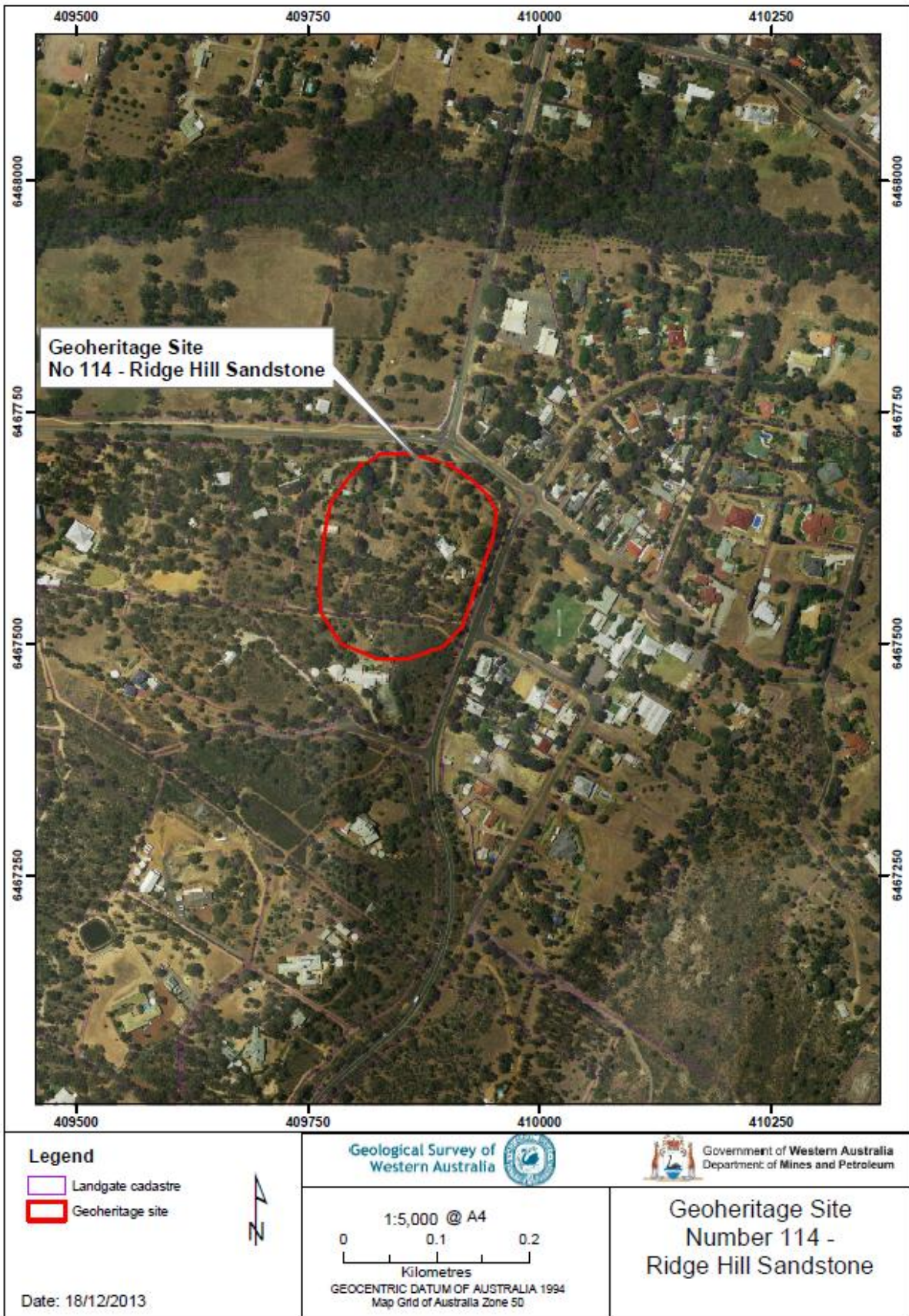


Figure 22: Geoheritage Site 116: Ridge Hill Sandstone

Geoheritage Sites

There are three nominated Geoheritage Sites within the Shire of Mundaring (Figures 20 to 22). These sites were established as Geoheritage Sites based upon the recommendation of the Geological Society of Australia and are defined by the Director of the Geological Survey of Western Australia as “geological features considered to be unique and of outstanding value within Western Australia and to have significant scientific and educational values for the good of the community.”

These are:

- No. 16: Boya Quarry, Boya – Archean granite and gneiss with multiphase dolerite igneous intrusions
- No. 94: Mountain Quarry, Boya – Archean granite and dolerite
- No. 114: Ridge Hill Sandstone – Early Pleistocene beach deposits on an elevated wave-cut platform

Geoheritage Sites are protected from mining activity by the Department of Mines and Petroleum. The Department also anticipates that Geoheritage Sites listed on the State Register will be protected from other activities by relevant government agencies, including local government.

Recommendation

- Refer to the Department of Mines and Petroleum any proposed development within any of the Geoheritage Sites in the Shire, in particular the Ridge Hill Sandstone Geoheritage Site in Helena Valley, that may have an impact on the geoheritage values of the site

4.1.2 Watercourses and waterbodies

All watercourses within the Shire of Mundaring ultimately drain into the Swan or Avon Rivers (the Avon River becomes the Swan River at the confluence of Wooroloo Brook in Walyunga National Park), although the Swan/Avon River lies entirely outside of the Shire. Six tributaries of the Swan/Avon River flow within the Shire of Mundaring. These are, from downriver to upriver:

- Helena River
- Blackadder Creek
- Jane Brook
- Susannah Brook
- Wooroloo Brook

- Red Swamp Brook

Some of these watercourses also have substantial tributaries, as outlined below. Numerous small, intermittent watercourses flow into these tributaries or the major watercourses.

Helena River

The Helena River is the most significant tributary of the Swan/Avon River within the Shire. For much of its length, the Helena River forms the southern boundary of the Shire. Two dams on the river provide water supplies, particularly for parts of the Shire and portions of the Wheatbelt and Eastern Goldfields. The lower portion of the Helena River is contained within the Swan River Trust Development Control Area. Development applications within or abutting this area must be considered by the Swan River Trust. The Helena River, from Mundaring Weir downstream, is subject of State Planning Policy No. 2.10: Swan-Canning River System (see section 2.2.2.7 above).

There are many tributaries of the Helena River within the Shire of Mundaring, draining most of the portion of the Shire south of Great Eastern Highway. Among the larger tributaries are Convict Creek, Darlington Brook, Nyaania Creek, Bourkes Gully, Bending Gully, Chauncy Gully, Helena Brook, Darkin River and Nockine Brook (the last four flow wholly or primarily through Crown land in the protected Mundaring Weir catchment).

Blackadder Creek

Tributaries of Blackadder Creek and Woodbridge Creek (which is itself a tributary of Blackadder Creek) flow through developed urban areas of Swan View and Greenmount.

Jane Brook

The Jane Brook valley was the route of the former northern Midland to Chidlow railway line (now Railway Heritage Trail), along which the settlements of Parkerville, Stoneville and Mount Helena were developed. Jane Brook also flows through John Forrest National Park and the rural north-eastern corner of Swan View. Jane Brook has previously been identified as a potential future water supply catchment, but the Department of Water now advises this is no longer the case (see section 4.2.3 below).

Jane Brook has many tributaries within the Shire of Mundaring. Among the larger tributaries are Christmas Tree Creek, Glen Brook, Mahogany Creek, Clutterbuck Creek, Bugle Tree Creek, Jarrah Creek, Dowies Creek, Rocky Gully Creek, Marionvale Creek, Charlotte Creek and Lion Mill Creek.

The Shire's State of the Environment Report 2008 (see section 3.7 above) notes that the water quality of Jane Brook is meeting targets set by the Swan River Trust which have been set at close to natural levels. The State of the Environment Report also notes that in 2006 water quality targets for Jane Brook for nitrogen and phosphorus levels, set in the Swan-Canning Clean-Up Action Plan, were being met. However, the Report notes that foreshore assessments indicate that sedimentation and erosion is a problem at almost half of the assessed sites, that there are some sites where fringing vegetation is poor and that, in 2001, stream health in Jane Brook was assessed as poor or very poor at seven of seventeen sites assessed.

Susannah Brook

Susannah Brook rises in the primarily rural residential area in the north of Stoneville. A very small portion of the catchment is located within the Shire of Mundaring. Susannah Brook has previously been identified as a potential future water supply catchment, but the Department of Water now advise this is no longer the case (see section 4.2.3 below).

Wooroloo Brook

Wooroloo Brook has a large catchment, shared between the City of Swan (Gidgegannup area) and a north-eastern portion of the Shire of Mundaring, including Chidlow, Beechina, Wooroloo and Bailup. Wooroloo Brook has previously been identified as a potential future water supply catchment, but the Department of Water now advise this is no longer the case (see section 4.2.3 below).

Wooroloo Brook has several tributaries within the Shire of Mundaring. Among the larger tributaries are Gidgegannup Brook, Cookes Brook (on which Lake Leschenaultia is located) and White Gum Gully.

In 1999, it was noted that Wooroloo Brook had brackish quality, considerably high phosphorus export rates and longer term problems associated with increasing salinity (North Eastern Hills Settlement Pattern Plan Working Paper No. 3).

Red Swamp Brook

Red Swamp Brook flows through a small portion of the locality of Bailup, in the north-east of the Shire of Mundaring, and then through Gidgegannup, in the City of Swan, to the Avon River. Within the Shire, the brook flows through the Red Swamp wetland.

Wetlands

Three natural wetlands within the Shire of Mundaring are included on the Department of Environment and Conservation's Wetlands Database: Lake Leschenaultia in Chidlow, Lake Manaring at The Lakes and Red Swamp in Bailup.

Delineation and protection of watercourses

One of the requirements of State Planning Policy 2.9 Water Resources (see section 2.2.2.6 above) is that Local Planning Strategies should map all water resources within a local government, assign each type of resource a priority or hierarchy of significance, and identify appropriate setbacks or buffers to these. Resources have not allowed the Shire to conduct this work in the preparation of this Local Planning Strategy. However, it is recommended that preparation and adoption of a Watercourse Hierarchy Strategy should be carried out as a high priority.

A Watercourse Hierarchy Strategy would seek to delineate watercourses throughout the Shire as accurately as possible, to assign watercourses within the Shire a particular level in a hierarchy, and to identify required setbacks to each level of watercourses. However, in the interim, before such strategy is completed and adopted, or if a setback for any particular watercourse is not specified in that strategy, a default setback for development of 20 m is recommended for Local Planning Scheme No. 4 (see section 4.2.2.4 below).

The Shire supports measures to maintain and improve water quality and the overall environmental health of watercourses and waterbodies within the Shire. Other proposed town planning scheme provisions dealing with watercourse protection are dealt with in section 4.2.2.4 below; water catchment protection for the Mundaring Weir Catchment and Middle Helena Catchment (the two water supply dams on the Helena River) are dealt with in section 4.2.3 below.

The only flood study currently available for watercourses within the Shire is for the Helena River, though studies should be requested for Jane Brook and others. It is recommended that Local Planning Scheme No. 4 incorporate a Special Control Area to prevent inappropriate development within the defined flood prone areas (the floodway and flood fringe) along the Helena River.

Recommendations

- Prepare and adopt a Watercourse Hierarchy Strategy as a high priority

- In a Watercourse Hierarchy Strategy, accurately delineate watercourses throughout the Shire as far as possible, assign each watercourse within the Shire a particular level in a hierarchy, and identify required setbacks to watercourses in each level of the hierarchy
- Pursue a range of measures to maintain and improve water quality and the overall environmental health of watercourses and waterbodies within the Shire
- Incorporate the defined flood prone areas (the floodway and flood fringe) for the Helena River in a Special Control Area in Local Planning Scheme No. 4
- Request Department of Water to conduct and make available flood study mapping for Jane Brook, and other major watercourses in the Shire, and consider incorporation of any defined floodway and flood fringe areas in the Flood Prone Areas Special Control Area

4.1.3 Soils

Landforms and soils within the Shire have been broadly described and mapped at 1:250,000 scale by the CSIRO (Churchward and McArthur, 1978), and in more detail (with identification of land units, being components of landform soil associations) as part of the *Darling Range Rural Land Capability Study* (King and Wells, 1990). This mapping informed the preparation of Town Planning Scheme No. 3 and still informs consideration of land use planning proposals at the present. However, this information should be considered broad-brush in nature; while it provides useful guidance, individual planning proposals may require site-specific verification of soil types and land capability.

The following information is based primarily on the *Darling Range Rural Land Capability Study* (King and Wells, 1990) and is essentially unchanged from the Shire's 1994 Local Rural Strategy.

General description of soils

Soils within the Shire are dominated by material of lateritic origin derived from deep weathering which has occurred over time through much of the Shire. Parent soil materials can be derived from the undisturbed elements of the lateritic profile, or through those soils which have been transported. The soils near the Darling Scarp, when derived from fresh rock, are more loamy and earthy, as are the soils which have developed over alluvium and transferred over the lateritic profile.

The general range of soils falls into two main categories, the Darling Plateau and the Swan Coastal Plain. A more detailed description of the soil types within these categories is provided below.

The Darling Plateau comprises lateritic uplands and dissected spurs, valleys and scarp below the plateau surface. Of the lateritic uplands, Dwellingup soils are dominant. These are generally well drained, and consist of shallow to moderately deep gravelly brownish sands, pale brown sands and earthy sands overlying lateritic duricrust. The soil type is characterised by gently undulating landform.

Minor valleys occur throughout the plateau comprising Yarragil soils, the characteristics of which vary from rapidly draining grey, yellowish brown or brown siliceous or bleached sands to very poorly drained uniform grey or brown clays or clay loams. The valley forms range from moderately inclined side-slopes to broad valley floors.

Major valley systems are dominated by Murray soils with some Helena soils in the west. Murray soils are characterised by deeply incised river valleys of varying steepness with up to 120m relief occurring upstream from the Helena valley system. Soils are well to sometimes poorly drained duplex and gradually formed from weathering of granites and gneisses and intruded doleritic parent materials. The soils are formed in situ or from the colluvium and are generally moderately deep to deep with some rock outcrop.

Helena soils are characteristic of very deeply incised river valleys dissecting the plateau with up to 200m relief. They are similar to Murray soils but generally have more areas of rock outcrop.

The areas west of the scarp contained on the Swan Coastal Plain are characterised by Forrestfield, Guildford and Swan soils. Forrestfield soils are generally undulating to level areas of generally well drained gravelly yellow or brown duplex soils. Some areas are, however, poorly drained and a mixture of sand, loam, clay, grit or weathered rock is not uncommon.

Guildford soils consist of broad level to very gently inclined plains and are predominantly imperfectly to poorly drained. They are formed from unconsolidated riverine material of Pleistocene age. The better drained soils comprise yellow sands whilst the clay areas are poorly drained.

Swan soils are characterised by level to very gently inclined alluvial terraces associated with major present drainage systems and are formed from Pleistocene and Holocene alluvium. Although in some cases moderately well drained with red earthy sands, this soil unit is generally poorly drained and subject to flooding. Clays, loams and sandy loams dominate. These soils are generally associated with river margins.

Implications of soil types for land use and development

Effluent disposal

Effluent disposal needs to be carefully monitored with respect to soil type due the number of watercourses within the Shire. Adequate effluent disposal sites are available but must be identified with careful evaluation procedures.

Detailed investigation for on-site effluent disposal is required in parts of Greenmount, Swan View, Helena Valley and Boya where reticulated sewerage is unavailable, because of the predominantly clay soils. Department of Health regulations also need to be complied with.

East of the scarp, effluent disposal introduces localised problems requiring detailed investigation of potential disposal areas. In general, sites near drainage lines should be avoided unless they are separated from the porous river sands by a substantial clay barrier or aquiclude.

Sandy gravel patches and pockets of colluvium may provide the most favourable locations provided no potable or stock water is drawn from wells downslope.

The shallowness of sandy gravel deposits tends to allow the rapid percolation of water and therefore any contaminants could endanger water supply. These factors reinforce the need for detailed on-site investigation prior to subdivision or development approval and strict adherence to legislative requirements regarding effluent disposal to protect public health and the environment.

Nutrients in runoff

In terms of agricultural production, the soils contained within the old valley forms are mainly infertile, whereas the soils associated with the younger valley forms, although developed on alluvium, are more fertile. Extensive use of fertilisers, especially superphosphate, is required for agricultural production on less fertile soils, but the impact of fertilisers needs to be carefully evaluated, due to the impact on the watercourses within the locality and downstream on the Swan/Avon River.

Salinity

Dryland salinity is a large and significant problem within Western Australia and the Shire of Mundaring is not immune from its effects. Among the adverse impacts of dryland salinity are loss of agricultural land, threats to biodiversity, damage to infrastructure and salinisation of watercourses. Within the Shire, the Wooroloo Brook catchment is the most affected by salinity due to previous broadscale clearing in the top of the catchment. The upper catchment of the Helena River, in the east of the Shire in the locality of The Lakes is also problematic, generating saline inflows to Mundaring Weir (Lake C.Y. O'Connor) – this issue is considered in detail in section 4.2.3 below.

The Wooroloo Brook Land Care District Committee (LCDC), in conjunction with Eastern Hills Catchment Management Program (EHCMP), has been monitoring the salinity of surface water and groundwater in the Wooroloo Brook catchment for a number of years. Data collected from within the Shire of Mundaring shows generally low saline levels, with the current salt load coming primarily from the upper catchment areas, particularly Chinganning Gully in the adjacent Shire of Northam. Surface water sampling sites and recent results within the Shire of Mundaring Shire include:

- Wooroloo Brook at Rahne Road bridge, Wooroloo: EC levels* up to 21.6 mS/cm* (low saline)
- White Gum Gully: up to 13.4 mS/cm (low saline)
- an unnamed tributary of the White gum Gully, in Wooroloo Townsite: up to 9.6 mS/cm (low saline)

* Note: EC (Electrical Conductivity), measured in milliSiemens per centimetre, indicates how much salt is in a given sample; electricity moves efficiently through water with high levels of salt present but less efficiently with low levels of salt present.

Two of the Wooroloo Brook LCDC's groundwater monitoring bores are located within the Shire of Mundaring, both bores being in the locality of The Lakes. One of these has always been dry; the other has shown readings of up to 17.1 mS/cm (low saline).

Nonetheless, the EHCMP has recently worked with private landowners to manage salinity on six separate properties within the Shire (three in The Lakes, two in Bailup and one in Wooroloo). These projects focussed on property planning, creekline revegetation, establishing perennial pastures, control of weeds associated with salinity and improving the health of remnant vegetation in recharge areas. Several other properties in the Shire are also affected by salinity. The Wooroloo Brook LCDC has been working to revegetate creekline areas in the top of the Wooroloo Brook catchment (largely within the adjacent Shire of Northam).

Salinity could worsen within the Shire of Mundaring should further large scale clearing of remnant vegetation occur. Historical records show that susceptible areas will show signs of salinity within five to ten years of clearing.

Recommendations

- Continue to use data from the *Darling Range Rural Land Capability Study* (King and Wells, 1990) as a general guide to soil types and capacity for effluent disposal and land use, but require detailed on-site investigation as appropriate when considering planning proposals
- Avoid the location of unsewered development on land not suitable for on-site effluent disposal
- Require sufficient setbacks from watercourses for on-site effluent disposal, to protect public health and the environment
- Carefully consider potential impacts from nutrients in runoff in determining planning proposals for agricultural uses
- Retain and protect remnant vegetation within the Shire as far as possible in order to minimise increased risk of salinity
- Undertake private landholder conservation programs to implement high water use strategies in areas susceptible to salinity, including large-scale revegetation on valley floors and in recharge areas
- Minimise the increase in sealed surfaces and irrigation within catchments susceptible to salinity, in order to minimise runoff, which can exacerbate salinity, erosion and waterlogging

4.1.4 Fauna and Flora

This section provides basic information about native fauna and flora in the Shire of Mundaring and some specific recommendations regarding its protection. For more detailed analysis and recommendations regarding biodiversity protection, including fauna habitat, see section 4.2.2 below.

4.1.4.1 Fauna

The Shire of Mundaring is home to a diverse and relatively abundant range of native fauna, reflecting the high percentage of natural habitat that has been retained within the Shire, in conservation areas, Crown land used for other purposes, and privately owned land. Subdivision and development has the potential to adversely impact on native fauna by removing, fragmenting or deteriorating habitat and exposing fauna to additional hazards (eg. traffic, cats, dogs). However, the Shire has had strong regard for protecting native fauna, with its Wildlife Corridor Strategy working to ensure the retention and linking of key areas of habitat value.

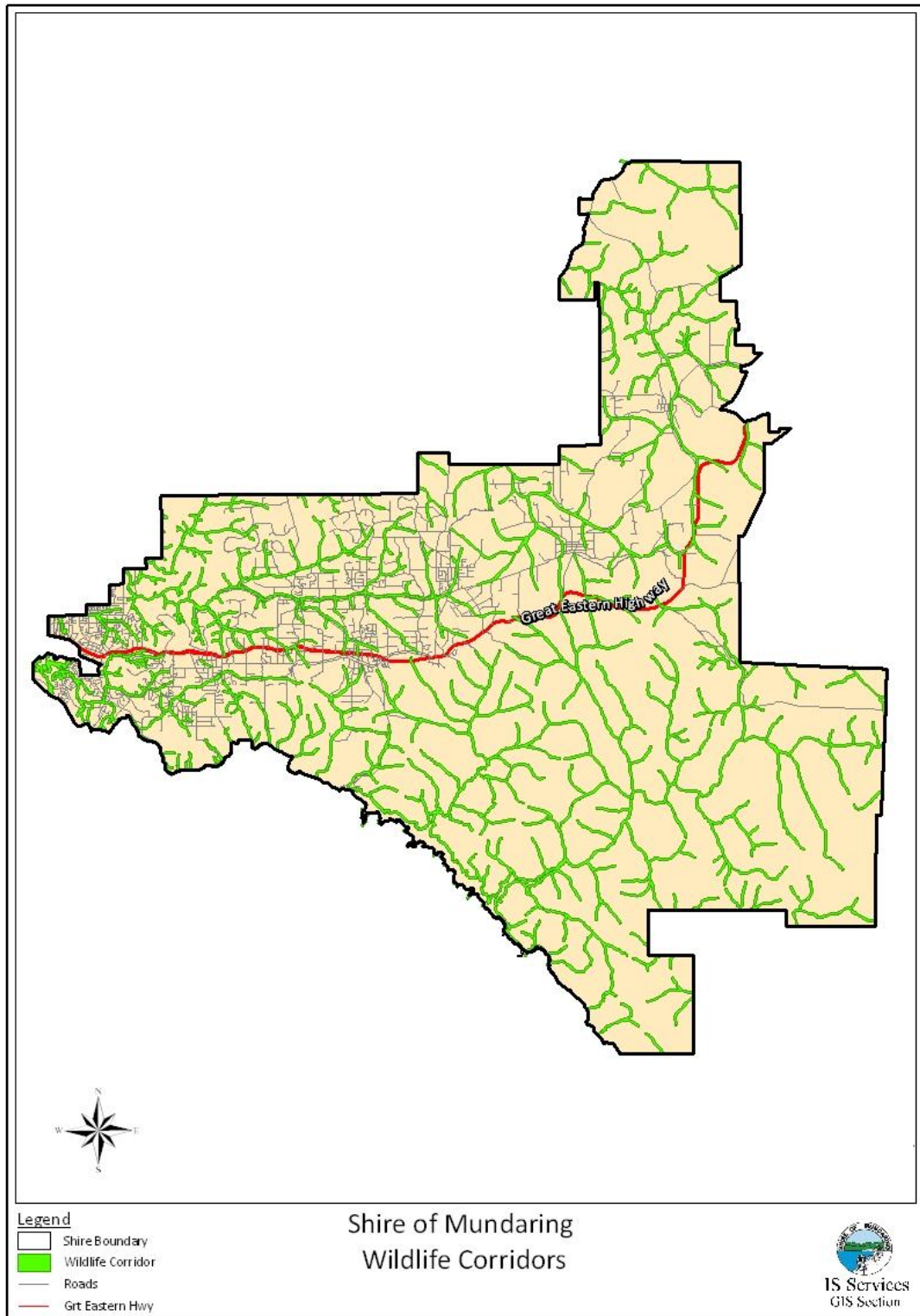


Figure 233: Wildlife corridors, Shire of Mundaring Wildlife Corridor Strategy

Where significant clearing of natural vegetation takes place, a fauna report and management plan may be appropriate. This could be as a prerequisite to determining a planning proposal (ie. a fauna survey to discover if rare or threatened fauna is present), or as a condition of approval prior to clearing taking place (eg. a bandicoot management plan, which could require relocation of a population). A provision is proposed for Local Planning Scheme No. 4 which allows the Shire to require or recommend a native fauna report and management plan, as appropriate, where significant clearing of vegetation identified as a Local Natural Area by the Shire's Local Biodiversity Strategy is proposed or would result from a Scheme amendment, structure plan, subdivision or development.

The Shire's Local Biodiversity Strategy, which is to be implemented via this Local Planning Strategy (see section 4.2.2.2), recognises identified Specially Protected Fauna habitat or Priority Fauna habitat and Threatened or Priority Ecological Communities as having the highest conservation priority, and makes recommendations regarding the protection of those Local Conservation Areas. It should be noted that where fauna is protected pursuant to the *Wildlife Conservation Act 1950* or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, this imposes requirements on owners and developers.

To protect fauna habitat and maintain and enhance fauna movement throughout the Shire, it is recommended that the recommendations of Shire's Wildlife Corridor Strategy continue to be implemented (see Figure 23 above). It is also recommended that the Wildlife Corridor Strategy be reviewed, giving consideration to the identification of other possible wildlife corridors.

Birds

Well over a hundred native species of birds are found in the area. Many of these birds are specialised insect, seed or nectar feeders and as such are dependent on the presence of specific vegetation types. Several of these species are specifically protected pursuant to the Western Australian *Wildlife Conservation Act 1950*.

Carnaby's black cockatoo is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and as Specially Protected Fauna under the Western Australian *Wildlife Conservation Act 1950*. The cockatoo is found throughout south-west Western Australia, but their breeding range is declining and their numbers have declined seriously, due largely to a reduction in habitat. Baudin's black cockatoo and the Forest red-tailed black cockatoo also occur in the Shire of Mundaring, and are both listed as Vulnerable species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

At the time of writing, several studies are being conducted of black cockatoo habitats. Both the Department of Environment and Conservation and the Department of Planning are conducting studies of Carnaby's black cockatoo habitats, with the study areas including the Shire of Mundaring. The Western Australian Museum is also conducting a longer term project studying the ecology of all three black cockatoo species. As it becomes available, mapping from these studies should be used by the Shire in considering planning proposals, and also used to update the conservation priority mapping from the Local Biodiversity Strategy where this new information warrants (see section 4.2.2.2 below).

The strong approach taken by the Shire of Mundaring to protecting native vegetation has maintained good habitat for birds. This Strategy recommends continuing town planning scheme controls on clearing and also the implementation of recommendations of the Shire's Local Biodiversity Strategy (see section 4.2.2 below).

Recommendations

- Incorporate provisions in Local Planning Scheme No. 4 allowing the Shire to require or recommend a native fauna report and management plan, as appropriate, where significant clearing of vegetation identified as a Local Natural Area by the Shire's Local Biodiversity Strategy is proposed or would result from a Scheme amendment, structure plan, subdivision or development
- Continue to implement the recommendations of Shire's Wildlife Corridor Strategy
- Review the Wildlife Corridor Strategy, giving consideration to the identification of other possible wildlife corridors
- Have regard to state government mapping of black cockatoo habitats in considering planning proposals
- Use state government mapping information of black cockatoo habitats to update the conservation priority mapping from the Local Biodiversity Strategy where this new information warrants

4.1.4.2 Flora

The Shire of Mundaring enjoys a much less altered natural environment than most other parts of Western Australia. According to Perth Biodiversity Project data, around 69% of the Shire is uncleared (either regrowth or remnant old-growth vegetation). Although most of this uncleared area is within National Parks, Regional Parks, Nature Reserves, State Forests or water catchment land, over 6700 ha of natural areas occur on privately owned land.

Vegetation complexes

The Shire's native vegetation is made up of a variety of vegetation complexes which distinguish the vegetation changes that occur across the landscape in response to soils, landforms and rainfall. There are various types of vegetation within each vegetation complex, dependent on local hydrology, position in the landscape and other factors. These differences in vegetation type can only be established by survey and mapping at the local scale.

Seventeen vegetation complexes have been mapped within the Shire (see Figures 24 and 25 below). These vegetation complexes also extend into other parts of the hills or adjacent parts of the Swan Coastal Plain. Twelve vegetation complexes occur in the Darling Range, one on the Darling Scarp, one on the Ridge Hill Shelf and three on the Swan Coastal Plain.

The following table, based on data in the Shire's Local Biodiversity Strategy, identifies the remaining extent of each of these vegetation complexes within the Shire and the percentage of the original (pre-European) extent within the Shire that remains.

Analysis for the Shire's Local Biodiversity Strategy, which also included consideration of the proportion of each vegetation complex protected at a regional level (ie. for any complex, the full original range of that complex), identified that three vegetation complexes located west of the Darling Scarp (Forrestfield, Guildford and Southern River) are regionally significant and the highest priorities for protection, while the other (Swan) is also a priority given that less than 30% of the local extent remains.

VEGETATION COMPLEXES WITHIN THE SHIRE OF MUNDARING					
Vegetation complex	Original extent (ha)	Remaining extent (ha)	% remaining in Shire	% remaining in Bush Forever study area*	% remaining in System 6/part System 1 region
Cooke	219	174	80%	-	92%
Coolakin	317	286	90%	-	56%
Darling Scarp	1231	700	57%	-	40%
Dwellingup 2	10432	7497	72%	-	85%
Dwellingup 4	12074	9597	79%	-	87%
Forrestfield	933	51	5%	9%	17.5%
Goonaping	460	420	91%	-	91%
Guildford	155	7	5%	6%	5%
Helena 2	983	903	92%	-	79%
Murray 2	19050	14739	77%	-	68%
Pindalup	8664	5303	61%	-	79%
Southern River	32	2	6%	17%	20%
Swamp	193	87	45%	-	82%
Swan	294	58	20%	11%	15%
Yalanbee 5	4770	2372	50%	-	76%
Yalanbee 6	118	110	93%	-	53%
Yarragil 1	4330	2324	54%	-	83%
TOTAL:	64254	44630	69%	-	-

Data source: Shire of Mundaring Local Biodiversity Strategy (2009), Perth Biodiversity Project (2008)

* Information for other vegetation complexes not available.

A vegetation complex is generally considered to be at high risk if less than 30% of its original extent remains – at that point (where 70% has been lost) connectivity, local variation and some species may have been lost. However, in its Local Biodiversity Strategy, the Shire has taken the approach that this 30% threshold should not be seen as the maximum amount of a vegetation complex to be retained, either within the Shire or across the range of a vegetation complex, but that wherever practicable all native vegetation should be retained. In addition to social benefits related to aesthetic, recreational, tourism, health and spiritual values of native bushland, retaining as much as possible of each vegetation complex will maximise its habitat values for fauna, increase the resilience of the ecosystem to threats and challenges such as climate change or *Phytophthora* dieback.

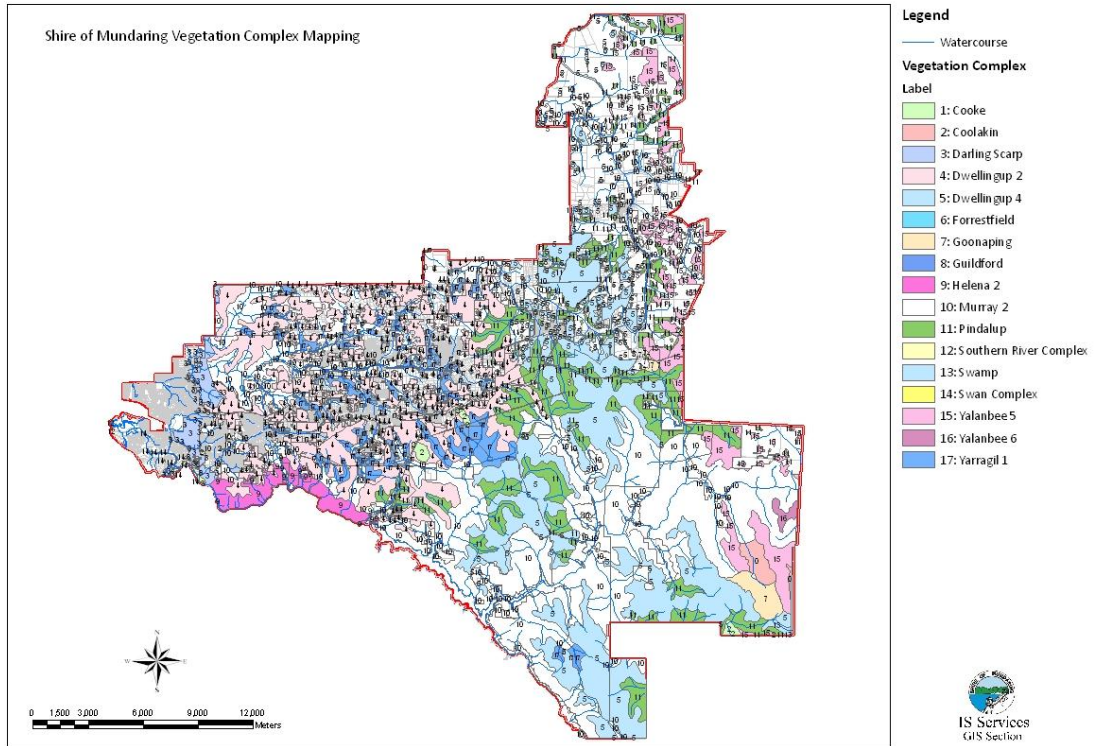


Figure 244: Vegetation complexes, Shire of Mundaring

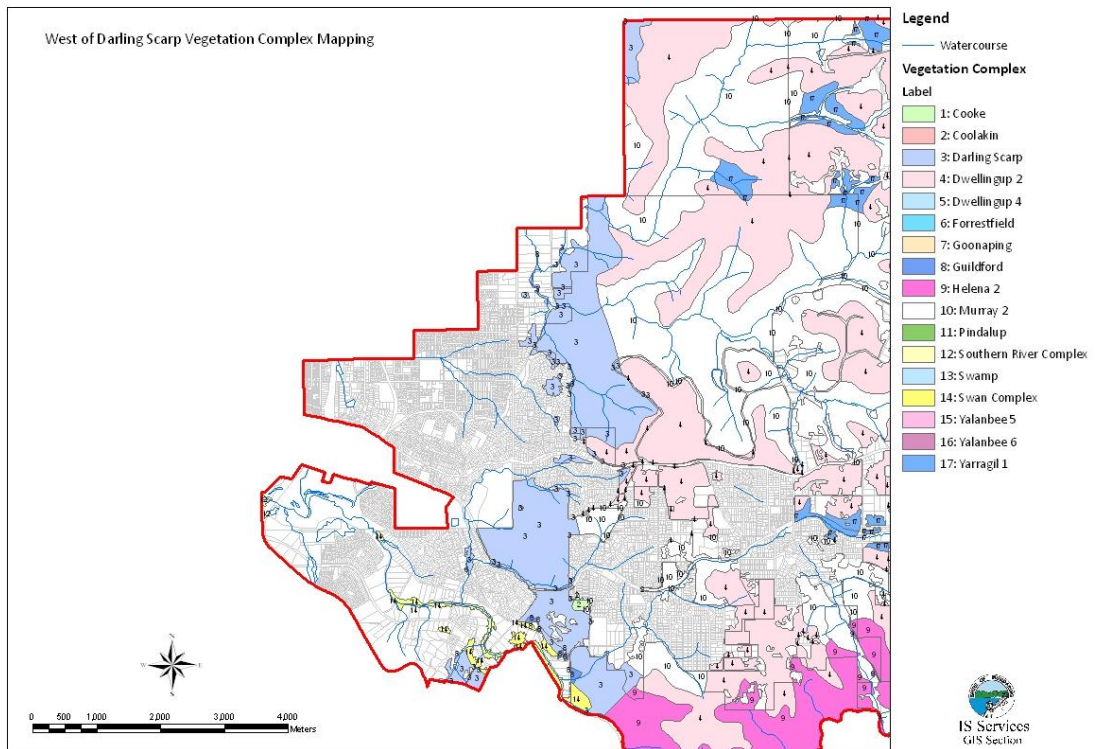


Figure 255: Vegetation complexes, western portion of Shire

A vegetation complex with less than 10% of its original extent remaining is classified as rare. Both rare and at risk vegetation complexes (ie. any vegetation complex with less than 30% of its original extent remaining) are classified in the highest conservation priorities for Local Natural Areas in the Local Biodiversity Strategy (see section 4.2.2.2 below).

Accordingly, the Local Biodiversity Strategy gives particular emphasis to endangered or at risk vegetation complexes, but also recommends, wherever practicable, that retention of all vegetation complexes be maximised (section 4.2.2.2).

Rare and priority flora

As at the end of 2006, there were two species of Declared Rare Flora (DRF) and twelve Priority Flora species identified within the Shire of Mundaring. Based on statutory restrictions on maps identifying specific locations of rare and priority flora, the identified location of these species within the Shire is not shown in this Strategy, although the information is available to the Shire for the purposes of decision making. The number and type of species listed as rare and priority flora may change over time, due to new finds of such flora species or to declines in number of various species of flora. Shire mapping of this data set should be updated regularly to include any such changes.

Revegetation

The protection of native vegetation is addressed in detail in section 4.2.2 below, but it is also appropriate to require revegetation, using local indigenous species, in certain circumstances. Some revegetation of cleared areas should be required as a condition of approval for rural residential subdivision, to combat the risk of salinity, consolidate or re-establish riparian vegetation and to re-establish fauna habitat (particularly along identified wildlife corridors).

However, it is very important that revegetation must not create an unacceptable bush fire hazard, given that this Strategy emphasises the location of any zonings for residential or rural residential subdivision in primarily cleared areas, largely for the specific reason of avoiding areas of high or extreme bushfire hazard (biodiversity protection being the other major reason). Revegetation must ensure adequate building and hazard separation zones for all dwellings and comply with the *Planning for Bushfire Protection Guidelines*, or any successor document.

Recommendations

- Seek to minimise loss of any vegetation complex, but in particular those vegetation complexes at high risk due to less than 30% of their original (pre-European) extent remaining within the Shire
- Generally require some revegetation of cleared areas as a condition of approval for rural residential subdivision, particularly adjacent to watercourses and in or adjacent to identified wildlife corridors, but ensure that revegetation does not result in any non-compliance with the *Planning for Bushfire Protection Guidelines*, or any successor document, with respect to building and hazard separation zones for dwellings
- Regularly update the Shire's mapping of the Declared Rare and Priority Flora data set to incorporate any changes

4.1.5 Climate

This section deals with the observed climate in and near the Shire of Mundaring, based on historical records. The issue of climate change and how this may impact on the Shire is addressed in section 4.2.1 below.

The Shire of Mundaring, as with the rest of the Perth Metropolitan Region, enjoys a Mediterranean climate, with hot, dry summers and cool, wet winters.

There is currently no Bureau of Meteorology detailed weather recording site within the Shire, although rainfall records are kept for Mundaring. Of the nearby weather recording sites, Bickley (in the Shire of Kalamunda) is likely to have the most similar climate to the hills portion of the Shire of Mundaring. Bickley's mean annual rainfall (for the years 1969 to 2008) is 1111 mm. The mean monthly maximum temperature ranges from 15°C in July to 30°C in January and February, with the mean monthly minimum temperature ranging from 7°C in July to 16°C in February. Perth Airport is likely to have the most similar climate to the foothills section of the Shire of Mundaring. Perth Airport's mean annual rainfall (for the years 1971 to 2000) is 747 mm. The mean monthly maximum temperature ranges from 18°C in July and August to 32°C in January and February, with the mean monthly minimum temperature ranging from 8°C in July and August to 17°C in January and February.

Climatic conditions vary considerably throughout the Shire, particularly with respect to rainfall. Rainfall increases from the Swan Coastal Plain eastwards into the Darling Range around Mundaring, but then decreases again further eastwards (Bakers Hill in the Shire of Northam, east of Wooroloo, has a mean annual rainfall of 589 mm, based on 1964 to 2008 data). In general, both maximum and minimum temperatures in the hills portion of the Shire are slightly cooler overall than on the coastal plain, although hot temperatures can linger later in the day due to a later and sometimes weaker sea breeze.

4.1.6 Aboriginal heritage

The original inhabitants of the Shire of Mundaring area were the Nyungah Aboriginal people. The name “Mundaring” is thought to be derived from the Aboriginal name for the area, Mindah-lung, said to mean “a high place on a high place” or “the place of the grass tree leaves”.

The Shire acknowledges the traditional owners of the land and endeavours to undertake all of its functions in a sensitive and respectful manner, in accordance with relevant statutory obligations.

Advice from the Department of Indigenous Affairs indicates that there are 106 sites within the Shire of Mundaring that are registered on the Register of Aboriginal Sites. These sites range from sites of artefacts, modified trees or engravings to ceremonial and mythological sites. These sites are located throughout the Shire, albeit with a prevalence in the western and southern portions of the Shire. Although sites are located throughout the landscape, there is a particular concentration of sites on or near watercourses or water bodies. Information about individual sites and their location has not been included in this Strategy due to its sensitivity, but will be available to Shire staff and taken into account in considering planning proposals and in other Shire operations. The information should be regularly updated.

The Aboriginal Heritage Act 1972 protects all Aboriginal sites in Western Australia, whether they are known to the Department of Indigenous Affairs or not. The Department of Indigenous Affairs recommends that prior to any proposed development/activity, suitably qualified consultants be engaged to conduct ethnographic and archaeological surveys of the area – this should ensure that all Aboriginal interest groups are consulted so that all sites on the particular land are avoided or identified. The Shire should seek to ensure that it complies with the requirements of the Aboriginal Heritage Act and encourage landowners and proponents to be aware of and to comply with those requirements.

Recommendations

- Seek to ensure that the Shire complies with the requirements of the *Aboriginal Heritage Act 1972*
- Encourage landowners and proponents to be aware of and to comply with the requirements of the *Aboriginal Heritage Act 1972*
- Regularly update the Shire's information on places within the Shire on the Register of Aboriginal Sites to incorporate any changes

4.1.7 Other cultural heritage

The Shire of Mundaring is richly endowed with places of non-indigenous cultural heritage. This is in large part due to the role of the Shire as an important transport route between the settlements of Perth and the Swan Coastal Plain and the agricultural hinterland in the Avon Valley and beyond, the Shire's significance as a water supply source for much of the goldfields and wheatbelt, and the early settlements that took place in the Shire as a result of these factors.

Heritage lists are kept by all three levels of government, reflecting the national, state and local heritage significance of various places. The National Heritage List relates to places of outstanding national heritage value. At a State level, there is the State Register of Heritage Places, while at the local level, the Shire has a Municipal Inventory (see below). In addition, twelve places within the Shire are listed on the Register of the National Trust; however, inclusion on this list does not have direct legal implications.

National Heritage List

Australia's National Heritage List has been established to list and protect places of outstanding heritage significance to Australia. The National Heritage List includes natural, historic and Indigenous places of outstanding national heritage value to the Australian nation.

Places included on the National Heritage List are protected by Australian Government laws and special agreements with state and territory governments and with Indigenous and private owners. Places on the List are protected under the *Environment Protection and Biodiversity Conservation Act 1999*, which requires that approval be obtained before any action takes place that could have a significant impact on the national heritage values of a listed place.

The Goldfields Water Supply Scheme was added to the National Heritage List on 23 June 2011. To date, it is the only place within the Shire that is on the National Heritage List. The listing relates to the whole of the water supply system, from Mundaring Weir to Kalgoorlie.

The Goldfields Water Supply Scheme meets four criteria for National Heritage listing:

- the place's importance in the course, or pattern, of Australia's natural or cultural history;
- the place's importance in demonstrating a high degree of creative or technical achievement at a particular period;
- the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and
- the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history.

Within the Shire of Mundaring, the listing includes:

1. the pipeline (main conduit) that extends from Mundaring Weir in the west to the Shire boundary in the east;
2. the Mundaring Weir wall, two valve houses, spillway and the basin;
3. the No. 1 Pump Station located at the base of the Mundaring Weir; and
4. the site of the No. 2 Pump Station and the remains of the associated concrete receiving tank, Mundaring Weir Road.

State Register of Heritage Places

At the time of writing, 23 places within the Shire are listed on the State's Register of Heritage Places, though this may increase over time. 22 are permanent entries on the Register, while there is one interim entry. Places on the Register of Heritage Places are afforded protection under the *Heritage of Western Australia Act 1990*. Under proposed Local Planning Scheme No. 4, development affecting a place on the Register of Heritage Places will require planning approval.

The entries on the State Register of Heritage Places are:

- Blackboy Hill Memorial – Innamincka Road, Greenmount
- Katharine Susannah Prichard's House – Old York Road, Greenmount
- Belle View – Katharine & Wilkins Streets, Bellevue
- Clayton Farm – Clayton Road, Helena Valley
- Government Quarries (former) – Hudman Road, Boya
- Holmesdale – Darlington Road, Darlington
- St Cuthbert's Anglican Church – Hillsden & Darlington Roads, Darlington
- Leithdale – Lukin Avenue, Darlington
- Glen Forrest Hall – McGlew Road, Glen Forrest
- Eastern Railway: Three Bridges – John Forrest National Park, Hovea (interim entry only)
- Eastern Railway Deviation – John Forrest national Park, Hovea

- John Forrest National Park – Hovea
- Parkerville Children’s Home & Cemetery – Roland, Beacon & Wilson Roads, Parkerville/Hovea
- Hillston Boys Farm (former) – Stoneville Road, Stoneville
- Mahogany Inn – Great Eastern Highway, Mahogany Creek
- Faversham – Jacoby Street, Mundaring
- Mundaring Sculpture Park – Jacoby Street, Mundaring
- Mundaring Weir Hall – Weir Village Road, Mundaring
- Mundaring Weir Hotel – Weir Village Road, Mundaring
- No. 1 Pumping Station Museum – Mundaring Weir Road, Mundaring
- Lake Leschenaultia – Rosedale Road, Chidlow
- Wooroloo Cemetery – Linley Valley Road, Wooroloo
- Wooroloo Sanatorium (former) – Linley Valley Road, Wooroloo

Municipal Inventory

The Shire of Mundaring’s Municipal Inventory was prepared by Bruce Callow & Associates P/L (architects) and Ian Elliot (historian), and finalised in 1997. The Inventory contains place records for over a hundred places of heritage value within the Shire. Most place records contains information regarding the place and its heritage value, including an indication of a management category and recommendations regarding conservation/protection. However, not all places with a place record have been completely assessed. The Inventory also contains an ancillary list of places which, while not assessed for the Municipal Inventory, should be photographically recorded and possibly drawn in plan and elevation should they be subject of a development, alteration or demolition application.

At the time of writing, a review of the Municipal Inventory is being carried out. It is intended to complete the assessments of places in the Municipal Inventory and set a clear hierarchical protection level for each place remaining in the Inventory.

Local Planning Scheme No. 4

Proposed Local Planning Scheme No. 4 is based on the Model Scheme Text. Model Scheme Text provisions provide for a Heritage List, which may contain some or all of the heritage places in a local government’s Municipal Inventory. Places on a Heritage List receive formal protection under the Scheme. Upon completion of the review of the Municipal Inventory, it will be necessary to prepare and adopt a Heritage List, in accordance with Model Scheme Text requirements.

Recommendations

- Require, ensure or encourage compliance with the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* to obtain approval before any action takes place that could have a significant impact on the national heritage values of the Goldfields Water Supply Scheme within the Shire, as listed on the National Heritage List
- Comply with the requirements of the *Heritage of Western Australia Act 1990* with respect to places on the State Register of Heritage Places when considering any planning proposals affecting a place on that Register
- Continue to review the Municipal Inventory
- Upon completion of the review of the Municipal Inventory, prepare and adopt a Heritage List incorporating places recommended for protection under the Municipal Inventory

4.1.8 Bushfire hazard assessment

Bushfire hazard is one of the most critical planning considerations for the Shire of Mundaring, given that so many residents of the Shire live in close proximity to native bushland.

In preparing this Local Planning Strategy, the Shire commissioned a bushfire hazard assessment, in accordance with the requirements of the WAPC's then Development Control Policy *DC 3.7 Fire Planning* (since rescinded and replaced by the *Planning for Bush Fire Protection Guidelines*). The bushfire hazard assessment was conducted by FirePlan WA, with some subsequent minor refinements carried out by the Shire's Chief Bush Fire Control Officer. It is shown at Figure 26 below.

The bushfire hazard assessment was carried out over most of the Shire, with the only areas excluded from the assessment being:

- suburban land on the Swan Coastal Plain in the localities of Midvale, Swan View and Greenmount;
- prison land in Wooroloo; and
- uninhabited National Park, state forest and water catchment land in the southeast of the Shire.

These exclusions were on the basis that the areas were not considered bushfire prone, aerial photography was not available or it was not considered necessary to conduct an assessment for a particular area.

The initial assessment conducted by FirePlan WA was a Type 1 Bush Fire Hazard Assessment, as set out in the then *Planning for Bush Fire Protection (2001)*, published by the WAPC and the Fire and Emergency Services Authority. The assessment used a combination of aerial photography and site assessment from the public road network, access tracks and firebreaks. Subsequent refinements were on the basis of Type 1 and Type 2 Bush Fire Hazard Assessment, as set out in *Planning for Bush Fire Protection (2001)*. Accordingly, the bush fire hazard levels have been determined in accordance with the Type 1 and Type 2 Bush Fire Hazard Assessment Procedures in *Planning for Bush Fire Protection (2001)*.

The bushfire hazard assessment that has been carried out is, of necessity, broad-brush, as it was conducted across the majority of the Shire. *Planning for Bush Fire Protection (2001)* set out a more detailed, small-scale Type 3 Bush Fire Hazard Assessment, which can be conducted for individual developments, subdivisions, structure plans or rezonings. This detailed on-site assessment may alter the bushfire hazard levels identified in the Shire's bushfire hazard assessment for portions of any particular site.

A bushfire hazard assessment conducted in accordance with *Planning for Bush Fire Protection (2001)* categorises land into areas of Extreme, High, Medium and Low bushfire hazard, based on the predominant vegetation class and type and the slope of land. However, it should be noted that the vegetation classes and types found in the Shire of Mundaring are such that no areas are identified as having a High bushfire hazard, in accordance with the bushfire hazard level classification set out in Figure 1 and Tables 2 and 3 of *Planning for Bush Fire Protection (2001)* for Type 1 and Type 2 Bush Fire Hazard Assessments. The 2010 *Planning for Bush Fire Protection Guidelines* have merged the High and Medium hazard levels into a single hazard level called Moderate.

As can be seen, the great majority of the Shire is classified as having an Extreme bushfire hazard level. The Extreme bushfire hazard level covers bushland on public land (including National Parks, regional parks, state forests, water catchments and other reserves), which comprises a large proportion of the Shire. However, it also encompasses a large proportion of privately owned land within the Shire, reflecting the amount of bushland and native vegetation on private land. Land with Medium and Low bushfire hazard levels is located throughout the Shire, with the localities of Bailup, Wooroloo and Helena Valley having the highest proportion of such land.

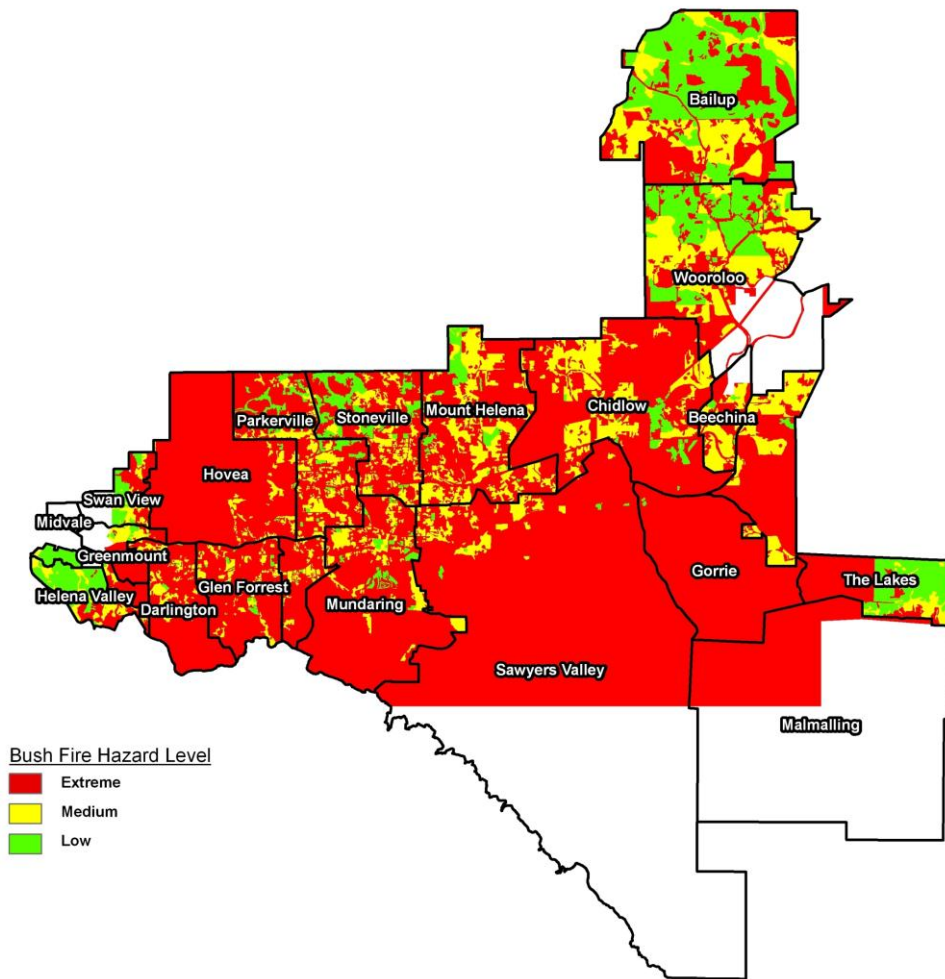


Figure 266: Bushfire hazard mapping for the Shire of Mundaring

The findings of the bushfire hazard assessment have significant implications for planning and development in the Shire of Mundaring. These implications of the bushfire hazard assessment are discussed further in section 5.1 below. The bushfire hazard assessment has been incorporated into Local Planning Scheme No. 4, by way of a Special Control Area on the Scheme Maps, encompassing those areas classified as having a medium or extreme bushfire hazard.

4.2 Key environmental issues

4.2.1 Climate change

Climate change is arguably the most significant environmental issue we face, whether at a local, national or global level. Recent, current and future changes to climate have already affected and will continue to alter rainfall, temperature, humidity, sea levels and the frequency and intensity of extreme weather events. Climate change is likely to have significant economic, social and environmental impacts.

This section first considers the anticipated extent and impacts of climate change, then looks at possible responses to climate change (adaptation and mitigation).

4.2.1.1 Anticipated extent and impacts of climate change

Fifth IPCC Assessment Report

The Intergovernmental Panel on Climate Change (IPCC) is an international scientific intergovernmental body set up by the World Meteorological Organization and the United Nations Environment Program to provide decision-makers with an objective source of information about climate change. The main function of the IPCC is to provide Assessment Reports on the state of knowledge about climate change.

The most recent complete report, the Fourth IPCC Assessment Report (AR4) was released in 2007. However, at the time of writing, the Fifth IPCC Assessment Report (AR5) is being progressively finalized and released (anticipated to be released in full by late 2014). Some components have been released, including the *Climate Change 2013: The Physical Science Basis – Summary for Policymakers*. This document a range of conclusions about climate change, includes the following:

- Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea levels have risen, and the concentrations of greenhouse gases have increased.
- Each of the last three decades has been successively warmer at the Earth's surface than any preceding decade since 1850. In the Northern Hemisphere, 1983 – 2012 was likely the warmest 30-year period of the last 1400 years (medium confidence).
- Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and Arctic sea ice and Northern Hemisphere spring snow cover have continued to decrease in extent (high confidence).
- The rate of sea level rise since the mid-19th century has been larger than the mean rate during the previous two millennia (high confidence). Over the period 1901 to 2010, global mean sea level rose by 0.19 [0.17 to 0.21] m.

- The atmospheric concentrations of carbon dioxide, methane and nitrous oxide have increased to levels unprecedented in at least the last 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times, primarily from fossil fuel emissions and secondarily from net land use change emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.
- Total radiative forcing is positive, and has led to an uptake of energy by the climate system. The largest contribution to total radiative forcing is caused by the increase in the atmospheric concentration in carbon dioxide since 1750.
- Human influence on the climate system is clear. This is evident from the increasing greenhouse gas concentrations in the atmosphere, positive radiative forcing, observed warming, and understanding of the climate system.
- Observational and model studies of temperature change, climate feedbacks and changes in the Earth's energy budget together provide confidence in the magnitude of global warming in response to past and future forcing.
- Human influence has been detected in warming of the atmosphere and the ocean, in changes in the global water cycle, in reductions in snow and ice, in global mean sea level rise, and in changes in some climate extremes. This evidence for human influence has grown since AR4. It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century.
- Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.
- Global surface temperature change for the end of the 21st century is likely to exceed 1.5°C relative to 1850 to 1900 for all Relative Concentration Pathway (RCP) scenarios except RCP2.6. It is likely to exceed 2°C for RCP6.0 and RCP8.5, and more likely than not to exceed 2°C for RCP4.5. Warming will continue beyond 2100 under all RCP scenarios except 2.6. Warming will continue to exhibit interannual-to-decadal variability and will not be regionally uniform.
- Changes in the global water cycle in response to the warming over the 21st century will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase, although there may be regional exceptions.
- The global ocean will continue to warm during the 21st century. Heat will penetrate from the surface to the deep ocean and affect ocean circulation.

- It is very likely that the Arctic sea ice cover will continue to shrink and thin and that Northern Hemisphere spring snow cover will decrease during the 21st century as global mean surface temperature rises. Global glacier volume will further decrease.
- Global mean sea level will continue to rise during the 21st century. Under all RCP scenarios, the rate of sea level rise will very likely exceed that observed during 1971 to 2010 due to increased ocean warming and increased loss of mass from glaciers and ice sheets.
- Climate change will affect carbon cycle processes in a way that will exacerbate the increase of carbon dioxide in the atmosphere (high confidence). Further uptake of carbon by the ocean will increase ocean acidification.
- Cumulative emissions of carbon dioxide largely determine global mean surface warming by the late 21st century and beyond. Most aspects of climate change will persist for many centuries even if emissions of carbon dioxide are stopped. This represents a substantial multi-century climate change commitment created by past, present and future emissions of carbon dioxide.

The Synthesis Report for AR5 will be considered in October 2014 and released thereafter. In AR4, with specific reference to Australia, the *Synthesis Report – Summary for Policymakers* notes that:

- By 2020, significant loss of biodiversity is projected to occur in some ecologically rich sites, including the Great Barrier Reef and Queensland Wet Tropics.
- By 2030, water security problems are projected to intensify in southern and eastern Australia.
- By 2030, production from agriculture and forestry is projected to decline over much of southern and eastern Australia, due to increased drought and fire.
- By 2050, ongoing coastal development and population growth in some areas of Australia are projected to exacerbate risks from sea level rise and increases in the severity and frequency of storms and coastal flooding.

Recorded changes in climate in Western Australia's southwest

Some significant changes to the climate in southwest Western Australia have already been recorded over the past half century (source: *Indian Ocean Climate Initiative Climate Note 1 Series*, Indian Ocean Climate Initiative, August 2005):

- The annual mean temperature averaged over Western Australia has increased by about 0.8 °C since 1910, with most of this warming since 1950. The enhanced greenhouse effect is most likely responsible for much of the warming.

- Since the mid-1970s Western Australia's southwest has experienced much drier winters. Annual rainfall has declined by around 10%; the mean May - July rainfall from 1975 – 2003 declined by 15% from that from 1925 – 1974. Both natural variability and the enhanced greenhouse effect are thought to have contributed to this change.
- Streamflow into the region's dams has significantly decreased due to rainfall changes. The average inflow into Perth's dams from 2001 to 2006 represented a 75% decrease relative to the 1911 – 1974 average.
- The mean sea level at Fremantle has increased by 20 cm since 1897. The rise in sea level has been attributed to the thermal expansion of the ocean due to increased warming.

Projected impacts of climate change on Western Australia's southwest

The Indian Ocean Climate Initiative (IOCI) is a partnership between the State Government of Western Australia, the CSIRO and the Australian Bureau of Meteorology. The IOCI was formed to support informed decision making pertaining to climate change and climate variability in Western Australia.

The report *Living With Our Changing Climate* presents the views of participants in a workshop held by IOCI in August 2005, which brought together climate scientists and representatives from key sectors affected by climate change and sought to identify impacts of climate change and variability in southwest Western Australia and responses to climate change across affected sectors. The report notes the following with respect to southwest Western Australia:

- Future climate change is expected to result in further temperature increases and reductions in rainfall in much of the southwest of Western Australia.
- Ongoing increases in ocean temperatures and acidity, rising sea levels and changes in ocean circulation patterns will inevitably impact on marine ecosystems and shorelines and probably ocean currents.
- To manage climate change impacts on biodiversity and hydrology systems will require better understanding of underlying system processes and interactions with or dependence on climate parameters such as temperature and rainfall, and major variations to the extremes, such as heatwaves, droughts and heavy rainfalls.
- Impacts needing to be addressed include extreme events and variability (eg. sea level rise, storm surge, coastal erosion, heat extremes, lightning strikes, bushfires).
- Impacts on health will include heat stress and changes in the transmission potential and range of vector borne diseases.

In May 2006, the CSIRO, in conjunction with the Australian Greenhouse Office, released the document *Climate change scenarios for initial assessment of risk in accordance with risk management guidance*. The report included climate change scenarios for ten regions of Australia, including southwest Western Australia (which includes the Perth Metropolitan Region).

The climate change scenarios for southwest Western Australia by 2030, relative to 1990, included:

- South-western Australia is likely to become warmer, with more hot days and fewer cold nights. For example, the number of days above 35 °C could average 29 – 43 (currently 27).
- Warming and population growth may increase annual heat-related deaths in those aged over 65. For example, from 294 deaths at present in Perth to 657-689 by 2020 and 1254-1548 by 2050.
- Water resources are likely to be further stressed due to projected growth in demand and climate-driven changes in supply for irrigation, cities, industry and environmental flows.
- More frequent and severe droughts are likely.
- Increases in extreme weather events are likely to lead to increased flash flooding, strains on sewerage and drainage systems, greater insurance losses, possible blackouts, more fires and challenges for emergency services.

Some more detailed projections by IOCI (*Report of Phase 2 Activity January 2005 – June 2006*, IOCI, October 2006) include:

- If global average temperatures increase by +0.6°C to +1.0°C by 2030, it is estimated that the median winter half-year rainfall (May to October) in southwest Western Australia could decrease by between 8% and 14%.
- By 2030, typical decreases in runoff in southwest Western Australia from the 1990 stream values could range from 5% to 40% for a global warming of +0.85 °C.

A more recent report is the CSIRO's *Climate Change in Australia: Technical Report 2007*. It is based largely on the conclusions of the Fourth IPCC Assessment Report (AR4).

Key findings of this report include that by 2030, temperatures will rise by about 1°C over Australia – a little less in coastal areas and a little more inland. Later in the century, the extent of warming depends on the extent of greenhouse gas emissions. If emissions are low, warming of between 1.0°C and 2.5°C is likely by around 2070, with a best estimate of 1.8°C. Under a high emission scenario, estimates range from 2.2°C to 5.0°C, with a best estimate of 3.4°C. The report indicates that there will be changes in temperature extremes, with fewer frosts and substantially more days over 35°C. For southwest Western Australia (including the Perth Metropolitan Region), estimates for increase in summer temperature by 2030 range from 0.3°C to 2.0°C with a best estimate of between 0.6°C and 1.0°C.

4.2.1.2 Responses to climate change

Responses to climate change broadly fall within two categories: mitigation and adaptation.

Mitigation comprises actions to reduce greenhouse gas emissions and/or to enhance carbon sinks aimed at reducing the extent of global warming.

Adaptation comprises initiatives and measures to reduce the vulnerability of natural and human systems to anticipated climate change effects that cannot be avoided.

It is widely recognised that both mitigation and adaptation are required in responding to climate change. For example, the Fourth IPCC Assessment Report notes that neither mitigation nor adaptation alone can avoid all climate change impacts, but together they can complement each other and significantly reduce the risks to human settlements and the environment of climate change impacts.

Both mitigation and adaptation are considered in this section.

National target

In late 2012, Australia signed up to the second commitment period (2013 – 2020) under the Kyoto Protocol. Australia has agreed to a target to reduce its emissions to 5% below 2000 levels by 2020.

National and local planning perspective

The Planning Institute of Australia (PIA), the peak body representing the town planning profession in Australia, issued a Position Statement on Climate Change in 2010.

The Position Statement noted that climate change is occurring, and planning has a crucial role to play in dealing with the anticipated impacts. It further noted that the planning profession is in a unique position to assist the community in understanding and adapting to the expected consequences of climate change. It identified that adaptation measures help to reduce the implications of the most serious consequences of climate change which include, for example, greater flood risk, more extreme weather conditions, water shortages, and changes to ecosystems and micro-climates. The Position Statement also noted that Planners are in the position to actively work on mitigation issues and guide changes to environmental behaviour such as promoting energy and water efficiency, sustainable land management practices, primary industry diversification, incorporating efficient energy use in buildings, and including climate change information in environmental assessments.

PIA's recommended policy principles include:

- uncertainties in the severity of climate change consequences, and the likelihood of projected impacts occurring are sufficient to warrant changes in the planning and management of our cities and regions;
- incorporating a risk management approach into land use and development policies is required to deal with the variability and uncertainty about climate change; and
- planners should adopt a precautionary approach in relation to climate change and have an important role in identification and implementation of adaptation options.

PIA supports actions to implement adaptation and mitigation including:

- ongoing implementation of planning policies that result in outcomes that minimize greenhouse gas emissions;
- including climate change in long term strategic planning to enable communities to better adapt to future climate variability;
- adopting nationally consistent timeframes and long term timescales to provide planners with meaningful targets;
- implementing climate risk management programs into existing planning and decision making frameworks;
- all government bodies, including local governments, urgently auditing the climate related risks in their areas of responsibility and considering appropriate remedies, including communicating their findings to each other and other stakeholders, including planners
- strengthening support for:
 - water-sensitive urban design;
 - protection of reliable productive agricultural land;
 - natural resource management;
 - energy efficient built environments and urban form;

- sustainable transport management;
- risk-based land use planning responses to environmental hazards; and
- other strategies to reduce vulnerability to climate change.

Although the Western Australian Planning Commission does not at the time of writing have a specific policy on climate change adaptation and mitigation, addressing these issues is a significant component of or consideration in many of the Commission's policies (eg. State Planning Policy No. 2 – Environment and Natural Resources; State Planning Policy No. 2.6 – State Coastal Planning Policy; Liveable Neighbourhoods).

In June 2009, a Climate Change Policy Statement for Local Government was released by the Western Australian Local Government Association. The statement has the following policy objective:

To ensure that Local Government understands and addresses climate change impacts in a local, regional and international context, evaluates the climate change implications of operational decisions and policy positions, and is committed to greenhouse emissions reductions and risk management through appropriate mitigation and adaptation strategies.

The statement briefly outlines the background (climate change risks and projections) and adaptation and mitigation strategies. It then sets out a Statement of Policy comprising:

- acknowledging climate change impacts (including the obligation to act);
- committing to immediate climate change action (including supporting all global actions and targets intended to limit the increase in average global surface temperature to within 2°C above pre-industrial levels); and
- short statements on reflecting appropriate priorities, setting clear objectives and targets, establishing clear roles and responsibilities, acknowledging resourcing barriers and constraints, and apportioning costs appropriately.

Significant work on climate change adaptation and mitigation at the local government level has been done throughout Australia. Three noteworthy examples, some elements of which are relevant to the Shire of Mundaring, are:

Adapting to Climate Change – A Queensland Local Government Guide (June 2007):

This document, prepared by the Local Government Association of Queensland, is a guide to help local governments throughout Queensland assess the likely effects of climate change on their wide range of roles and responsibilities and to plan appropriate responses.

The document contains climate change projections for different regions in the state, identifies specific impacts that may affect different local government roles (eg. town planning, infrastructure, parks and recreation) and provides various recommendations and options for adaptation actions. Of particular relevance to the Shire of Mundaring, it places emphasis on the impacts of increased rainfall intensity in extreme weather events (eg. risk of flooding and erosion) and increased bushfire risk. It should be noted that in many parts of Australia, it is anticipated that there will be increased intensity in rainfall events even though overall rainfall will decline.

Among the document's many recommendations and observations are the following:

- individual local governments should adopt a climate change adaptation policy;
- local governments should carry out climate change risk assessment (possibly incorporating this into existing risk assessment structures);
- achieving maximum water efficiencies is important – to this end, some local governments are already making rainwater tanks compulsory in new development;
- land use planning should factor in provision for alternative water supply networks (eg. greywater);
- use of drought tolerant species in parks and landscaping;
- the importance of shade in outdoor pedestrian and recreation areas; and
- consideration being given to the increased bushfire risk over time in land use planning and emergency services planning.

Impacts of Climate Change on Settlements in the Western Port Region – Climate Change Risks and Adaptation (Western Port Greenhouse Alliance, October 2008)

The Western Port Greenhouse Alliance (WGPA) is a group of five local governments in the Western Port region southeast of Melbourne (City of Casey, Frankston City, Bass Coast Shire, Cardinia Shire and Mornington Peninsula Council).

The report outlines the comprehensive process of risk assessment followed by the WGPA. Over 200 separate climate change risks were identified across the five local governments. While many of these related to sea level rise and coastal inundation, others which are of relevance to the Shire of Mundaring related to increased intensity of rainfall events and increased bushfire risk.

The adaptation recommendations in the report include:

- mapping of local stormwater levels and inundation is required across the region taking into account intense rainfall projections under climate change scenarios;
- research into drainage design, peak flows and runoff should be undertaken, with drainage design guidelines being revised to take account of changes to extreme rainfall intensity projected under climate change;
- reviews of local government (and other agencies') asset management plans are recommended, having regard to climate change impacts;
- planning schemes should be reviewed to clarify and address existing uncertainties regarding the treatment of climate change impacts;
- integrated fire management plans should be implemented throughout the region;
- uncertainties and inconsistencies between bushfire management and native vegetation management need to be removed; and
- greater community ownership of bushfire management should be encouraged.

Switch Your Thinking! campaign – City of Gosnells, City of Armadale and Shire of Serpentine – Jarrahdale:

This initiative, launched in 2002, is a joint program by these three local governments (working together as the South East Regional Energy Group) seeking to promote resource and energy efficiency and to reduce greenhouse emissions. The group is responsible for research and implementation of greenhouse emissions-reducing measures across the region, including inspiring and building capacity for resource conserving behaviour in the community.

The program was devised to link disparate projects and actions under an easily recognisable brand. The program is reliant on the support of corporate sponsors and funding bodies.

The local governments have facilitated and demonstrated best practice in energy efficient building design, renewable energy technology and sustainable development. Actions undertaken include:

- information packages to local schools;
- local advertising campaigns;
- energy and water audits for hundreds of individual households, public workshops in each local government;
- rebates of up to \$300 for residents purchasing energy-efficient or waterwise products from sponsors (eg. solar hot water systems, insulation, rainwater tanks, high energy star-rated products);
- a “Green House” demonstration project showing a 1970’s home retrofitted to improve energy and water efficiency; and
- in conjunction with a developer, a five energy-star rated display village.

Potential climate change impacts on the Shire of Mundaring

Some of the anticipated impacts of climate change that have been identified as likely to be relevant to the Shire of Mundaring include:

<p>Bushfire hazard</p>	<p>It is anticipated that a combination of factors (reduced overall rainfall; reduced humidity; altered soil moisture conditions; longer fire seasons; more days of extreme bushfire hazard on average each fire season; potentially altered wind events and intensity; and reduced availability of fire fighting water supplies) will work to increase bushfire hazards, with potentially severe impacts including:</p> <ul style="list-style-type: none"> • loss of human life • more frequent destruction of property and increased insurance costs • damage/destruction of infrastructure • contamination of water supplies • fauna deaths and damage to flora • loss of natural habitat • adverse aesthetic/amenity impacts • adverse economic and social impacts
<p>Water</p>	<p>Impacts may include:</p> <ul style="list-style-type: none"> • increasing demand for water • reduced reliability of water supplies • reduced overall stream flow and water quality • reduced ecological, social and cultural values • possible increase in flooding from more frequent intense rainfall events, with erosion impacts and impacts on infrastructure

Biodiversity	<p>Impacts may include:</p> <ul style="list-style-type: none"> • loss of biodiversity and increased threats to natural assets as vulnerable plants and animals struggle to adapt to changing conditions • changes in flora and fauna community structures • spread of grassy weeds and plant diseases • altered fire regimes (affecting biodiversity) • changes in water availability for flora and fauna
Agriculture and Forestry	<p>Impacts experienced over time may include:</p> <ul style="list-style-type: none"> • changes to crop productivity and viability of particular varieties • declining water supply for irrigation • increased vulnerability to pests and disease • increased bushfire hazard
Human impacts (health, social, economic)	<p>A wide range of human impacts of climate change can be anticipated, including:</p> <ul style="list-style-type: none"> • impacts on health (from minor impacts up to death) from heat stress and changes to the transmission potential and range of vector borne diseases • impacts on homes from increased extreme weather events, particularly heat, bushfires and flooding, and possibly also storm and lightning damage • impacts of flooding and other extreme weather events on physical infrastructure such as roads and bridges • economic effect of impacts on specific industries such as horticulture and tourism • impacts on heritage and cultural values of changes to biodiversity and waterways • increased demand for energy (eg. for air conditioning), and • increasing demands on emergency services

Actions already taken by the Shire of Mundaring

The Shire of Mundaring, as an organisation, has already initiated action to reduce its greenhouse gas emissions and to reduce its water usage.

The Shire participated in the Cities for Climate Protection (CCP) program from 2001 to 2009, along with other local governments comprising the Eastern Metropolitan Regional Council (EMRC). The program is an International Council for Local Environmental Initiatives (ICLEI) program, jointly delivered with the federal government. The Shire achieved all of the milestones set out in this program: compiling an emissions inventory, establishing an emissions reduction target (to lower overall greenhouse emissions to 20% below 1998 levels by 2010), developing a local action plan, implementing policies and measures, monitoring and reporting, and conducting an audit and review of the local action plan and emissions reduction target. The Shire has also participated in a new program – Achieving Carbon Emissions Reduction Program, along with other EMRC local governments.

The Shire participated in the preparation of a Regional Climate Change Adaption Action Plan, along with the EMRC and its other member local governments. Subsequently, using this regional plan to provide overarching guidance, and with the participation of the local community via workshops, the Shire prepared a Local Climate Change Adaption Action Plan (March 2012). The Shire's Local Climate Change Adaption Action Plan identified eight priority risk areas and for each of these identified required actions, levels of risk and timeframes and responsibilities for carrying out actions.

The Local Climate Change Adaption Action Plan identified a wide range of adaptation action measures. These include, among many others, the following:

- including bushfire information in rates notice and new resident welcome pack;
- incorporating provisions for development in bushfire hazard areas in Local Planning Scheme No. 4;
- auditing and implementing changes to escape routes in bushfire prone areas;
- reviewing the Public Open Space Strategy;
- requesting a review of flood modeling within the Shire and identifying any additional risk areas for flooding;
- ensuring appropriate design of infrastructure within identified floodways;
- adopting new Special Control Areas in Local Planning Scheme No. 4 for flood prone land;
- develop a guideline for waterway management in the Shire;

- incorporating water sensitive urban design principles in statutory planning;
- reviewing recreation types in the Shire and investigating alternative sporting surfaces and alternative water sources for ovals;
- considering future landscaping guidelines based on change in species range;
- prioritising shade in urban design;
- developing a heat event response plan and alert system; and
- continuing to implement ways to be water and energy efficient to decrease costs to the Shire.

As part of its greenhouse action plan the Shire undertook several initiatives including, developing an energy team, utilising energy efficient lighting and office equipment as well as undertaking tree planting to offset emissions produced by council vehicles. To date, these actions have resulted in a total greenhouse emissions abatement of approximately 1000 tonnes of Carbon Dioxide emissions per annum.

The Shire of Mundaring was part of the Perth Solar City consortium, which was successful in having Perth selected in the Solar Cities program. The program saw over 16000 households participate. Participants received access to energy efficiency products and services such as low-flow shower heads, energy efficient lighting, insulation, home energy assessments, smart meters and discounted solar panels and hot water systems.

In 2004, the Shire joined the Water Campaign, an ICLEI program aiming to reduce water consumption and improve water quality. As part of this program, the Shire:

- undertook a water consumption inventory for both the Shire as an organisation and the community;
- developed a water action plan (actions in this plan are now being implemented);
- installed water-efficient bathroom appliances in Shire buildings; and
- adopted water-efficient practices in parks and gardens including reuse of wastewater for irrigation where appropriate.

The Shire has also encouraged or required the use of more water-efficient, native species in landscaping.

Recommended actions for Shire of Mundaring

The Shire's new Local Planning Scheme No. 4 and various recommendations throughout this Local Planning Strategy seek to address climate change adaptation and/or mitigation. These recommendations include:

- Formally identify and acknowledge bushfire hazard levels throughout the Shire, introduce appropriate Special Control Area provisions in Local Planning Scheme No. 4 to address these hazards, and carry out investigations to identify accessibility improvements required to ensure safe escape routes for residents and access for firefighting vehicles
- Secure as much of the Shire's Local Natural Areas as possible by giving force to the recommendations of the Shire's Local Biodiversity Strategy
- Emphasise the need to minimise travel demand to reduce greenhouse emissions resulting from travel, using land use mechanisms such as:
 - enhancing the role of the Mundaring Town Centre in providing for as many needs of residents as possible
 - maintaining the land use pattern of discreet villages through the hills portion of the Shire
 - restricting rural lifestyle subdivisions in locations isolated from services, employment and public transport
 - increasing residential densities in areas of Midvale, Greenmount and Swan View with reasonable access to public transport, employment and other facilities
 - facilitating more local employment and work-from-home options
- Actively advocate improved public transport throughout the Shire generally and between Mundaring and Midland in particular
- Emphasise and better accommodate pedestrian and cyclist movement throughout the Shire generally and in and around commercial areas particularly

While these initiatives are considered to have merit in addressing climate change adaptation and mitigation, a more comprehensive approach is necessary. Accordingly, it is recommended that, as a very high priority, the Shire:

- Implement the Shire's Local Climate Change Adaptation Action Plan
- Formulate a climate change mitigation policy identifying further actions to reduce greenhouse emissions by residents, businesses and other land uses throughout the Shire

- To the extent necessary to give effect to the recommendations of the climate change adaptation plan and climate change mitigation policy, amend Local Planning Scheme No. 4 and this Local Planning Strategy accordingly

4.2.2 Biodiversity protection

4.2.2.1 Introduction

The Shire's unique and diverse natural environment is important to its residents and a significant factor in their decision to move to or remain in the Shire. It also represents a resource of environmental and social values at a regional or wider level. A Key Strategic Objective in the Shire's Strategic Plan is to encourage environmentally sustainable development. Protecting biodiversity is an intrinsic element in environmentally sustainable development.

Biodiversity has been defined as:

the variety of all life forms – the different plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part.

Biodiversity has two key aspects – its intrinsic value at the genetic level, individual species level and species assemblage levels; and its functional value at the ecosystem level.

Much of the Shire's natural environment comprises Regional Open Space, such as National Parks, Regional Reserves, state forests and water catchments, and is effectively under state government control and/or management (see section 4.4.3 below). The Shire supports biodiversity protection within these areas, but in most instances has little direct influence on the protection of the natural environment within them.

However, on land which is privately owned or vested in the Shire, and/or which is zoned under the Shire's Town Planning Scheme, the Shire has greater ability to influence protection of biodiversity. Some biodiversity protection has been achieved through the controls in the Shire's Town Planning Scheme No. 3 as well as its Environmental Management Strategy and other policies and strategies. Two new strategies have been prepared, advertised and adopted by the Shire, which influence biodiversity protection: the Local Biodiversity Strategy and the Private Land Conservation Incentives Strategy. These are addressed in the next two sections.

4.2.2.2 Local Biodiversity Strategy

Background

The Shire's Local Biodiversity Strategy (LBS) was commissioned by the Shire as a major step towards protecting or retaining most of the Local Natural Areas found within the Shire. The LBS was prepared by Ironbark Environmental and Eco Logical Australia, with substantial input from Shire staff and assistance from the Perth Biodiversity Project and EnviroPlanning Project. The LBS is a significant component in achieving the Shire's key strategic objective of encouraging environmentally sustainable development.

The LBS was carefully prepared so as to be consistent with this Local Planning Strategy. It is intended to implement many recommendations of the LBS through this Local Planning Strategy and the Shire's proposed new Local Planning Scheme No. 4.

After a period of public comment from late May until early July 2009, the LBS was adopted by the Shire, subject to minor modifications, in August 2009.

For the purposes of the LBS, natural areas are defined as

areas containing native species or communities in a relatively natural state, including areas of native vegetation, vegetated or open water bodies (lakes, swamps) or watercourses (rivers, streams, creeks), springs, rock outcrops, bare ground, caves ... or cliffs.

Local Natural Areas are the focus of the LBS. Local Natural Areas, as defined and used in the LBS, are natural areas that exist outside of the public conservation estate, State Forest, proclaimed water catchments or Bush Forever sites. As such, these areas have a less clear protection status.

Natural areas within the Shire

Of the Shire's total area of around 64,250 ha:

- approximately 19,900 ha (31%) is cleared;
- approximately 23,225 ha (36%) is within State Forest or Water Catchment land;
- approximately 11,950 ha (19%) is protected in National Parks, Nature Reserves or Regional Parks; and
- approximately 9175 ha (14%) is Local Natural Areas.

(Note: In the LBS, total areas have been rounded to the nearest 5 ha.)

Local Natural Areas thus comprise around 21% of all uncleared areas in the Shire. About 70% of Local Natural Areas are located on privately owned land.

Vision

The overall vision of the LBS is:

Protecting, retaining and managing a network of viable Local Natural Areas that support our native flora and fauna.

To achieve this vision, the LBS recommends three main mechanisms be adopted:

- providing formal protection for Local Natural Areas through the Local Planning Strategy and proposed Local Planning Scheme No. 4 (see remainder of this section);
- providing assistance and conservation incentives to private landowners to manage natural areas on their properties for biodiversity conservation (see section 4.2.2.3 below); and
- the Shire strategically managing all natural areas under its management control for biodiversity conservation.

Local Natural Area conservation priorities

The LBS prioritises Local Natural Areas according to their relative conservation priority. This is to assist with making decisions on planning proposals affecting Local Natural Areas and investment of resources to managing Local Natural Areas. These priority levels have also been taken into account in assigning levels of protection.

Local Natural Areas are identified as having one of three conservation priorities (P1, P2 or P3) based on meeting any one of a range of ecological values, as follows:

Priority Level	Criteria
1	<ul style="list-style-type: none"> • Rare vegetation complexes (less than 10% remaining of original extent across the southwest of WA) • At risk vegetation complexes (less than 30% remaining of original extent across the southwest of WA) • Within 20 m of a watercourse • Special features (Declared Rare Flora, Specially Protected Fauna, Threatened Ecological Communities, Priority Ecological Communities, Priority Flora or Fauna, Conservation Category Wetlands, granite outcrops) within defined Regional Ecological Linkages*

	<ul style="list-style-type: none"> • Habitat areas (10 ha patches or larger) within defined Regional Ecological Linkages*
2	<ul style="list-style-type: none"> • Other Habitat areas (10 ha patches or larger) • Other Special Features • Other Local Natural Areas within defined Regional Ecological Linkages* • Between 20 m and 50 m from a watercourse
3	All other Local Natural Areas

* Regional Ecological Linkages referred to here are those delineated in the Local Biodiversity Planning Guidelines for the Perth Metropolitan Region, (Western Australian Local Government Association and Perth Biodiversity Project 2004).

The Local Natural Area conservation priority mapping is shown on the foldout map following this page.

Using these criteria, the Local Natural Areas in each priority level are:

Priority 1: 3064 ha
Priority 2: 5147 ha
Priority 3: 963 ha

It should be noted that there may be some changes in conservation priority levels over time, as Declared Rare Flora, Specially Protected Flora or other special features are identified. The conservation priority level mapping in the LBS, and in this Local Planning Strategy, will need to be periodically reviewed and updated as required to reflect new information.

Local Natural Area protection categories

In addition to conservation priority, other factors need to be taken into account in determining the level of protection that can be given to Local Natural Areas. Land tenure (public or private), the specific purpose of Crown reserves, existing lot sizes and subdivision potential conferred by current zoning and structure plans (Local Subdivision and Infrastructure Plans) all influence the ability to protect Local Natural Areas in adequately sized intact parcels. Based on consideration of these factors, the LBS has assigned most of the Shire's Local Natural Areas into three categories – **Conservation, Protection and Retention.**

For some Local Natural Areas, the protection categories that will be applied are uncertain at this stage, but will be determined through negotiation with landowners or managing authorities, or through the planning process. Some Local Natural Areas, mostly where zoned for residential development, are assumed to have limited protection and to be committed to development, because development requirements, including bushfire protection, will make it difficult to retain parcels of vegetation.

The **Conservation** category is the highest level of protection and incorporates Local Natural Areas on Crown Land vested for a conservation purpose, included in a Conservation Covenant, or included in a proposed Local Reserve for Conservation in the Shire's new Local Planning Scheme No. 4 (the proposed new Scheme divides the current Public Open Space Reserve into Reserves for Conservation or Recreation, based on the primary emphasis for each reserve and having had regard for ecological values of bushland on each reserve – see section 4.4.5 below).

The next highest category is called **Protection**. The intention is to protect Local Natural Areas in this category in perpetuity and to encourage landowners to actively manage them for biodiversity conservation. This Strategy recommends a very strong presumption against clearing of Protection category Local Natural Areas except for a single house and associated structures (on a lot where there is no practical alternative site on cleared land), vehicular access, fencing (in limited circumstances) or bushfire protection. Protection category Local Natural Areas are also a higher priority for management assistance than those in the Retention category. Almost all Local Natural Areas in this category are on private land.

The **Retention** category incorporates Local Natural Areas with a relatively lower conservation value, largely because of their fragmented nature or the small existing or proposed sizes of lots on which they are located. However, this Strategy still recommends a strong presumption against clearing of Retention category Local Natural Areas except where unavoidable.

The foldout map following this page shows the protection categories for Local Natural Areas delineated in the LBS. The amount of Local Natural Areas falling into each category is as follows:

Conservation:	1065 ha
Protection:	5830 ha
Retention:	510 ha
To Be Determined/Negotiated:	1190 ha
Limited Protection/Already Committed:	580 ha

7405 ha (81% of Local Natural Areas) are identified within the Conservation, Protection or Retention categories at this time. With the progressive addition over time of land for which the protection category is yet to be determined or negotiated, this figure could increase over time to up to as much as around 8625 ha (94% of Local Natural Areas). Although some clearing of those Local Natural Areas will be unavoidable - for development on lots where there is no practical alternative site, vehicular access and bushfire protection - the LBS should achieve long term retention and protection of the great majority of Local Natural Areas within the Shire.

A detailed outline of the calculation and composition of Local Natural Areas in each protection category, and recommendations for their protection, follows below.

It should be noted that there are limitations to some of the data on which the Local Natural Area mapping is based, and that when interpreting the mapping at individual property level, on-site verification may be required. Updating of the conservation priority and protection category mapping will be required over time, to incorporate and reflect new information and changes such as rezonings.

Goals of the Local Biodiversity Strategy

To help achieve the overall vision of the LBS, the Strategy sets four specific goals. This Local Planning Strategy incorporates these goals:

1. To have 1065 ha of Local Natural Areas included in the Conservation Category and recognised by the Shire's Local Planning Strategy and LPS4; and to endeavour to increase the amount of Local Natural Areas in the Conservation Category to up to around 1570 ha over time.
2. To have 5830 ha of Local Natural Areas included in the Protection Category and recognised in the Shire's Local Planning Strategy and LPS4; and to endeavour to increase the amount of Local Natural Areas in the Protection Category to up to around 5865 ha over time.
3. To have 510 ha of Local Natural Areas included in the Retention Category and recognised in the Shire's Local Planning Strategy and LPS4; and to endeavour to increase the amount of Local Natural Areas in the Retention Category to up to around 1190 ha over time.

4. All Council's Local Reserves for Conservation in Local Planning Scheme No. 4 are actively managed for biodiversity conservation and half of all other Conservation Category Local Natural Areas and Protection Category (at least an estimated 2925 ha) are actively managed for conservation.

This Local Planning Strategy formally adopts these goals, which will assist the Shire in achieving its objectives of protecting biodiversity and encouraging environmentally sustainable development.

Conservation Category Local Natural Areas

Local Natural Areas have been identified as falling within this category on the basis that they are:

- on Crown Land vested for a conservation purpose;
- included in a Conservation Covenant; or
- included in a proposed Local Reserve for Conservation in the Shire's new Local Planning Scheme No. 4.

This category reflects the formal level of protection given to Local Natural Areas. It includes Local Natural Areas across all conservation priority levels (P1 to P3), including many areas identified as Regional Ecological Linkages and areas valued by the local community for their environmental values, such as Black Cockatoo Reserve in Mundaring. Almost all land identified within the Conservation category is Crown land, so it excludes many areas of high ecological values, where these occur on private land.

It is expected that, over time, the amount of Local Natural Areas within the Conservation category can be increased. This will occur as subdivision proceeds and land is either given up for Public Open Space and subsequently included in a LPS 4 Local Reserve for Conservation, or, in the case of some Local Natural Areas where a cluster form of subdivision occurs, retained intact on a single private lot but subject to a conservation covenant.

The largest potential additions to this protection category may occur within land vested with other government agencies, such as prison land under control of the Department of Justice, if those agencies agree that land containing Local Natural Areas is not required for development and are willing to have that land placed under a conservation covenant. However, this is a matter to be negotiated with the relevant authorities with vesting and management control over the land. Additions to the Conservation category will require updating of the protection categories mapping used in this Strategy from time to time.

While 1065 ha of Local Natural Areas have been identified within the Conservation category at this time, the LBS sets a goal of increasing this over time, to up to as much as 1570 ha.

Recommendations:

- Local Reserve for Conservation in Local Planning Scheme No. 4 to indicate the emphasis for these reserves is on conservation ahead of recreation
- Actively manage land vested with the Shire and in the Local Reserve for Conservation in Local Planning Scheme No. 4 for biodiversity conservation
- Allow only minor development consistent with passive recreational use of such reserves (eg. small areas for car parking, sensitive walk trails), with no other clearing, except that required for bushfire hazard management, to be supported
- Comply with all restrictions on conservation covenants and encourage active management of such Local Natural Areas for biodiversity conservation

Protection Category Local Natural Areas

Local Natural Areas have been identified as falling within this category on the basis that they are:

- Priority 1 or Priority 2 conservation priorities on land zoned General Rural under Town Planning Scheme No. 3;
- on land zoned Rural Landscape Living under Town Planning Scheme No. 3 and having an existing or proposed lot size of 2 ha or above;
- Priority 1 or Priority 2 conservation priorities and/or within 20 metres of identified watercourses on land zoned Rural Landscape Living under Town Planning Scheme No. 3 and having an existing or proposed lot size below 2 ha; or
- in existing or proposed rural residential lots within land zoned Special Purpose under Town Planning Scheme No. 3 for the proposed Parkerville and Stoneville Townsite Developments.

This is the next highest protection category after Conservation. Almost all Local Natural Areas in this category are on private land and most will remain so. The intent and purpose of this category is to protect as much of these Local Natural Areas as possible in perpetuity and encourage landowners to actively manage them for biodiversity conservation. Accordingly, these areas should be prioritised for any assistance given to private landowners for biodiversity protection. This issue is addressed by the Shire's Private Land Conservation Incentives Strategy.

5830 ha of Local Natural Areas have been identified as falling within this category, and there is the potential for this amount to increase marginally over time.

Subdivision

Some Local Natural Areas in this category are on land having subdivision potential. Identification of these Local Natural Areas within the Protection Category does not take away existing subdivision potential, however subdivision layout and design should minimise the clearing and fragmentation of Local Natural Areas. This can be done by:

- retention of Local Natural Areas in Public Open Space;
- use of strategic firebreaks;
- limiting the construction of fencing through Local Natural Areas; and
- maximising the number of lots on which a single house and associated structures can be constructed on existing cleared land.

However, less conventional forms of subdivision can maximise protection of Local Natural Areas where these cover a substantial proportion of a property. For example, including a range of lot sizes and careful subdivision design can concentrate built development within a subdivision, either on cleared land to avoid clearing or, where an entire site contains Local Natural Areas, in a portion of the site to minimise clearing.

Appropriate forms of subdivision to maximise protection of Local Natural Areas could include:

- strata subdivision, where a large intact parcel of Local Natural Area is held in Common Property; or
- changing the minimum lot size in the Scheme to an average lot size (eg. where a 2 ha minimum currently applies, allowing a 1 ha minimum with a 2 ha average), so that most lots are smaller than the average and large intact parcel(s) of Local Natural Areas are ceded as Public Open Space or retained in one or a few larger lots (if possible, protected by way of a conservation covenant).

This Local Planning Strategy recommends that, where land has subdivision potential and there is not already an approved structure plan in place, that subdivision be required to minimise clearing of Protection Category Local Natural Areas. Less conventional forms of subdivision should be encouraged to achieve this, where they will result in less clearing and fragmentation of Local Natural Areas than conventional subdivision. Such subdivisions, and in particular the varying of existing minimum lot sizes, will require the approval of the WAPC.

To this end, it is recommended that a detailed local planning policy (to be adopted by the Shire and endorsed by the WAPC) be prepared to set out the types of subdivision which would be supported and in which circumstances. The policy would deal with the matters mentioned above such as retention of Local Natural Areas in Public Open Space, use of strategic firebreaks, limiting the construction of fencing through Local Natural Areas and maximising the number of lots on which a single house and associated structures can be constructed on existing cleared land, and matters such as minimum and average lot sizes. The policy could also consider whether small lot yield bonuses would be warranted to ensure subdividers are not disadvantaged for pursuing such subdivision instead of conventional subdivision.

Most existing structure plans (Local Subdivision and Infrastructure Plans) containing Local Natural Areas in this category can remain unaltered and subdivision can proceed in accordance with them, perhaps with very minor modifications to better protect Local Natural Areas. However, a very small number of existing structure plans (Local Subdivision and Infrastructure Plans) have been identified that should be required to be revised prior to subdivision, where a significant improvement in Local Natural Area protection could be achieved by redesign.

The use of conservation covenants to protect Local Natural Areas in large intact parcels is encouraged, where a covenanting agency is willing to participate in such an arrangement; however, this may not be possible in many instances. Covenanting agencies are likely to require an intact parcel of native vegetation of a particular shape and minimum size.

Development, clearing restrictions and rezoning

Outside of subdivision, clearing of Protection Category Local Natural Areas should be avoided wherever possible. Consistent with the LBS, this Local Planning Strategy recommends a very strong presumption against clearing Local Natural Areas identified in the Protection Category, with the exception of:

- the construction of a single house and associated structures (including outbuilding(s)) nearby, where there is no viable alternative location on the lot that would not result in clearing of a Local Natural Area identified for Protection; and
- unavoidable clearing necessary for approved fencing or vehicular access or required for bushfire safety purposes.

This presumption should be included as a provision in Local Planning Scheme No. 4 in relevant zones.

Where rezoning, structure planning, subdivision or development proposals would result in substantial clearing of Local Natural Areas, a fauna management plan and/or flora report should be required. The level of detail and recommendations in such report or plan should be appropriate to address the level of impact that would result from the proposal. This requirement should be applied at the earliest possible stage in the planning process and generally not at subdivision stage if subdivision is in accordance with an approved structure plan in place. It should be noted that there is a very strong presumption against rezoning requiring clearing of Local Natural Areas identified for Protection (see below). Preparation of a fauna management plan or flora report should have regard to EPA Guidance Statements 51 or 56 and may include the involvement of the Department of Environment and Conservation where appropriate.

The conservation priority mapping from the LBS should be taken into account in consideration of planning proposals.

Local Planning Scheme No. 4 should also allow for reduced boundary setbacks to be considered where this would avoid or minimise clearing or disturbance of Local Natural Areas.

This Local Planning Strategy also recommends a very strong presumption against rezoning of land containing Local Natural Areas identified for Protection where such rezoning would confer additional subdivision/development potential that would necessitate further clearing of those Local Natural Areas.

Recommendations:

- Where land containing Protection Category Local Natural Areas has subdivision potential, require structure planning and subdivision to minimise (and if possible avoid) clearing and fragmentation of Local Natural Areas
- In any subdivision, wherever possible, a large intact parcel of Protection Category Local Natural Areas should be kept within a single landholding, subject of a conservation covenant if possible, or as Public Open Space

- Encourage forms of subdivision which would maximise protection/retention of Local Natural Areas
- Prepare a local planning policy, to be adopted by the Shire and endorsed by the WAPC that sets out the types of subdivision which would be supported in order to maximise protection/retention of Local Natural Areas, the circumstances in which such subdivision would be supported, and any specific requirements applying to such subdivision
- Require redesign of structure plans where significantly improved protection/retention of Local Natural Areas could be achieved by such redesign
- Maintain, and include in Local Planning Scheme No. 4 provisions, a very strong presumption against clearing of Protection Category Local Natural Areas, with the exception of clearing required for approved subdivision works, construction of a single house and associated structures (where there is no viable alternative location on the lot that would avoid clearing such Local Natural Area), or that required for approved fencing, vehicular access or bushfire safety purposes
- Limit fencing within a Local Natural Area to fencing along lot boundaries (excluding those protected from clearing by use of strategic firebreaks) or within or around an approved building envelope or house site
- Allow for consideration of reduced boundary setbacks where this would avoid or minimise clearing or disturbance of Local Natural Areas
- Update conservation priority mapping in this Strategy to incorporate changes over time
- Maintain a very strong presumption against rezoning of land containing Protection Category Local Natural Areas where such rezoning would confer additional subdivision/development potential that would necessitate further clearing of those Local Natural Areas
- Conservation priority mapping from the Local Biodiversity Strategy should be taken into account in the consideration of any planning proposal
- Scheme Amendments, structure plans and significant subdivision or development proposals which may adversely impact on Local Natural Areas are to provide vegetation, flora and fauna reports or management plans. Such reports should be provided at the earliest possible stage in the planning process. Preparation of such documents should have regard to EPA Guidance Statements 33, 51 and 56 and matters of national environmental significance, and may include the involvement of environmental agencies where appropriate
- Encourage landowners to manage Local Natural Areas for biodiversity protection and prioritise Protection Category Local Natural Areas for any assistance

Retention Category Local Natural Areas

Local Natural Areas have been identified as falling within this category on the basis that they are:

- Priority 3 conservation priorities on land zoned General Rural under Town Planning Scheme No. 3;
- Priority 3 conservation priorities on land zoned Rural Landscape Living under Town Planning Scheme No. 3 and having an existing or proposed lot size below 2 ha; or
- within 20 metres of identified watercourses on land zoned Residential R2.5.

The Retention Category incorporates Local Natural Areas with a relatively lower conservation value, largely because of their existing fragmented nature. It also, in the case of land with subdivision potential and zoned Rural Landscape Living zoning under Town Planning Scheme No. 3 (generally equivalent to a rural residential zoning), reflects the fragmentation that the potential lot sizes would allow. However, the zoning and lot size is such that the Local Natural Areas should still be able to be retained in most circumstances. Therefore there should still be a strong presumption against clearing of Retention category Local Natural Areas except where unavoidable. Likewise, there should be a strong presumption against rezoning land containing Retention Category Local Natural Areas where the subdivision/ development potential conferred by such rezoning would necessitate clearing of those Local Natural Areas.

Generally Residential zoned land is or can be fragmented into lot sizes too small to achieve significant biodiversity protection. However, Local Natural Areas on Residential zoned land within 20 metres of a watercourse should be retained as a vegetated buffer wherever possible.

Landowners should still be encouraged to manage Retention Category Local Natural Areas for biodiversity protection.

Recommendations:

- Where land containing Retention Category Local Natural Areas has subdivision potential, structure planning and subdivision should minimise clearing and fragmentation of Local Natural Areas where possible

- Maintain, and include in Local Planning Scheme No. 4 provisions, a strong presumption against clearing Retention Category Local Natural Areas, with the exception of clearing required for approved subdivision works, construction of a single house and associated structures (where there is no viable alternative location on the lot that would avoid clearing such Local Natural Area), or that required for approved fencing, vehicular access or bushfire safety purposes
- Limit fencing within a Local Natural Area to fencing along lot boundaries (excluding those protected from clearing by use of strategic firebreaks) or within or around an approved building envelope or house site
- Allow for consideration of reduced boundary setbacks where this would avoid or minimise clearing or disturbance of Local Natural Areas
- Maintain a strong presumption against rezoning of land containing Retention Category Local Natural Areas where such rezoning would confer additional subdivision/development potential that would necessitate further clearing of those Local Natural Areas
- Scheme Amendments, structure plans and significant subdivision or development proposals which may adversely impact on Local Natural Areas are to provide vegetation, flora and fauna reports or management plans. Such reports should be provided at the earliest possible stage in the planning process. Preparation of such documents should have regard to EPA Guidance Statements 33, 51 and 56 and matters of national environmental significance, and may include the involvement of environmental agencies where appropriate
- Encourage landowners to manage Retention Category Local Natural Areas for biodiversity protection

To Be Determined/Negotiated

Local Natural Areas within five separate categories of land have been identified as requiring future negotiation and/or determination before some or all of those Local Natural Areas can be assigned to a Conservation, Protection or Retention category.

An outline of these categories follows:

- i) Land Reserved for Public Purposes and vested in an agency other than the Shire:

This category includes Local Natural Areas on land in a Public Purposes Reserve in either the Metropolitan Region Scheme or the Shire's Town Planning Scheme, and which is under the management control of another government agency.

The greatest proportion of Local Natural Areas in this category is within the Wooroloo and Acacia Prison sites, under the control of the Department of Justice. However, there are several other parcels of land in this category containing Local Natural Areas. Among these are the reserve for the Goldfields water pipeline (vested with the Water Corporation), and school sites such as Eastern Hills Senior High School and Parkerville Primary School (under control of the Department of Education and Training).

It is possible that some of these Local Natural Areas will be required for development by the relevant government agencies. However, these agencies should be encouraged to retain Local Natural Areas wherever possible. For larger parcels of Local Natural Areas, a higher level of protection could be provided if those agencies are willing to have Local Natural Areas placed under a conservation covenant, but this is a matter to be negotiated with those agencies.

Recommendations:

- Encourage Government agencies with management control over land in this category to retain and protect Local Natural Areas wherever possible
- Negotiate with relevant government agencies regarding the possible inclusion of larger parcels of Local Natural Areas in a conservation covenant, where those Local Natural Areas are not required for development

ii) Proposed open space within the Parkerville and Stoneville Townsite Developments:

Land has been zoned Special Purpose in the Shire's Town Planning Scheme No. 3 for proposed new townsite developments in Parkerville and Stoneville (these are also referred to as North Parkerville and North Stoneville). Structure plans (Local Subdivision and Infrastructure Plans) have been adopted by the Shire over each area, and the proposed urban portions of the two areas have been zoned Urban Deferred in the Metropolitan Region Scheme (MRS). At the time of writing, requests to lift the Urban Deferment are awaiting determination by the Western Australian Planning Commission (WAPC). Some subdivision has already taken place in each area to create rural residential lots on the periphery of the proposed townsites. For more information on these proposed developments refer to Sections 5.2.9 and 5.2.12 of this Strategy.

If and when the sites are zoned Urban in the MRS, residential subdivision can proceed. Large areas of Public Open Space are shown on the structure plans endorsed by the Shire, and these include some parcels of Local Natural Areas. These have been included in the overall category of “To Be Determined/Negotiated” on the basis that unless and until an Urban zoning is in place in the MRS and structure plans have been endorsed in their entirety by the WAPC and form the basis for residential subdivision, the proposed subdivision that would create the Public Open Space remains uncertain.

Should the Public Open Space be created, most of the Local Natural Areas should be able to be retained and protected. It is expected that management control of the Public Open Space would ultimately rest with the Shire. It would be open to the Shire to then amend Local Planning Scheme No. 4 to include substantial parcels of Local Natural Areas within a Local Reserve for Conservation.

Also falling within this category are areas identified on the structure plans adopted by Council for wastewater treatment facilities and associated buffers. However, it has subsequently become clear that wastewater treatment issues are most likely to be resolved by a single wastewater treatment plant for both townsites. It is not certain whether this plant would be located within either of the proposed townsites, as another location might be possible. If one or both of the sites identified for wastewater treatment facilities and buffers is no longer required for that purpose, in any review of the structure plan, as much of the Local Natural Areas on the site(s) should be retained as possible.

Recommendations:

- If and when Public Open Space is created in the proposed Parkerville and Stoneville Townsite Developments, retain as much Local Natural Area as possible and actively manage for conservation
- Substantial parcels of Local Natural Areas within the Public Open Space created to be included in a Local Reserve for Conservation under the Shire’s Local Planning Scheme No. 4
- In any review of the structure plans for the proposed townsites, seek to maximise the retention of Local Natural Areas and to achieve retention of at least as much Local Natural Area in Public Open Space as proposed in the structure plans initially adopted by Council

iii) Special Environmental Features within the Residential Zone:

This category of Local Natural Areas comprises special environmental features that warrant a level of protection notwithstanding the Residential zoning, which is generally considered inconsistent with biodiversity protection due to the vegetation removal and fragmentation resulting from small lot sizes. Special environmental features are defined by the Local Biodiversity Strategy as Declared Rare Flora, Priority Flora, Specially Protected Fauna, Priority Fauna, Threatened Ecological Communities, Priority Ecological Communities, Conservation Category wetlands and granite outcrops. However, some of these types of features do not occur within the Residential zone within the Shire of Mundaring.

Only a very small area has been identified within this category at this stage. However, more of these environmental features may be identified within the Residential zone in the future. In the case of granite outcrops, which can provide very specific habitat, there is no current data set identifying these, but identification of these should be pursued by way of rezoning or structure planning processes where new residential subdivision is proposed (eg. in vegetation, flora and fauna reports or management plans), and as a separate project for existing residential areas. Such identification should have regard to EPA Guidance Statements 33, 51 and 56 and matters of national environmental significance, and may include the involvement of environmental agencies where appropriate.

Where these environmental features occur on an existing Residential zoned lot, this cannot prevent the development of a single house on that lot. However, environmental features can be required to be taken into account in the location of a single house and associated structures.

Where residential subdivision is proposed, these environmental features should be included in Public Open Space if possible. Larger lots may also be necessary to accommodate these environmental features, so that a house and other structures can be located outside so as to avoid the feature. The overriding objective should be to ensure that no development takes place on a Local Natural Area within this category.

It should be noted that there is also separate legislative protection for Declared Rare Flora and Specially Protected Fauna, and policies in place for the protection of Priority Flora and Fauna, Threatened and Priority Ecological Communities, and Conservation Category Wetlands.

Recommendations:

- Residential development should be required to be located so as to avoid identified special environmental features (Declared Rare or Priority Flora, Specially Protected or Priority Fauna, Threatened or Priority Ecological Communities, Conservation Category Wetlands or granite outcrops) - however, this is not to prevent the construction of a single house on an existing residential lot
- Special environmental features are to be identified at the rezoning or structure planning stages and, wherever possible, are to be included within Public Open Space; if special environmental features are to be included in residential lots, a larger lot size may be required to ensure a building site on such lots avoids and allows for protection of the special environmental feature
- Where a special environmental feature has been identified in this Strategy, including any updates made to protection category mapping from time to time, all development on a lot containing that feature should require planning approval, except where sufficiently precise information exists which can show that the proposed location of the development will not affect the special environmental feature
- A project should be undertaken to identify granite outcrops in existing residential areas

iv) Special Purpose Zones other than the Parkerville and Stoneville Townsite Developments:

Local Natural Areas are found within many of the Special Purpose Zones within Town Planning Scheme No. 3, in addition to those for the proposed Parkerville and Stoneville Townsite Developments. Special Purpose Zones identify land which is to be used for specific, limited purposes, rather than being able to be used for a wide variety of purposes as is land in most other zones. In most instances, Special Purpose Zones are proposed to be continued in Local Planning Scheme No. 4, under the name of Special Use Zones.

Special Purpose Zones containing Local Natural Areas include:

- holiday accommodation and private recreation sites in Chidlow;
- a proposed eco-village in Chidlow;
- the Shire's waste transfer/disposal site in Chidlow;
- the Parkerville Childrens Home site;

- private recreation, camp and leisure centre sites in Hovea; and
- various private school sites.

It is not the intention of this Strategy to prevent land within a Special Use Zone under Local Planning Scheme No. 4 from being used for the purpose for which it has been identified, and in some instances Local Natural Areas are on land required for development. However, wherever practicable, Local Natural Areas on these sites should be retained or protected.

Recommendations:

- Specifically consider Local Natural Areas in Special Use zones in the planning application process, with a view to their retention and protection wherever practicable, by way of the location of development and by conditions of planning approval
- Negotiate with landowners with a view to including Local Natural Areas within a conservation covenant, or adopting other measures to protect and manage Local Natural Areas

- v) Proposed Local Reserve for Recreation in Local Planning Scheme No. 4, Local Centre Zone or road reserve:

There are some small Local Natural Areas that are either on land proposed to be reserved for Recreation in Local Planning Scheme No. 4, or within the Local Centre Zone.

The proposed Local Reserve for Recreation in Local Planning Scheme No. 4 is for land where the primary purpose has been identified as recreation rather than conservation (see section 4.4.5 below). This does not mean that the land is exclusively for recreation purposes, nor does the presence of pockets of Local Natural Areas prevent the use of the land for passive recreation. Local Natural Areas in such Reserves should be retained wherever possible, but some clearing of Local Natural Areas may be necessary to facilitate use of the land for recreation.

Land within the Local Centre Zone has been identified as such for the development of commercial and community uses. Where it is practicable to retain pockets of Local Natural Areas, this should be encouraged, but some clearing will be required to allow the land to be developed for the purpose for which it is zoned.

There are also some Local Natural Areas remaining within road reserves, some of which are unconstructed. These should be retained wherever possible, subject to road construction and safety and bushfire access requirements.

Recommendations:

- Local Natural Areas in Reserves for Recreation should be retained wherever not required to be cleared for recreational use; retention of pockets of Local Natural Areas should be considered as part of passive recreational use of such reserves
- Where it is practicable to retain pockets of Local Natural Areas within a Local Centre Zone, this should be encouraged
- Retain Local Natural Areas within road reserves wherever possible, subject to road construction, safety and bushfire access requirements

Local Natural Areas with limited protection/already committed to development

Local Natural Areas on land zoned Residential (with the exception of those within 20 m of watercourses on land coded R2.5) fall into this category. This is because as residential subdivision takes place, most Local Natural Areas will be lost, due to clearing for development or for protection and/or hazard reduction zones to reduce bushfire hazard for residences. Those Local Natural Areas that remain are likely to be so small and fragmented that their biodiversity values are severely diminished such that protection is not warranted. Nonetheless, retention of some native vegetation, where possible, is desirable from an aesthetic viewpoint. Protection of larger parcels of vegetation may be possible in certain circumstances, particularly in the delineation of Public Open Space.

Similarly, Local Natural Areas on land zoned Special Purpose for the proposed Parkerville and Stoneville Townsite Developments and not identified in the structure plans endorsed by Council for those proposed townsites as open space or rural residential falls into this category. It should be noted that residential subdivision in these proposed townsites cannot occur unless and until the land is changed from Urban Deferred to Urban in the Metropolitan Region Scheme. However, if and when the land is zoned Urban in the Metropolitan Region Scheme, most Local Natural Areas will be lost or severely fragmented, as outlined above for land zoned Residential. Some vegetation on some non-residential sites may be able to retained.

Local Natural Areas on land zoned Light Industry are also included in this category. As with Residential zoned land, some very small parcels of Local Natural Areas in these areas may be able to be retained.

Recommendations:

- While Local Natural Areas in this category are likely to be lost to development requirements or so severely fragmented as to lose their biodiversity values, retention of native vegetation should still be pursued where possible for aesthetic reasons
- Larger parcels of Local Natural Areas should be retained if at all possible, for example in Public Open Space in residential subdivisions; retention of pockets of Local Natural Areas should be considered as part of passive recreational use of such Public Open Space

4.2.2.3 Private Land Conservation Incentives Strategy

In June 2009, the Shire adopted a Private Land Conservation Incentives Strategy and Action Plan (see section 3.12 above). The Strategy explores various options for assisting private landowners to conserve biodiversity on their land.

The Strategy makes recommendations in three broad areas:

- a stewardship program;
- a devolved grants program; and
- linkages to existing programs.

For each of these areas, the Strategy recommends actions and proposed timeframes for these actions. These recommendations include the employment of a stewardship officer and administering a devolved grants program. The criteria for supporting grants include the level of conservation priority in the Shire's Local Biodiversity Strategy (see section 4.2.2.2 above). In adopting the Strategy and Action Plan, Council noted that the implementation of the Strategy and Action Plan is subject to future budget approvals processes or on the receipt of external funding.

Recommendations

- Implement the recommendations set out in the Action Plan in the Shire's Private Land Conservation Incentives Strategy
- Consider requirements for implementing recommendations set out in the Action Plan in the Shire's Private Land Conservation Incentives Strategy in Council budget approvals processes and seek external funding for this purpose where possible

4.2.2.4 Local Planning Scheme No. 4 provisions

In addition to the Scheme provisions relating to the Local Biodiversity Strategy, recommended in section 4.2.2.2 above, there is also the opportunity to use provisions of the proposed Local Planning Scheme No. 4 to achieve environmental protection in many other ways. The Shire's current (at the time of writing) Town Planning Scheme No. 3 contains detailed environmental provisions. It is proposed to reflect most of these in Local Planning Scheme No. 4, with some modifications to ensure they are effective and practical. Some additional provisions are proposed as well.

The following environmental provisions are proposed to be incorporated into Local Planning Scheme No. 4:

Watercourse protection

Proposed provisions will set a default setback from watercourses of 20 metres for all buildings and earthworks, but provide for the setbacks to certain watercourses be according to the recommendations of a watercourse hierarchy strategy when adopted by the Shire (see section 4.1.2 above). Discretion may be required to vary this setback on small Residential zoned lots where it renders development impracticable. Within this specified setback area, all existing native vegetation will be required to be retained. The provisions will also require the maintenance of natural water flows within watercourses, and incorporation of measures to minimise runoff and erosion into any development adjacent to watercourses.

Stormwater drainage

Proposed provisions will require the use of water sensitive urban design approaches to stormwater drainage, and that subdivision and development will be consistent with the relevant recommendations of the Commission's document, Better Urban Water Management (see section 2.6 above).

Effluent disposal

Proposed provisions will ensure the appropriate location and type of on-site effluent disposal systems to protect environmental values.

Landscaping requirements

The use of local indigenous and low water-use species in landscaping will generally be required.

Management of construction sites

A proposed provision will require construction sites to be managed so as to minimise soil erosion, sedimentation or degradation of water resources.

Dieback management

A proposed provision will allow the Shire, where a proposed development has the potential to cause the spread of *Phytophthora* dieback, to require preparation, submission, approval and implementation of a dieback management plan incorporating measures to avoid or minimise the spread of such dieback.

Vegetation protection

It is proposed to include general vegetation protection provisions in Local Planning Scheme No. 4, in addition to the provisions relating to Local Natural Areas identified in the Local Biodiversity Strategy (see section 4.2.2.2 above). This will also afford protection to individual local indigenous trees and patches of bushland too small to be recognised as Local Natural Areas. This vegetation may have lower value in the protection of biodiversity, but can still retain important aesthetic and amenity values.

The proposed provisions closely reflect those in Town Planning Scheme No. 3, as the provisions in Town Planning Scheme No. 3 enjoy a high level of community support within the Shire and are considered to have operated effectively to protect vegetation. Apart from limited exceptions, the removal of local indigenous vegetation requires the approval of the Shire and the provisions set out the criteria for assessing any such application. It should be noted that one of the exceptions from these controls relates to any vegetation required to be removed in order to comply with bushfire safety requirements in the Scheme, the *Planning for Bush Fire Protection Guidelines* or any other regulation or local laws.

Rehabilitation of land

A provision is proposed which will allow the Shire to require, where an owner or occupier of land has caused or allowed land to be cleared, managed or degraded in such a way as to cause environmental harm or to adversely affect the amenity of adjoining or nearby land by the creation of soil erosion or dust, or the alteration of surface water flows, that the land be rehabilitated.

Dams

Proposed Local Planning Scheme No. 4 includes dams as a use class on the Zoning Table so that they require planning approval. Proposed provisions set out the criteria for determining applications for dams, including a very strong presumption against the construction of dams within watercourses.

Protection of drinking water catchments

Special Control Areas are proposed to achieve statutory planning protection of the drinking water source catchments for Mundaring Weir and the Lower Helena Pumpback Dam (see section 4.2.3 below).

Recommendations

- Incorporate watercourse protection provisions in Local Planning Scheme No. 4, which recognise setback requirements in a watercourse hierarchy strategy
- Incorporate stormwater drainage provisions in Local Planning Scheme No. 4, which require the use of water sensitive urban design approaches to stormwater management and which recognise the recommendations of the Commission's Better Urban Water Management
- Incorporate effluent disposal provisions in Local Planning Scheme No. 4 to ensure protection of environmental values
- Incorporate a provision in Local Planning Scheme No. 4 generally requiring the use of local indigenous and low water-use species in landscaping
- Incorporate a provision in Local Planning Scheme No. 4 to require management of construction sites to minimise environmental damage
- Incorporate a provision in Local Planning Scheme No. 4 to require a dieback management plan where there is a risk of the spread of *Phytophthora* dieback
- Incorporate vegetation protection provisions in Local Planning Scheme No.4 that closely reflect those in Town Planning Scheme No. 3, in order to protect vegetation outside of Local Natural Areas for its aesthetic and amenity values
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to require rehabilitation of land where an owner or occupier has caused or allowed land to be cleared, managed or degraded in such a way as to cause environmental harm or to adversely affect the amenity of adjoining or nearby land by the creation of soil erosion or dust, or the alteration of surface water flows

- Include dams as a use class on the Zoning Table in Local Planning Scheme No. 4 so that dams require planning approval and incorporate provisions setting out criteria for determining applications for dams, including a very strong presumption against the construction of dams within watercourses

4.2.2.5 Bush Forever implementation

Two sites within the Shire of Mundaring are identified and protected in the State government's *Bush Forever* document (see section 2.2.4.3 above), each in Helena Valley. Because these sites were excluded from the definition of Local Natural Areas under the Shire's Local Biodiversity Strategy (see section 4.2.2.2 above), they will not enjoy protection under this Strategy and Local Planning Scheme No. 4 as Local Natural Areas.

Site 216 (Adelaide Crescent Bushland) falls largely within an existing Crown Reserve, which is reserved for Parks and Recreation under the Metropolitan Region Scheme. However, the western, and largest, significant portion of the site is located on a single privately owned property, Lot 2 (2670) Helena Valley Road. The Bush Forever site covers a little under half of that lot. The land has subdivision potential under the Shire's Town Planning Scheme No. 3, being zoned Rural Landscape Living 2 (specifying a minimum lot size of 2 ha), and has an endorsed Local Subdivision and Infrastructure Plan proposing rural residential subdivision across the site.

It is undesirable for the Bush Forever site to be fragmented into 2 ha rural residential lots, particularly given that a large portion of the lot lies outside of the Bush Forever site and is primarily cleared. However, a solution that protects the Bush Forever site, while providing appropriate subdivision and development potential over the balance portion of the site (equivalent to the total subdivision potential of the site under Town Planning Scheme No. 3) would provide a desirable outcome.

Accordingly, it is recommended that Lot 2 (2670) Helena Valley Road be zoned Rural Residential 2 in LPS 4, with a Special Design Area Special Control Area that contains appropriate provisions to ensure protection of the Bush Forever site by way of the use of 2 ha as an average rather than minimum lot size for the overall landholding, consistent with Clause 5.9.1.4 of the Scheme. These provisions should prevent subdivision of the Bush Forever site, and any development of the Bush Forever site other than appropriate incidental development associated with recreational or conservation use. The Special Design Area should be removed only when another appropriate mechanism has been put in place in the Scheme to protect the Bush Forever site. In addition, future planning for, and subdivision and development of, the balance portion of Lot 2 should seek to protect the two creeks and the vegetation outside of the Bush Forever site.

Site 215 occurs along the Helena River. The site comprises either land in public ownership and reserved for Parks and Recreation under the Metropolitan Region Scheme, or land along the Helena River and which would fall within the river's floodplain. Accordingly, there is likely to be little if any subdivision or development pressure which could adversely impact on this site.

It is appropriate for Local Planning Scheme No. 4 to require a planning approval for all development located within a Bush Forever site. As there is sufficient area outside of the Bush Forever sites on any affected private land to accommodate development, development which involves removal of indigenous vegetation within a Bush Forever site should generally be refused.

Recommendations

- Zone Lot 2 (2670) Helena Valley Road Rural Residential 2 in LPS 4, with a Special Design Area Special Control Area that contains appropriate provisions to ensure protection of the Bush Forever site by way of the use of 2 ha as an average rather than minimum lot size for the overall landholding, consistent with Clause 5.9.1.4 of the Scheme. These provisions should prevent subdivision of the Bush Forever site, and any development of the Bush Forever site other than appropriate incidental development associated with recreational or conservation use. The Special Design Area should be removed only when another appropriate mechanism has been put in place in the Scheme to protect the Bush Forever site
- Require all development within a Bush Forever site to obtain planning approval under Local Planning Scheme No. 4
- Maintain a very strong presumption against approving any development within a Bush Forever site that would involve removal of indigenous vegetation

4.2.2.6 Strategic Environmental Assessment

At the time of writing, the Strategic Environmental Assessment for the Perth and Peel Regions is being undertaken by the Australian Government and the Western Australian Government. The strategic assessment will be undertaken in accordance with section 146 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The purpose of the Strategic Assessment is to:

- significantly reduce the need for project by project assessment under the EPBC Act in the Perth and Peel region;
- deliver an effective long term and strategic response to key environmental issues in the Perth and Peel region, for example, Carnaby's Cockatoo and water quality in the Peel-Harvey estuary;
- provide greater certainty to industry as to which areas can be developed and what the obligations will be in terms of mitigation, including environmental offsets; and
- provide greater certainty in terms of long term land supply to meet the needs of a city of 3.5 million.

It is envisaged that as an outcome of the Strategic Environmental Assessment, a long term and strategic response to matters of national environmental significance and state environmental matters will be implemented, in place of a fragmented approach of developing offsets on a project by project basis.

Outputs of the process will be a draft Plan (describing proposed developments and biodiversity avoidance, mitigation and offset commitments) and a draft Impact Assessment Report (describing impacts on biodiversity and matters of national environmental significance from implementation of the Plan). These will be advertised for public comment by the Western Australian Government. After consideration of public comments, the Federal Environment Minister will endorse the Plan (with or without modifications). Once the Plan has been endorsed, the Minister may approve actions or classes of actions to be taken in accordance with the endorsed Plan. This approval is a legal step that allows development and other related activities identified in the Plan to proceed without the need for further approval from the Australian Government under the EPBC Act.

4.2.3 Drinking water catchment protection

There are two current drinking water source catchments within the Shire of Mundaring, while two other potential drinking water source catchments have previously been identified. The two existing catchments are for Mundaring Weir and the Lower Helena Pumpback Dam (the latter catchment is generally referred to as the Middle Helena Catchment); previously catchments have been identified for Jane Brook and Susannah Brook.

Mundaring Weir Catchment

Mundaring Weir, constructed on the Helena River, and the water it impounds, known as Lake C.Y. O'Connor, is a major water source for Western Australia's wheatbelt and eastern goldfields. Some areas within the Shire of Mundaring are also supplied with water from this source. A substantial portion of the catchment falls within the Shire of Mundaring, but the catchment also extends into the City of Armadale and the Shires of Beverley, Kalamunda, Northam, Wandering and York. The great majority of the catchment has been secured in public ownership; 97% of the catchment is forested.

In 2007, the Department of Water published the Mundaring Weir Catchment Area Drinking Water Source Protection Plan. This document identifies Priority Classifications for the catchment, which are cross referenced on the Land Use Compatibility Table in the Department of Water's Water Quality Protection Note *Land Use Compatibility in Public Drinking Water Areas*. The document contains a range of recommended protective strategies for addressing various land uses or activities. The document also recommends that the Catchment Area and Priority Classifications be recognised in affected local government Schemes by a Special Control Area. This Local Planning Strategy supports that recommendation.

Helena River Salinity Situation Statement

The Helena River Salinity Situation Statement (Department of Water, May 2007) is a report addressing the issue of the salinity level of inflows into Lake C.Y. O'Connor. Salinity in the inflows to Lake C.Y. O'Connor exceeded the desired potable water limit of 500 mg/L in seven of the ten years up to 2002. Significantly, the Helena River contributes 63% of the salt load despite only providing 30% of the inflow (other inflows include former Helena River tributaries such as the Darkin River which now flow directly into Lake C.Y. O'Connor).

The amount of salinity in the inflows is sensitive to even small amounts of land clearing. For example, the report estimates that, without controls on clearing and repurchases of formerly private land within the catchment, salinity levels in the inflows may now be three times the desired potable water limit (1500 mg/L). The report notes that only 3% of the catchment is cleared, and most of the salt load comes from small portions of this cleared area: within the Shire of Mundaring in the vicinity of Abercorn and Goods Roads in The Lakes, and also further upstream from small cleared areas within the Shires of Northam and York.

The report recommends various management options for addressing the issue. It is understood that, at the time of writing, the Department of Water is reviewing the Land Use Compatibility Table in its Water Quality Protection Note *Land Use Compatibility in Public Drinking Water Areas*. Should this be altered, with respect to the Mundaring Weir Catchment, to address issues raised in the Helena River Salinity Situation Statement, the incorporation of provisions giving force to that Land Use Compatibility Table in Local Planning Scheme No. 4 will mean that the Scheme is, in effect, automatically updated to reflect such alterations.

As Lake C.Y. O'Connor is such an important source of drinking water, it is appropriate that Local Planning Scheme No. 4 identify the Helena River Salinity Situation Statement as a matter to be taken into account in determining planning applications within the Mundaring Weir Catchment.

Middle Helena Catchment

The Middle Helena Catchment Area Land Use and Water Management Strategy and its recommendations are outlined in section 2.2.3.5 above. The document recommends that the Catchment Area and Priority Classifications be recognised in the Shire of Kalamunda and Shire of Mundaring Town Planning Schemes by a Special Control Area. This Local Planning Strategy supports that recommendation. A set of draft Special Control Area provisions has been developed and included in the Strategy and these are proposed to be reflected in Local Planning Scheme No. 4.

A number of variations to the Land Use Compatibility Table in the Department of Water's Water Quality Protection Note *Land Use Compatibility in Public Drinking Water Areas* are proposed, specific to the Middle Helena Catchment (see section 2.2.3.5 above). These are as follows:

- in the P2 area, the land use "Restaurants (including cafes and tea rooms)" is to be compatible with conditions, rather than incompatible;

- in the P2 area, the land use “Exhibition Centre” is to be compatible with conditions, rather than incompatible; and
- in the land containing the Mundaring Recreation Oval and Golf Course (Reserve 7045), Mundaring Weir Road, Mundaring, the land uses “Irrigated golf courses or recreational parks” and “Public swimming pools/aquatic centres” are to be compatible with conditions, rather than incompatible.

Jane Brook, Susannah Brook and Wooroloo Brook Catchments

Jane Brook, Susannah Brook and Wooroloo Brook were previously identified and designated Priority 3 proposed water catchment areas for public water supply. The Priority 3 status recognised that if these catchments were to be gazetted and developed for water supply sources, then that use would need to co-exist with other existing land uses such as residential, commercial and light industrial activities. These three catchments, particularly Jane Brook and Wooroloo Brook, affect a large portion of the Shire of Mundaring.

However, these catchments are no longer considered viable options for public water supply. This is made clear in the Water Corporation’s *Water Forever: Towards Climate Resilience* (October 2009). In that document, no new surface water sources have been included in a portfolio of future options for Perth’s water supplies. The document notes that the drying climate renders surface water for public water supply highly unreliable and that most viable sites near Perth have already been developed.

The Department of Water has also confirmed that the Jane Brook, Susannah Brook and Wooroloo Brook catchments are no longer being considered for future public drinking water supplies because of salinity issues, overall small volumes of water, encroaching urbanisation in the catchments and the high cost of pumpback to Mundaring Weir.

Recommendations

- Incorporate the Priority Classifications for the Mundaring Weir Catchment, as identified in the Department of Water’s Mundaring Weir Catchment Area Drinking Water Source Protection Plan, into Local Planning Scheme No. 4 as a Special Control Area
- Incorporate Special Control Area provisions into Local Planning Scheme No. 4, relating to the Mundaring Weir Catchment, giving effect under the Scheme to the Land Use Compatibility Table in the Department of Water’s Water Quality Protection Note *Land Use Compatibility in Public Drinking Water Areas*, and allowing applications for planning approval to be referred to the Department of Water for comment
- Include the Helena River Salinity Situation Statement among matters to be taken into account in determining applications for planning approval within the Mundaring Weir Catchment

- Incorporate the Priority Classifications for the Middle Helena Catchment, as identified in the Middle Helena Catchment Area Land Use and Water Management Strategy, into Local Planning Scheme No. 4 as a Special Control Area
- Incorporate Special Control Area provisions into Local Planning Scheme No. 4, relating to the Middle Helena Catchment, giving effect under the Scheme to the Land Use Compatibility Table in the Department of Water's Water Quality Protection Note *Land Use Compatibility in Public Drinking Water Areas*, but with agreed variations to that table specific to the Middle Helena Catchment, and allowing applications for planning approval to be referred to the Department of Water for comment
- Incorporate other Special Control Area provisions into Local Planning Scheme No. 4, relating to the Middle Helena Catchment, reflecting the finalised version of the Middle Helena Catchment Area Land Use and Water Management Strategy
- Note that the Jane Brook, Susannah Brook and Wooroloo Brook Catchments are no longer under consideration as possible future public drinking water sources and that this is therefore no longer a matter to be taken into account in determining planning proposals within those catchments

4.3 Population and housing

4.3.1 Population

2011 Census data and more recent estimation

Population data in this section is from the Australian Bureau Statistics (ABS). There are several ways of estimating population. Three of the most relevant are:

- Enumerated Population (by location on census night)
- Place of Usual Residence Population (PURP - from census data, based on where a person usually lives)
- Estimated Resident Population (ERP)

ERP is calculated by including people temporarily overseas and adjusting for people who did not complete a census form and for anyone who was double counted.

At the time of writing, the most recent ERP for the Shire of Mundaring was **39,129** (at 30 June 2012).

ERP (incorporating recent revisions by the ABS) for the Shire at 30 June 2011 was **38,364**.

PURP for the Shire at the 2011 Census was **36,529**.

Changes in population over time

The following shows the changes in the Shire's population over time, using the different methods of estimating population. Data is not available for all of these methods over the same period of time.

ERP by end of financial year (30 June):

Year	ERP	% growth for year
2012	39,129	2.0
2011	38,364	1.3
2010	37,883	1.1
2009	37,466	0.3
2008	37,361	0.8
2007	37,051	1.2
2006	36,628	0.6
2005	36,412	1.1
2004	36,031	0.4
2003	35,886	0.7
2002	35,646	0.9
2001	35,334	-
1996	33,262	-

Place of usual residence (from census):

2011	36,529
2006	35,092
2001	33,281

Enumerated Count:

Year	Count	% growth pa over previous 5 years
2011	35,656	0.7
2006	34,284	0.5
2001	33,412	1.1
1996	31,613	1.5
1991	29,280	2.5
1986	25,860	4.5
1981	20,786	4.6
1976	16,619	6.6
1971	12,100	6.3
1966	8,925	-

It is clear from this information that the rate of population growth within the Shire has been steadily declining over recent decades, albeit with a recent increase from 2010. The Shire's rate of population growth since 2001 has been well below the rate of growth of the Perth Metropolitan Region and Western Australia as a whole.

Population by locality

The following table shows the breakdown of population by suburb/locality from the 2011 census.

Suburb/locality	Population
Midvale*	1278
Swan View*	5142
Greenmount	2475
Bellevue*	254
Helena Valley	3008
Boya	636
Darlington	3532
Glen Forrest	2882
Mahogany Creek	867
Hovea	640
Parkerville	2228
Mundaring	3013
Stoneville	2455
Sawyers Valley	1023
Mount Helena	3142
Chidlow	1624
Beechina	172
Wooroloo**	2110
Bailup	64

* Note: Shire of Mundaring portion of suburb only

** Note: This total includes, and substantially comprises, prisoners.

Note: Population for The Lakes was not calculated by Informed Decisions.

4.3.2 Population profile

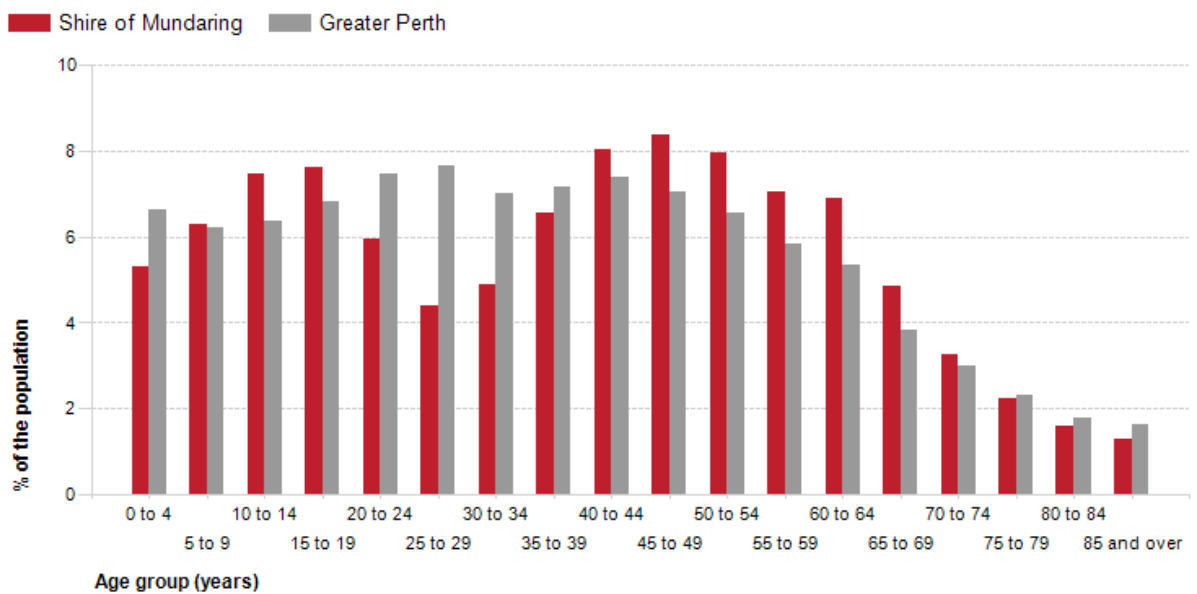
This section provides profile information about the population of the Shire of Mundaring. The data in this section is taken from the 2011 census and is based on the Place of Usual Residence Population (PURP).

Age structure

The Shire of Mundaring's age structure at the 2011 census is shown at Figure 27 below. The Shire has a higher proportion of people in the 5 to 19 and 40 to 74 age groups than the Perth Metropolitan Region as a whole. Conversely, the Shire's population in the 20 to 39 age groups is significantly lower proportionally than the Perth Metropolitan Region.

The Shire has an aging population. For example, from 2001 to 2011, the proportion of Shire residents aged 60 to 69 grew from 7.3% to 11.7%, whereas the proportion of residents aged 60 to 69 in the Perth Metropolitan Region grew only from 7.1% to 9.2%.

Age structure - five year age groups, 2011



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Usual residence data)
 Compiled and presented in profile.id by .id, the population experts.



Figure 277: Age structure, Shire of Mundaring, 2011 census Strategy
 (Source: Informed Decisions, based on ABS data)

Ethnicity/Language

The proportion of Shire residents identifying as indigenous (Aboriginal or Torres Strait Islander) is 2.7%, compared to 1.6% for the Perth Metropolitan Region and 3.1% for Western Australia as a whole.

The Shire of Mundaring has a substantial proportion of its population that was born overseas and has a diversity of languages spoken other than English. However, compared to the Perth Metropolitan Region as a whole, the Shire has a lower proportion of people born overseas, a lower proportion of residents from a non-English speaking background and a lower proportion of recent migrants to Australia.

The proportion of the Shire's residents born overseas is only 24.4%, compared to 34.4% for the Perth Metropolitan Region (and 31.3% for the Eastern Metropolitan Region). As with Perth as a whole, by far the largest country of birth other than Australia is the United Kingdom: 12.5% of the Shire's residents were born in the United Kingdom (representing 51% of all those born overseas), whereas 11.4% of residents of the Perth Metropolitan Region were born in the United Kingdom (representing 33% of all those born overseas). The next largest country of birth is New Zealand; 2.9% of the Shire's residents were born in New Zealand, compared to 3.1% for the Perth Metropolitan Region.

Only 7.4% of the Shire's residents were born in countries classed as a non-English speaking background*, compared to 16.7% for the Perth Metropolitan Region.

* Note: Non-English speaking background is defined by the ABS as any country of birthplace other than Canada, Ireland, New Zealand, South Africa, the United Kingdom or the United States)

ABS data also indicates that, for residents born overseas, the Shire has a lower proportion of recent migrants compared to the Perth Metropolitan Region. In answers to the question on the year of arrival in Australia, there is a lower proportion of Shire residents than residents of the Perth Metropolitan Region for all categories from 1981 onwards.

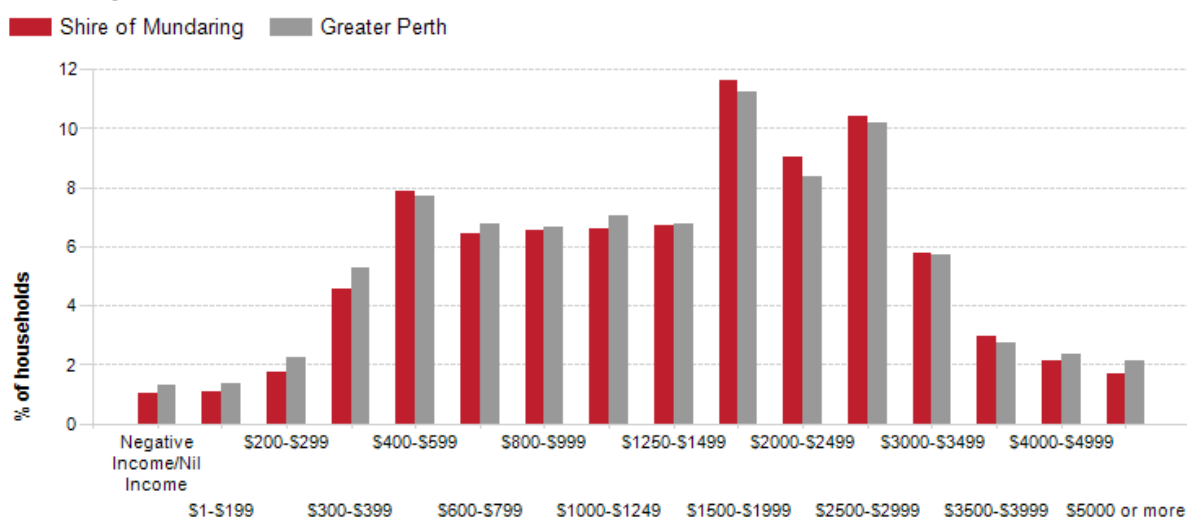
The proportion of Shire residents who speak a language other than English at home (5.0%) is lower than for the Perth Metropolitan Region (16.7%). The proportion of Shire residents who do not speak English well or at all (0.4%) is much lower than for the Perth Metropolitan Region (2.4%).

Italian is the most common language other than English spoken at home by Shire residents, but only by 1.0% of residents (compared to 1.6% for the Perth Metropolitan Region).

Income

Weekly household income in the Shire of Mundaring differs from the Perth Metropolitan Region as a whole, though not substantially as shown in Figure 28 below. The Shire has a lower proportion of households with weekly income in almost every category below \$1500 and a higher proportion of households with weekly income between \$1500 and \$3999. However, the Shire has a slightly lower proportion of households with very high weekly incomes (\$4000 or over).

Weekly household income, 2011



Weekly income

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile.id by .id, the population experts.



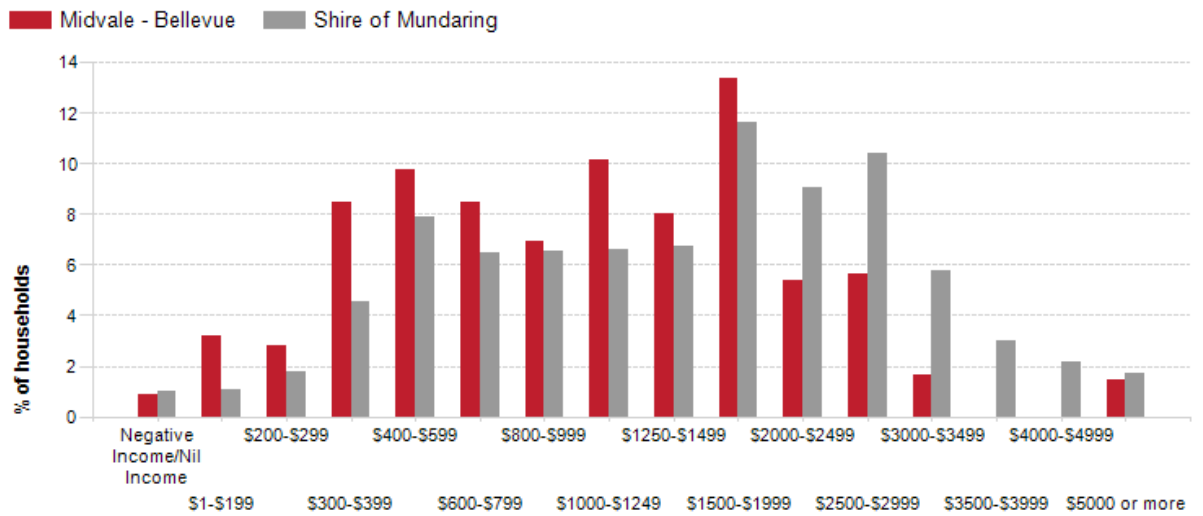
Figure 288: Weekly household income, Shire of Mundaring, 2011 census
(source: Informed Decisions, based on ABS data)

Weekly household income varies considerably across the Shire, however, as can be seen from the table and from Figures 29 and 30 below. Midvale and Bellevue (localities for which data has been combined by the Shire’s demographers for purposes of projections) have the highest proportion of lower income households while Darlington has the highest proportion of higher income households.

WEEKLY HOUSEHOLD INCOMES BY AREA		
Area	\$0 - \$1499	\$1500 or above
Midvale/Bellevue	58.7%	27.7%
Perth Metro Region	45.1%	42.8%
Shire of Mundaring	42.6%	43.7%
Darlington	34.2%	51.4%

Note: The figures for weekly income do not add up to 100% because they exclude those households for whom income was not stated in the census data.

Weekly household income, 2011



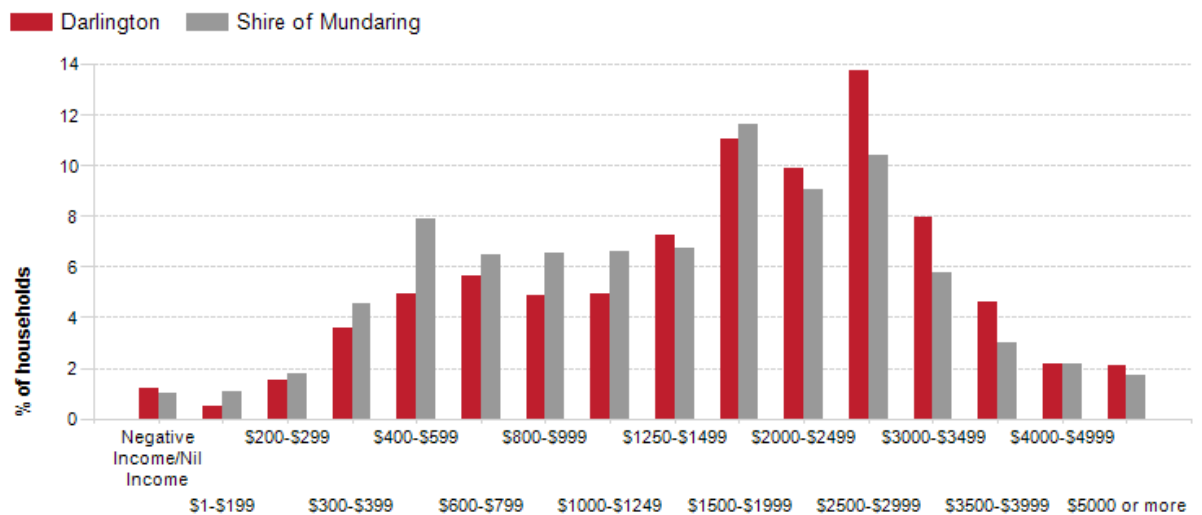
Weekly income

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile.id by .id, the population experts.



Figure 299: Weekly household income, Midvale and Bellevue, 2011 census
(source: Informed Decisions, based on ABS data)

Weekly household income, 2011



Weekly income

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile.id by .id, the population experts.



Figure 300: Weekly household income, Darlington, 2011 census
(source: Informed Decisions, based on ABS data)

Education

The proportion of Shire residents aged 15 or over whose highest educational qualification is a Bachelor or higher Degree (15.1%) is lower than that for the Perth Metropolitan Region as a whole (19.6%). Conversely, the Shire has a slightly higher proportion of residents aged 15 or over whose highest qualification is vocational (21.0%) than the Perth Metropolitan Region (18.6%).

The proportion of Shire residents aged 15 or over whose highest educational qualification is a Bachelor or higher Degree varies widely across the Shire. Darlington has by far the highest proportion (32.5%), followed by Glen Forrest (22.0%). Midvale and Bellevue have the lowest proportion (4.2%), followed by the Outer Eastern Region* (7.9%).

* Note: The Outer Eastern Region comprises Sawyers Valley, Chidlow, Wooroloo, Beechina, The Lakes and Bailup, localities for which data has been combined by the Shire's demographers for purposes of projections.

The proportion of Shire residents (in 2011) receiving primary or secondary education was higher than that for the Perth Metropolitan Region as a whole (8.7% compared to 8.2% for primary, 6.6% compared to 5.7% for secondary), reflecting the higher proportion of residents in those age brackets. The proportion of Shire residents attending university (3.1%) was much lower than for the Perth Metropolitan Region (4.9%), possibly reflecting the distance to universities and lack of affordable housing options as much as educational aspirations.

Socioeconomic disadvantage

From census data, the ABS has produced an index of relative socioeconomic disadvantage for statistical areas. The index is derived from attributes such as low income, low educational attainment, high unemployment, jobs in relatively unskilled occupations and variables that reflect disadvantage rather than measuring specific aspects of disadvantage. Low scores indicate higher disadvantage, while high scores indicate lesser disadvantage. The scores can be compared across different areas to measure relative levels of disadvantage.

The Shire of Mundaring as a whole has a lower level of disadvantage than a majority of other local governments within the Perth Metropolitan Region, being ranked 17th out of 30 local governments, as shown in the Table below. The Shire of Mundaring has the lowest level of disadvantage in the Eastern Metropolitan Region.

INDEX OF RELATIVE SOCIO-ECONOMIC DISADVANTAGE LOCAL GOVERNMENTS WITHIN PERTH METROPOLITAN REGION – 2011	
Local Government	Score
Town of Kwinana	968.1
City of Belmont	986.8
City of Armadale	996.1
City of Gosnells	1004.1
Town of Bassendean	1004.3
City of Fremantle	1008.8
City of Swan	1010.6
City of Rockingham	1012.0
City of Bayswater	1020.3
Town of Victoria Park	1020.6
City of Wanneroo	1025.5
City of Stirling	1028.3
City of Canning	1034.2
City of Cockburn	1034.6
Shire of Serpentine–Jarrahdale	1047.2
Shire of Kalamunda	1050.3
Shire of Mundaring	1052.4
Town of Vincent	1058.5
City of Perth	1062.7
City of South Perth	1065.0
Town of Mosman Park	1065.7
City of Melville	1076.6
City of Subiaco	1076.9
City of Joondalup	1082.4
Town of East Fremantle	1088.5
Town of Claremont	1095.3
City of Nedlands	1115.4
Town of Cottesloe	1116.3
Town of Cambridge	1117.2
Shire of Peppermint Grove	1126.5

Levels of disadvantage vary considerably within the Shire. The table below shows the relative levels of disadvantage in different localities within the Shire, using the groupings of localities used by the Shire's demographers, Informed Decisions. Midvale–Bellevue has by far the highest level of disadvantage, with Darlington having the least disadvantage.

INDEX OF RELATIVE SOCIO-ECONOMIC DISADVANTAGE WITHIN SHIRE OF MUNDARING – 2011	
Area	Score
Midvale–Bellevue	939
Swan View	1008
Outer Eastern Region	1035
Greenmount	1039
Mount Helena	1045
Shire of Mundaring	1052
Mundaring–Mahogany Creek	1058
Helena Valley–Boya	1075
Glen Forrest	1077
Parkerville–Stoneville–Hovea	1082
Darlington	1105

4.3.3 Population projections

Population projections for Shire of Mundaring

Western Australian Planning Commission projections

The Western Australian Planning Commission's *Western Australia Tomorrow – Forecast Summary for Local Government Areas* (July 2012) is a document containing population projections for Western Australia's individual local governments. The document contains projections for five different growth scenarios (referred to as Bands A to E).

Using the lowest, medium and highest projections (Bands A, C and E respectively), its projected population for the Shire of Mundaring is as follows:

Year	Population (Low)	Population (Med)	Population (High)
2006	36700	36700	36700
2011	37600	40100	42700
2016	38900	42200	45900
2021	39900	43700	48000
2026	40900	45300	50200

It is noted that even the lowest scenario (Band A) projects higher populations than the 2005 *Western Australia Today* document.

The actual ERP calculated by the ABS for 2011 for the Shire (38,364) falls between the low and medium projections, but this has grown to 39.129 by 2012.

The Commission's North Eastern Hills Settlement Pattern Plan (2002) forecast the growth for eastern parts of the Shire of Mundaring alone (from Hovea, Parkerville and Mahogany Creek eastward) from 13,106 in 2002 to 26,658 in 2026, a total growth of 13,552. This is difficult to reconcile with Western Australia Tomorrow's forecast of a total growth for the Shire as a whole from 2006 to 2026 of between 4,200 and 13,500. The forecast population growth for Wooroloo in the North Eastern Hills Settlement Pattern Plan appears overly optimistic (see section 5.2.16 below).

Directions 2031 (see section 2.2.3.6 above) provides a 2031 population forecast for the north-east sub-region (the City of Swan and Shires of Mundaring and Kalamunda) as a whole. The document forecasts the region's population will grow from 189,000 in 2008 to 258,000 in 2031. If the Shire of Mundaring's proportion of the sub-region's population were to remain constant, this would result in the Shire's 2031 population being 51,000.

Shire of Mundaring projections

The Shire's current population projections, provided by Informed Decisions (see below for background and assumptions), are shown in the following table. All projections are Estimated Resident Population (ERP).

Year	Population (ERP)
2011	38,455
2016	40,734
2021	44,230
2026	47,751
2031	51,123

The projected population to 2021 (44,230) is not greatly dissimilar to the medium growth scenario projection in Western Australia Tomorrow (43,700), while the 2031 forecast (51,123) is similar to the Directions 2031 forecast (51,000) if it is assumed that the Shire of Mundaring maintains its current proportion of the sub-region's population.

The average household size across the Shire is forecast to drop marginally from 2.68 persons in 2011 to 2.64 persons in 2031.

Population projections - assumptions and background

The population projections for the Shire of Mundaring have been prepared by Informed Decisions, the Shire's demographers. Informed Decisions is a company of demographers, housing analysts, forecasts and census data experts that provides demography services to over 190 local governments throughout Australia.

Figure 31 shows the modelling process used by the Shire's demographers to prepare the Shire's population projections.

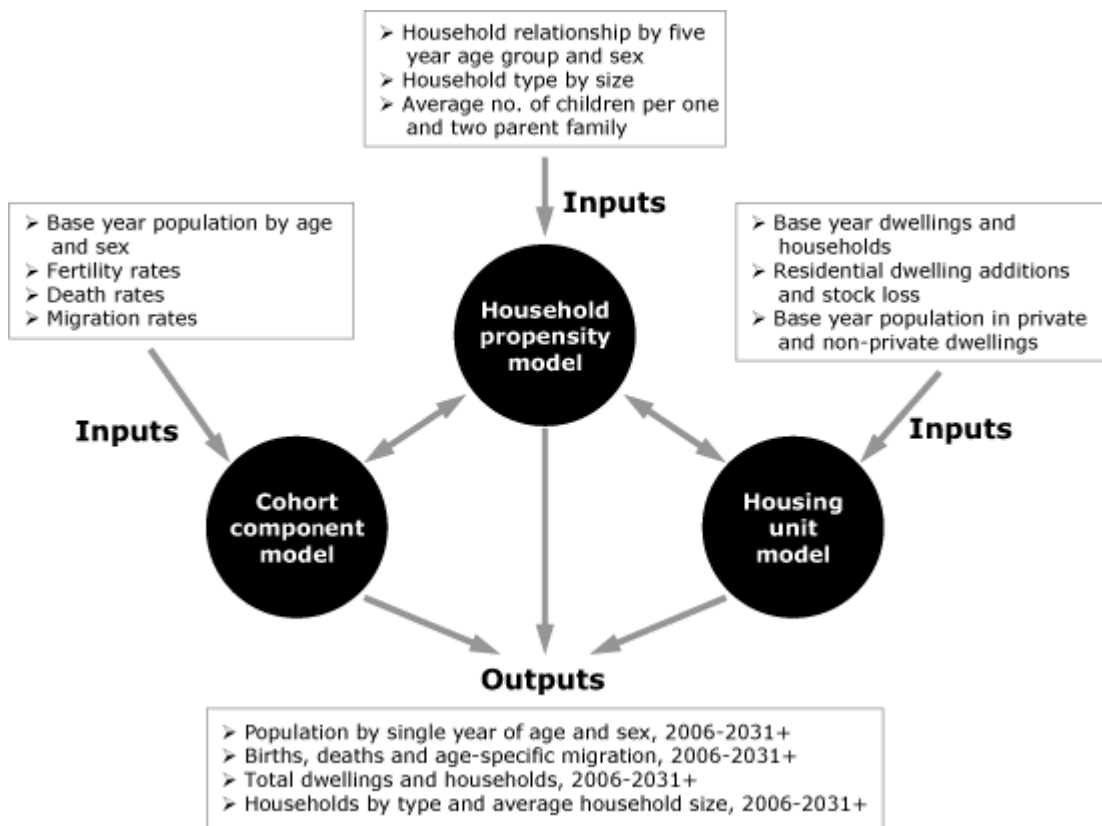


Figure 311: Informed Decisions' modelling process for housing and population projections

(source: Informed Decisions)

A combination of three separate statistical models (cohort component model, housing unit model and household propensity model) was used. Inputs into the models, including various assumptions, included current age structure, additional dwellings (and loss of dwellings), fertility rates, death rates, use of non-private dwellings (including a predicted increase in prison population), household structure and migration.

The availability of land for development was incorporated into the calculations by Informed Decisions. In particular, it has been assumed that residential development will proceed in the North Parkerville and North Stoneville ("Parkerville Townsite" and "Stoneville Townsite") developments (see sections 5.2.9 and 5.2.12). If these do not proceed during the life of this Strategy, this will impact on the Shire's population, having important implications in many areas. It cannot be assumed that prospective residents who would have moved into these developments would automatically move to another location in the Shire of Mundaring.

It will be necessary for the assumptions to be reviewed over time and the projections to be adjusted as necessary should any of the assumptions change significantly.

Population projections – by locality

Population projections, prepared by Informed Decisions for various localities in the Shire, are set out in the table below. For adequate statistical significance, some localities with smaller populations have been grouped. As with all population projections in this section, these are ERP projections. In Glen Forrest, where further subdivision and infill development opportunities are limited, population is expected to decline marginally between 2006 and 2021, due to a decreasing household size. Residential infill in upcoded areas accounts for projected growth in Midvale and Bellevue, Swan View and Greenmount. The strongest growth is forecast in Stoneville, Parkerville and Hovea, and Helena Valley and Boya, reflecting the location of anticipated additional residential development. Strong growth is also forecast in the Outer Eastern Region (comprising Chidlow, Wooroloo and surrounding rural localities), although around a third of this growth is anticipated to come from increased prison populations. It should be noted that the forecast growth for the Outer Eastern Region is far below that forecast in the North Eastern Hills Settlement Pattern Plan.

SHIRE OF MUNDARING POPULATION PROJECTIONS BY LOCALITY					
Locality	2011	2016	2021	2026	2031
Midvale and Bellevue	1608	1636	1737	1874	2039
Swan View	5437	5520	5709	5849	5980
Greenmount	2623	2851	3091	3290	3476
Helena Valley and Boya	3829	4281	4785	5055	4983
Darlington	3699	3702	3749	3823	3879
Glen Forrest	3021	2966	2972	3020	3053
Parkerville and Hovea	3003	3491	4324	5224	5971
Mundaring and Mahogany Creek	4065	4324	4480	4704	5007
Stoneville	2567	3003	3837	4710	5814
Mount Helena	3254	3323	3547	3877	4263
Outer Eastern Region* **	5349	5637	5999	6325	6658
TOTAL	38455	40734	44230	47751	51123

* Note: Comprises Chidlow, Wooroloo, Beechina, The Lakes and Bailup

** Note: A large component of the population growth for the Outer Eastern Region is increased prison population

It will be necessary for the assumptions used in these projections to be reviewed over time and for the projections to be adjusted as necessary should any of the assumptions change significantly.

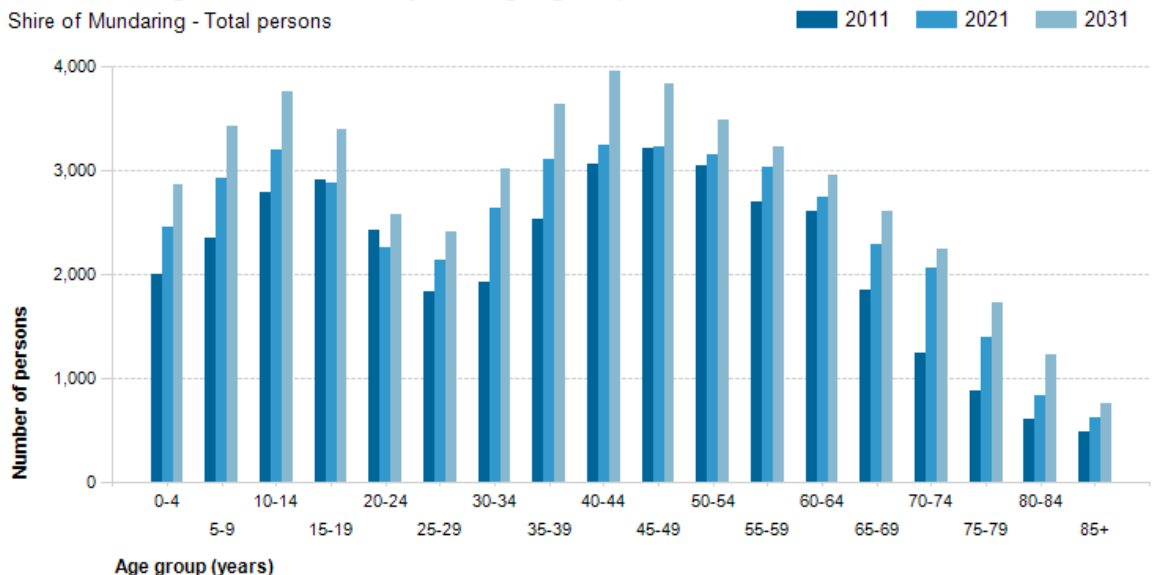
Population projections – age structure

The population projections prepared for the Shire by Informed Decisions include the forecast age structure. Figures 32 and 33 show the forecast change in age structure, in terms of absolute numbers in each age category. It can be seen that, with the forecast population growth of the Shire, there is an absolute increase forecast in every age category for both the 2011 – 2021 and 2021 – 2031 periods. However, the increases are quite pronounced in some categories, particularly the 60 to 84 age group. The 35 to 49 age group is also forecast to grow substantially, particularly in the 2021 – 2031 period.

Notable forecast changes in the proportion of Shire residents in different age categories include:

- The increase in the Shire’s aged population: Between 2011 and 2031, the number of Shire residents in the 65 to 79 age category is expected to increase substantially, from 3950 to 6579. The proportion of Shire residents aged 60 and over is forecast to increase from 19.9% in 2011 to 22.5% in 2021.
- The increase in the number of Shire residents aged 80 and over: The proportion of residents in this category will increase from 2.8% in 2011, to 3.3% in 2021 and to 3.8% in 2031, with the number nearly doubling by 2031, from 1094 to 1977.

Forecast age structure - 5 year age groups



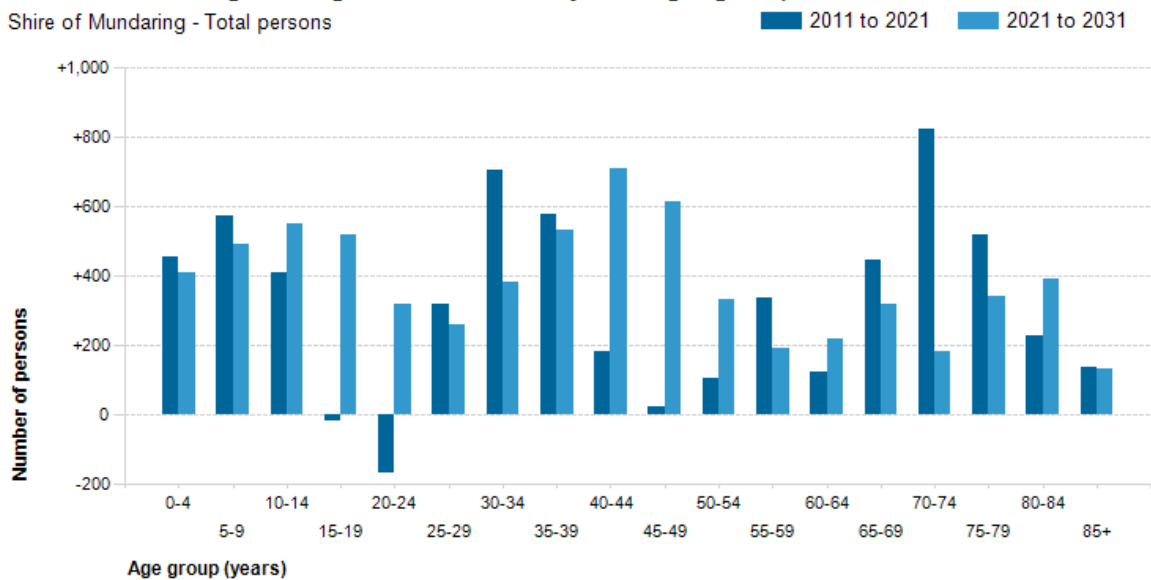
Population and household forecasts, 2011 to 2031, prepared by .id/ the population experts, February 2009.



Figure 322: Forecast Shire of Mundaring age structure, 2021 and 2031
(source: Informed Decisions)

Forecast change in age structure - 5 year age groups

Shire of Mundaring - Total persons



Population and household forecasts, 2011 to 2031, prepared by .id the population experts, February 2009.



Figure 333: Forecast changes in Shire of Mundaring age structure, 2011 - 2021 - 2031
(source: Informed Decisions)

These changes will have some impact on service delivery and housing needs within the Shire, for example generating the need for additional aged care facilities within the Shire, as well as additional aged housing generally. Accordingly, the Shire should accept and use the population projections in this section of the Strategy, and incorporating any adjustments made to the projections over time, as the basis for strategic planning for the Shire, and planning for service delivery and housing needs.

Recommendations

- Accept and use the population projections in this section of the Strategy as the basis for strategic planning for the Shire
- Review the population projections in this Strategy over time and if the assumptions used in preparing the projections change, adjust the projections accordingly

4.3.4 Housing profile

In the 2011 census 13,835 dwellings were counted in the Shire of Mundaring. Of these, 12,958 were occupied.

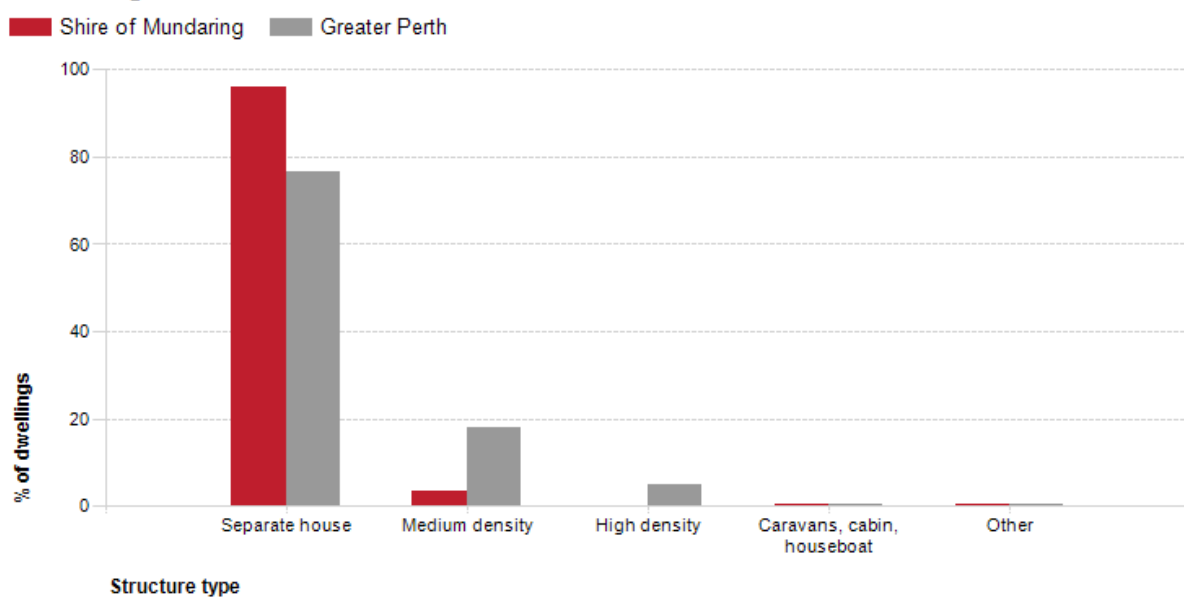
Figure 34 shows housing types throughout the Shire. Only 3.4% of dwellings in the Shire (476 in total) were medium density dwellings, and there were no high density dwellings (flats and apartments in blocks of three or more storeys) at all. This compares to figures of 17.9% for medium density dwellings and 4.8% for high density dwellings in the Perth Metropolitan Region as a whole. It can be seen that the Shire comprises a very low-density housing stock, reflecting its location on the periphery of the metropolitan area and also constraints notably lack of sewerage in most of the Shire. Throughout the hills portion of the Shire, most houses are on lots of 2000 m² or greater, further reducing housing choice. While most residents of the Shire have chosen to live here because of the lower density of development or proximity to the natural environment, the predominance of separate houses on large lots arguably caters poorly to the increasing aged population of the Shire (see section 4.3.3 above), or to couples without children and lone households that together comprise almost half of all households (see below).

The proportion of medium density housing is highest in localities with reticulated sewerage and/or aged housing developments: Midvale-Bellevue (13%), Swan View (6%) and Mundaring-Mahogany Creek (6%). In many localities, medium density housing (generally comprising aged housing) comprises less than 1% of the housing stock.

In terms of household type, the Shire has a lower proportion of lone (single-person) households (17.7%) than the Perth Metropolitan Region as a whole (22.4%). Family households (including couples without children) comprise 76.3% of households within the Shire, compared to 68.6% in the Perth Metropolitan Region. 30.2% of the Shire's households comprise couples without children.

The Shire has a higher level of home ownership and much lower level of rental properties than the Perth Metropolitan Region as a whole. 80.3% of households in the Shire are either owned or being purchased, compared with 66.1% for the Perth Metropolitan Region. Only 12.9% of households in the Shire were being rented, just under half of the proportion in the Perth Metropolitan Region (26.7%). These figures do not add to 100% because for some households tenure was not stated, or other tenures applied.

Dwelling structure, 2011



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
 Compiled and presented in profile.id by .id, the population experts.

.id
 the population experts

Figure 344: Dwelling structure in Shire of Mundaring, 2011 census
 (source: Informed Decisions)

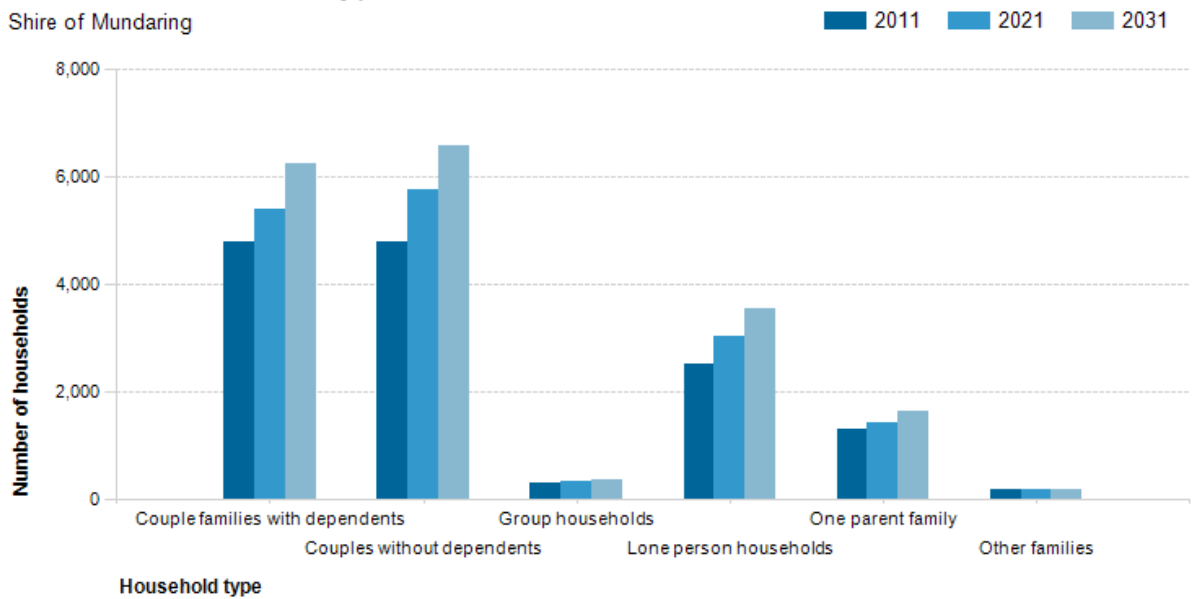
4.3.5 Housing requirements

The population projections prepared for the Shire by Informed Decisions assume that the average household size for the Shire will decline marginally from 2.68 people per dwelling in 2011 to 2.64 people per dwelling in 2021, but that this will remain at 2.64 people per dwelling in 2031. Given the population projections for the Shire, this means that an additional 4729 dwellings will be required in the Shire over the period 2011 to 2031.

Projected changes in household type in the Shire are shown in Figure 35 below. These have some implications for the suitability of the Shire's housing stock to meet the requirements of the Shire's residents. For example, it is forecast that the Shire will gain 1023 additional lone households between 2011 and 2031. In the same period the number of households comprising couples without dependents will increase by 1781. Combined, these two household types will comprise 54.5% of the additional housing required between 2011 and 2031. This will necessitate an increase in the supply of medium density dwellings to provide greater housing choice to residents who may not need or want a separated house on a large lot.

Forecast household types

Shire of Mundaring



Population and household forecasts, 2011 to 2031, prepared by .id the population experts, February 2009.

.id
the population experts

Figure 355: Forecast changes in Shire of Mundaring household type, 2011 - 2021 - 2031

(source: Informed Decisions)

Specific housing requirements relating to aged persons' dwellings are considered in section 4.3.6 below.

Providing medium density housing where possible will improve the range of housing options and may go some way to addressing the changing housing needs of Shire residents. Such housing may be suitable for some lone households and couples without children.

Medium density housing can only be developed where reticulated sewerage is available, other than aged persons' housing in certain circumstances. This limits new medium density housing to the coastal plain suburbs, North Parkerville and North Stoneville ("Parkerville Townsite" and "Stoneville Townsite") developments should sewerage issues be resolved and residential development proceed, and possibly the Mundaring Town Centre, although residential use has to be weighed against other commercial and community uses given the constraints on effluent disposal capacity in Mundaring. To provide greater housing choice, medium density development should be encouraged by setting density coding appropriately in new development areas, and by upcoding of areas in close proximity to shops, schools, public transport and other facilities and where good redevelopment opportunities exist.

Housing affordability has also become an important issue given rises in house prices and rents in Western Australia over recent years. Where reticulated sewerage is unavailable, the options for the Shire to significantly improve housing affordability are limited. The definition of Ancillary Dwelling (formerly ancillary accommodation) in the Residential Design Codes has since August 2013 been extended to include non-family members, and this will be reflected in the Residential zone in Local Planning Scheme No. 4. Where reticulated sewerage is available, encouraging medium density housing will provide greater housing choice and may perhaps help address housing affordability concerns.

Lifestyle villages are another form of development which, while delivering non-standard housing and raising issues of permeability and community cohesion by providing facilities that are closed to public access, do offer more affordable housing options for people in older age brackets. Typically lifestyle villages is exclusive to a certain age bracket; rather than the 55 and over age bracket generally applying to aged housing under the planning system, some lifestyle villages allow those 45 and above. Under definitions proposed in Local Planning Scheme No. 4, lifestyle villages as generally developed elsewhere in Western Australia would fall under the use class of Caravan Park or Park Home Park. It is proposed that these use classes be prohibited in all zones on the Zoning Table, but that lifestyle village proposals be considered on their merits by way of individual rezoning proposals, with sites to be zoned Special Use. Due to the closed, impermeable nature of lifestyle villages, they should be located on the periphery of residential areas.

For families and other households wishing to live in low density residential housing or in rural living developments, Local Planning Scheme No. 4 will continue to provide opportunities for new dwellings in these forms of development, but with an emphasis on locations nearer services and facilities.

Recommendations

- Encourage medium density housing development where reticulated sewerage is available, to provide greater housing choice and better meet the housing requirements of the Shire's residents over time, by setting appropriate residential densities in greenfield developments and by increasing residential densities in existing residential areas in close proximity to shops, schools, public transport and other facilities and where good redevelopment opportunities exist
- Consider lifestyle villages on their merits by way of individual rezoning proposals, with sites to be zoned Special Use
- Generally only support lifestyle villages where located on the periphery of residential areas

4.3.6 Aged or dependent persons' housing

The issue of providing aged or dependent persons' housing to cater for the needs of the Shire's aging population has been recognised and addressed in the Shire's 2006 report, *Housing Options: Seniors and People with Disabilities* (see section 3.8 above).

That report, based on 2001 Census statistics, concluded that:

- most seniors live in separate dwellings (ranging from 95.8% of seniors aged 55 to 64 to 72.7% of those over 85 years of age);
- over a quarter of seniors are one-person households, with this figure rising to over two thirds for people over 85 years of age;
- nearly three quarters of seniors in one-persons households occupy separate houses;
- it is estimated that over 5000 Shire residents are likely to have some core activity restrictions, with over 2000 residents with severe or profound core activity restrictions living in their own homes.

The report made several recommendations which were adopted by Council. These recommendations, and an analysis and response to each are as follows:

Recommendation 1: Officers investigate the opportunities for either upgrading the existing capacity of sewer in areas that are suitable for smaller lots and medium density development and/or utilising the provisions of the Metropolitan Sewer Policy to identify strategic opportunities for facilitating the provision of housing for seniors and for people with disabilities in well-located areas throughout the Shire.

Response: With respect to the metropolitan sewerage system, the infill sewerage program has been suspended, so any extensions to reticulated sewerage must be funded by proponents. In the Mundaring Town Centre, the additional effluent disposal capacity that will be generated by the currently planned expansion of the Mundaring Wastewater Treatment Plant may be used to develop more aged housing. However, this additional effluent disposal capacity is limited and aged housing opportunities must be weighed against other commercial, community and general residential uses.

With respect to identifying strategic opportunities, see the response to Recommendation 5 below.

Recommendation 2: Encouragement be given to the use of alternative effluent disposal systems where all relevant legislative requirements can be met.

Response: Encouragement is already given in the Shire's Town Planning Scheme No. 3 to aged or dependent persons' dwellings by providing density bonuses over and above those available in the Residential Design Codes. Local Planning Scheme No. 4 proposes to maintain these bonuses, but to refine the provisions qualifying the locations where these bonuses may be applied.

Recommendation 3: The Shire, in association with other local governments in the Eastern Metropolitan Regional Council, collaborate to ensure that a full range of housing options for seniors and people with disabilities are provided in the region.

Response: This is an ongoing task for the Shire. The land use planning actions the Shire can take are outlined in responses to other recommendations.

Recommendation 4: The Shire, in association with both Department of Housing and Works and the Eastern Metropolitan Housing Association, identify opportunities for increasing public housing stocks for seniors and people with disabilities within the Shire of Mundaring.

Response: This is an ongoing task for the Shire and the Department of Housing and Works.

Recommendation 5: As part of the preparation of Town Planning Scheme No. 4, officers identify and include opportunities for smaller residential lots, including medium density housing, around existing townsites, especially the Mundaring townsite.*

* Note: The report was prepared prior to the direction to rename the Shire's new Scheme as Local Planning Scheme No. 4.

Response: Smaller residential lots cannot be created around hills townsites while the Government Sewerage Policy sets a 2000 m² minimum lot size for unsewered lots. However, an investigation was conducted into potential sites for aged housing development in existing residential areas (see below).

Recommendation 6: As part of the preparation of Town Planning Scheme No. 4, appropriate provisions be included to support approvals for granny flats and ancillary housing for seniors and people with disabilities, when they are appropriately located.*

* Note: The report was prepared prior to the direction to rename the Shire's new Scheme as Local Planning Scheme No. 4.

Response: Ancillary dwellings are defined in the Residential Design Codes of Western Australia, and hence its definition is intended to be the same statewide. This will be reinforced by the introduction of standard use class definitions in a revised Model Scheme Text. The definition is:

Self-contained dwelling on the same lot as a single house which may be attached to, integrated with or detached from the single house.

Thus, the Shire is not able to treat ancillary dwellings for seniors and people with disabilities any differently than ancillary dwellings for other people. Any change to this definition is a statewide issue. Ancillary Dwelling is proposed to be a discretionary use in all zones in which a single house is permitted in Local Planning Scheme No. 4, but with the Residential Design codes definition to apply in Residential zones only. In zones other than Residential, the same definition as in Town Planning Scheme No. 3 will apply, limiting the use of ancillary dwellings to family members.

Recommendation 7: As part of the preparation of Town Planning Scheme No. 4, officers identify opportunities for retirement communities and lifestyle villages.*

* Note: The report was prepared prior to the direction to rename the Shire's new Scheme as Local Planning Scheme No. 4.

Response: Lifestyle villages are a form of development which may offer more affordable housing options for people in older age brackets. Under definitions proposed in Local Planning Scheme No. 4, lifestyle villages would fall under the use class of Caravan Park or Park Home Park. It is proposed that these use classes be prohibited in all zones on the Zoning Table, but that lifestyle village proposals be considered on their merits by way of individual rezoning proposals, with sites to be zoned Special Use. Due to the closed, impermeable nature of lifestyle villages, they should be located on the periphery of residential areas.

Recommendation 8: The Shire continues to actively encourage and facilitate a range of social support services through provision of recreational opportunities, access to facilities, financial support to Home and Community Care service providers, support to local groups to assist them in recruiting and retaining volunteers and grant funding applications for local groups.

Response: This is an ongoing task for the Shire, mostly outside of the land use planning process.

Investigation of potential sites for aged housing

However, an investigation was conducted into potential sites for aged housing development in existing residential areas (see below). This investigation considered issues including topography, proximity to medical facilities, availability of public transport and proximity to other services. A 4000 m² minimum area was adopted for the purpose of investigating potential aged housing sites.

Due to existing fragmentation of land and lack of services, few sites were identified that satisfied the criteria chosen. Three sites identified which met the criteria were:

- Lot 20 corner Hardey and Strettle Roads, Glen Forrest

The location of this site is shown in Figure 36 below. Most of this site is currently zoned Residential R2.5, with the northwestern portion zoned Local Centre. The site is near a medical centre, shops and public transport. The site is well vegetated, but even under the current zoning most vegetation would be lost if development complies with *Planning for Bush Fire Protection*. There is an existing LSIP proposing low density residential subdivision of the lot. Should aged housing be developed on the Local Centre zoned portion of the site, this would be at the expense of further commercial development.

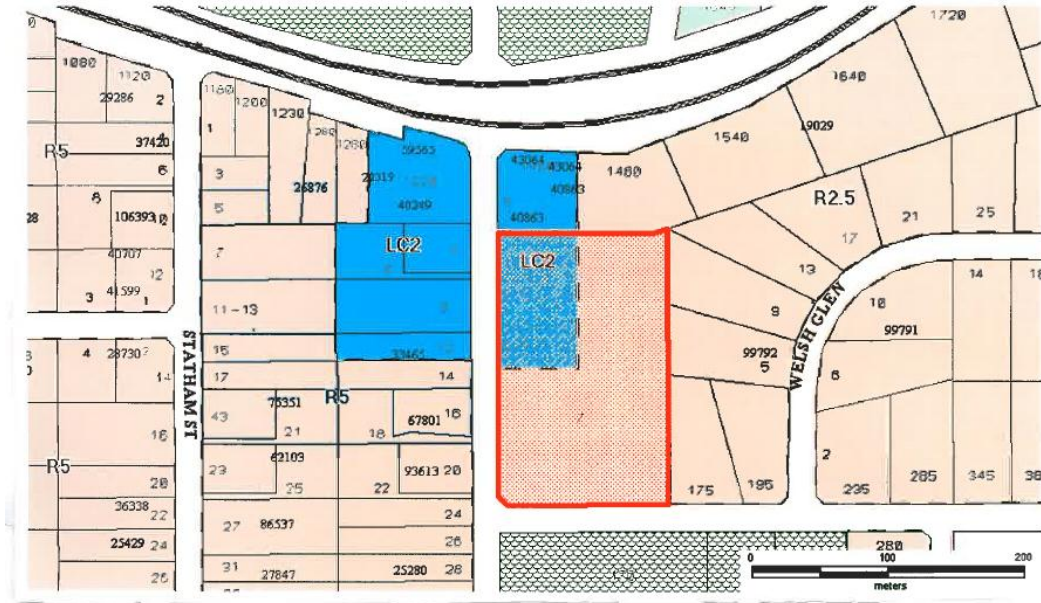


Figure 366: Potential aged housing site, Hardey and Strettle Roads, Glen Forrest (showing TPS 3 zoning)

- 48-60 (Lots 3, 503 and 504) Gladstone Avenue, Swan View

The location of this site is shown in Figure 37 below. This is sewered, generally flat, and is located diagonally opposite the Swan View Shopping Centre. There is good public transport to Midland, which has a good range of medical facilities. This site has separately been identified for increased residential density under Local Planning Scheme No. 4 (see section 5.2.2 below), with a density of Residential R30 proposed, rather than the present R12.5. There is an existing endorsed LSIP over the land proposing subdivision to an R12.5 density. In any revised structure plan for this site and adjacent land, connectivity will need to be addressed.

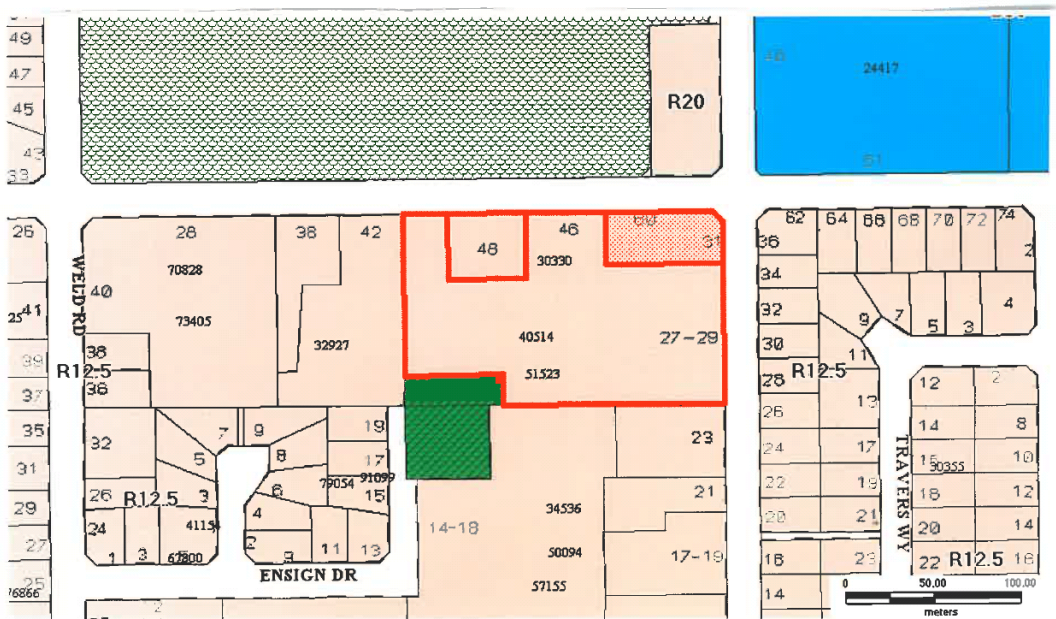


Figure 377: Potential aged housing site, Gladstone Avenue, Swan View (showing TPS 3 zoning)

- 398-408 (Lots 3, 4, 81, 82, 85 and 86) Morrison Road, Swan View

The location of this site is shown in Figure 38 below. It is much more fragmented than the other two sites, and has some slightly steeper topography. However, the site is sewered and, subject to appropriate access to Morrison Road, has good public transport and reasonable proximity to the Swan View Shopping Centre. The land falls within the Town Planning Scheme No. 7 Scheme Area. Because of the fragmented land ownership it is less likely that this site could be developed for aged housing, but it is identified here because of its potential and reasonably good location.

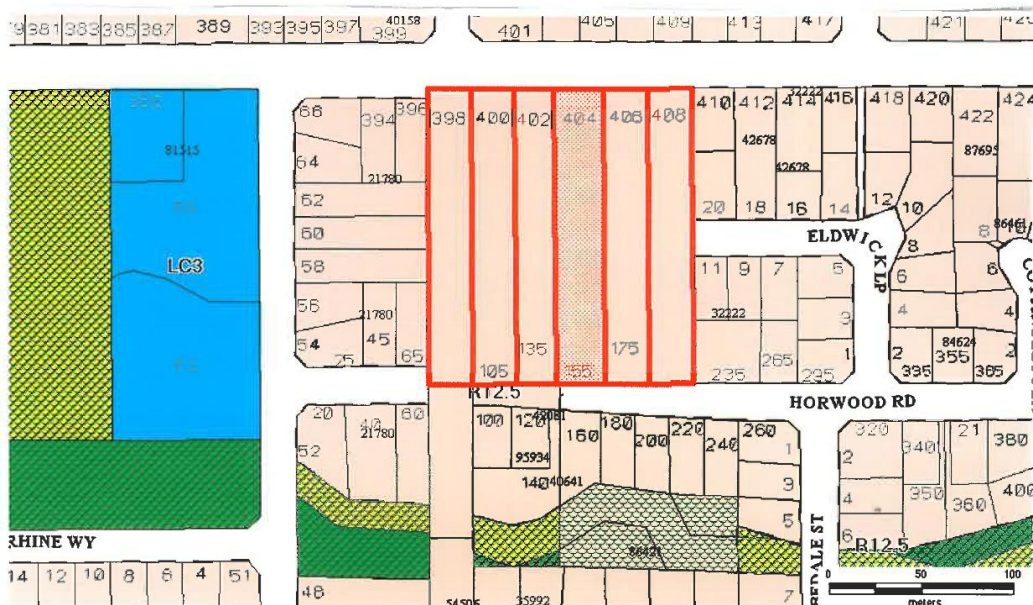


Figure 38: Potential aged housing site, Morrison Road, Swan View
(showing TPS 3 zoning)

While more detailed investigation and planning is required should a proposal for aged housing be developed for any of these sites, any such proposal should be supported subject to addressing all relevant technical issues.

The investigations also confirmed the suitability of a few small sites within the Mundaring Town Centre, in particular between Mundaring Weir Road and Fenton Street. As outlined above, aged housing should be considered in detailed planning for the Mundaring Town Centre, but the need for aged housing must be balanced against all other competing uses, particularly commercial and community uses, given the limited effluent disposal capacity that will be available within the Mundaring Town Centre upon expansion of the Mundaring Wastewater Treatment Plant.

It is certainly possible that other sites for aged housing development may exist. These may become available due to land assembly by a proponent, may be for very small developments on land less than 4000 m² or may be less well located relative to services. Each proposal should be considered on its merits, in accordance with Scheme provisions relating to the density bonus available for aged or dependent person's dwellings. However, due to the need for an appropriate, easily accessible location for aged housing, close to services and facilities, this Strategy does not support the development of aged housing on land zoned Rural in the MRS.

One site identified that warrants specific protection in Local Planning Scheme No. 4 is Lot 12 Pine Terrace, Darlington, which is adjacent to an existing aged housing development. A Restricted Use should be applied over Lot 12 to facilitate expansion of these aged housing facilities.

Recommendations

- Retain the Town Planning Scheme No. 3 density bonuses for aged or dependent person's dwellings in Local Planning Scheme No. 4, allowing for such dwellings to be developed at a higher density than permissible for a particular site under the Residential Design Codes
- Support any proposal for aged housing on specific sites identified in Figures 36 to 38 of this Background Document (Hardey and Strettle Roads, Glen Forrest; Gladstone Avenue, Swan View; and Morrison Road, Swan View), subject to adequately addressing all relevant technical issues
- Do not support the development of aged housing on land zoned Rural in the MRS, due to the need for an appropriate, easily accessible location for aged housing, close to services and facilities
- Apply a Restricted Use over Lot 12 Pine Terrace Darlington to facilitate expansion of the adjacent aged housing facilities
- Allow Ancillary Dwelling as a discretionary use in all zones in which a single house is permitted
- Consider lifestyle villages on their merits by way of individual rezoning proposals, with sites to be zoned Special Use
- Generally only support lifestyle villages where located on the periphery of residential areas

4.4 Community facilities, recreation and open space

4.4.1 Community facilities

Residents of the Shire are generally well served with community facilities, with no serious deficiencies in access to facilities apparent, although some facilities are located outside of the Shire in the adjacent Midland Regional Centre due to a regional catchment. However, the level of service provision may need to change in the future due to demographic changes, notably the aging of the Shire's population and anticipated population growth in North Parkerville, North Stoneville and Helena Valley. Any new community facilities should be located and planned so as to accommodate a range of uses and functions to meet local needs and should be accessible via safe pedestrian and bicycle routes in addition to road access.

In considering, advocating for, developing or managing community facilities, the Shire should be guided by and seek to implement its Access and Inclusion Plan.

Health

No hospitals are located within the Shire. A former private hospital in Greenmount now operates as an aged care facility. However, a regional hospital is located nearby in the City of Swan (at the time of writing in Middle Swan, but with relocation planned to a site in Midland that is even closer to the Shire of Mundaring).

Within the Shire, general practitioners and other health services (eg. physiotherapy, dental) are mostly concentrated within the Mundaring town centre, but medical centres are also located within Glen Forrest and Helena Valley. Pharmacies are located in Mundaring, Glen Forrest, Helena Valley and Swan View.

It is envisaged that low order medical facilities will be developed within North Stoneville ("Stoneville Townsite Development") to cater for the needs of the increased population in both the North Stoneville and North Parkerville developments.

Aged care is provided at a former private hospital in Greenmount and at the Yallambee Hostel in Mundaring.

Aged care, as opposed to independent aged persons' accommodation, will be a growing need in the Shire throughout the life of this Strategy due to the aging population. If additional aged care facilities are not introduced within the Shire, this need will be met outside of the Shire, with consequent dislocation for aging residents and inconvenience for their relatives and friends still resident in the Shire.

Community and aged services

Hub of the Hills, a Shire owned facility in the Mundaring town centre is used for a wide range of activities, with an emphasis on seniors' groups.

The Hills Community Support Group provides a range of services to aged residents and residents with a disability within the Shire of Mundaring and adjacent region. A range of other services to seniors are provided by community and church groups and state and federal government. Some of these services are located in or operate from Midland.

Brown Park Community Centre, part of the Brown Park Recreation Complex in Swan View, combines recreation and other community services.

The possible need for a Community Resource Centre within the Mundaring town centre is under consideration as part of the planning process for civic and community area within the town centre.

Children's services and child care

The Shire of Mundaring provides for residents in the west of the Shire at the Midvale Early Childhood and Parenting Centre, although this is located within the adjacent City of Swan. Childcare is available at this facility and is also provided by private operators within the Shire. Child Health Centres are located within the Shire in Chidlow, Glen Forrest, Mundaring and Swan View.

Libraries

The Shire operates two public libraries, in Mundaring and Greenmount: the Albert Facey Memorial Library (commonly referred to as the Mundaring Library) and the Katharine Susannah Prichard Library (commonly referred to as the Greenmount Library).

Halls

The Shire owns public halls in most townships/localities throughout the Shire, which are available for a wide range of community uses:

- Boya Hall
- Chidlow Hall
- Darlington Hall
- Glen Forrest Hall
- Greenmount Hall
- Mahogany Creek Hall
- Mundaring Hall
- Parkerville Hall
- Sawyers Valley Hall
- Stoneville Hall
- Wooroloo Hall

Some of the halls are listed on the Shire's Municipal Inventory, which documents heritage places in the Shire.

The Shire has recently reviewed the use of these facilities. The level of usage varies widely, with the Mundaring Hall being the most used. Current levels of usage do not indicate a need for further halls within the Shire. Due to the age and condition of the halls, development and maintenance costs of these facilities are a relevant factor in the Shire's long term financial planning. Ongoing review will be required to determine whether any rationalisation, renewal or upgrading may be required. In particular, demand for hall usage may be affected by community facilities which may be developed within population growth areas in Helena Valley, North Parkerville ("Parkerville Townsite Development") and North Stoneville ("Stoneville Townsite Development").

Hall facilities are also available within other public buildings in the Shire with a recreational or community focus:

- the Bruce Douglas Pavilion in the Brown Park Recreation Complex in Swan View;
- the Chidlow Recreation Pavilion at the Chidlow Recreation Ground;
- Les Olley Pavilion at Harry Riseborough Reserve in Mundaring;
- Hub of the Hills in Mundaring;
- the Mundaring Recreation Pavilion at Mundaring Oval;
- the Mount Helena Recreation Centre;
- and the Parkerville Recreation Pavilion at Parkerville Oval.

In addition to the abovementioned public halls, the Shire owns other buildings leased to various community groups:

- Jar-ree Centre, Mount Helena (leased to Guides and Scouts)
- Mundaring Scout Hall (leased to Scouts)
- Mundaring Weir Hall (leased to Eastern Hills Arts and Crafts)
- Octagonal Hall, Glen Forrest (leased to WA Wildflower Society)
- Parkerville Guides Hall (leased to Guides)

Fire and Emergency Services

The Max Williams Mundaring Emergency Services Centre in Wandeara Crescent in the Mundaring light industrial area provides a home for the Mundaring Volunteer Fire and Rescue Service, a State Emergency Services unit and the Darling Range Volunteer Bush Fire Brigade (a specialist communications unit). The nearest Fire and Emergency Services Authority (career) fire station is in Midland.

The Shire of Mundaring is well served by several Volunteer Bush Fire Brigades, which play a vital role in the community given the extreme bushfire hazard affecting much of the Shire. Bush Fire Brigades operate from facilities in Chidlow, Darlington, Glen Forrest, Mount Helena, Mundaring, Parkerville, Sawyers Valley, Stoneville and Wooroloo.

The Shire has a Local Emergency Management Plan, which prescribes the organisation, concept, responsibilities of various agencies and procedures for effective management of all emergencies that may impact on communities within the Shire. The Shire has identified evacuation centres which may operate in case of emergencies. Ensuring there will be adequate accessibility (primarily vehicular) to/from these centres in the event of an emergency (such as a bushfire) is an important ongoing task.

Police

The only police station within the Shire is in the Mundaring town centre, but police stations are also located just outside the Shire in Midland and Wundowie.

Cemeteries

Public cemeteries are located within the Shire in Mundaring and Wooroloo, with the larger Midland Cemetery just outside the Shire in Swan View. Some scope may exist for expansion of the Wooroloo Cemetery onto Reserve 14073 and adjacent land to cater for regional burial needs and this should be further explored.

Places of Worship

After advertising proposed modifications on the LPS 4 Scheme Text relating to Places of Worship, the Acting Minister directed that the Shire incorporate a provision in LPS 4 specifying that in determining an application for a Place of Worship, the Shire shall have regard for the following:

- proximity to an activity centre;
- accessibility by public transport, cycling and walking;
- potential to meet outdoor noise criteria as specified in noise regulations that operate under the *Environmental Protection Act 1986*;
- potential for the site area, plot ratio, bulk, scale, height and parking provision of the development to be in keeping with the amenity of the locality;
- potential for the form, layout, appearance, colours and textures of any building and landscaping to mitigate against any potential visual impact;
- potential for setbacks and separation distances from adjacent sensitive land uses to mitigate against amenity impacts and land use conflicts;
- adequacy of the road capacity in the locality to accommodate traffic generated by the development;
- adequacy of on-site parking for traffic generated by the development;

- access capable of safely accommodating vehicle movements generated by the development;
- potential to protect people from unreasonable levels of additional transport noise that may occur directly as a result of traffic movements generated by the development;
- potential amenity impacts related to extended hours of operation;
- potential impact of any uses incidental or ancillary to the Place of Worship use; and
- ability to comply with all relevant Acceptable Solutions of *Planning for Bush Fire Protection Guidelines* or any successor document.

The Acting Minister directed that the use class Place of Worship be discretionary ('A') in all zones (other than Development) on the Zoning Table, and that a provision be incorporated in LPS 4 specifying that the Shire shall not approve a Place of Worship in the Rural Residential zone unless located on a road identified as a Primary Regional Road Reserve or an Important Local Road Reserve under the Scheme or located adjacent to an existing or planned activity centre.

Recommendations

- Progressively review the level of service provision over time to accommodate changing needs of the community and demographic changes, notably the aging of the Shire's population and anticipated population growth in North Parkerville, North Stoneville and Helena Valley
- Plan and locate any new community facilities so as to accommodate a range of uses and functions to meet local needs and to be accessible via safe pedestrian and bicycle routes in addition to road access
- In considering, advocating for, developing or managing community facilities, be guided by and seek to implement the Shire of Mundaring Access and Inclusion Plan
- Encourage and provide for low-order medical facilities within North Stoneville (the "Stoneville Townsite Development") should residential development proceed, to cater for the needs of the increased population in both the North Stoneville and North Parkerville developments
- Encourage and provide for appropriately located aged care facilities, in addition to independent aged persons' accommodation, to accommodate the Shire's aging population
- Consider the possible need for a Community Resource Centre within the Mundaring town centre as part of the planning process for a civic and community area within the town centre
- Progressively review hall usage and condition over time to determine whether any rationalisation, renewal or upgrading may be required, taking into account any new community facilities which may be developed within the Shire
- Ensure adequate accessibility to/from identified evacuation centres throughout the Shire

- Explore the possible expansion of the Wooroloo Cemetery onto Reserve 14073 and adjacent land to cater for regional burial needs
- Incorporate a provision in LPS 4 specifying that in determining an application for a Place of Worship, the Shire shall have regard for the following:
 - proximity to an activity centre;
 - accessibility by public transport, cycling and walking;
 - potential to meet outdoor noise criteria as specified in noise regulations that operate under the *Environmental Protection Act 1986*;
 - potential for the site area, plot ratio, bulk, scale, height and parking provision of the development to be in keeping with the amenity of the locality;
 - potential for the form, layout, appearance, colours and textures of any building and landscaping to mitigate against any potential visual impact;
 - potential for setbacks and separation distances from adjacent sensitive land uses to mitigate against amenity impacts and land use conflicts;
 - adequacy of the road capacity in the locality to accommodate traffic generated by the development;
 - adequacy of on-site parking for traffic generated by the development;
 - access capable of safely accommodating vehicle movements generated by the development;
 - potential to protect people from unreasonable levels of additional transport noise that may occur directly as a result of traffic movements generated by the development;
 - potential amenity impacts related to extended hours of operation;
 - potential impact of any uses incidental or ancillary to the Place of Worship use; and
 - ability to comply with all relevant *Acceptable Solutions of Planning for Bush Fire Protection Guidelines* or any successor document
- Incorporate a provision in LPS 4 specifying that the Shire shall not approve a Place of Worship in the Rural Residential zone unless located on a road identified as a Primary Regional Road Reserve or an Important Local Road Reserve under the Scheme or located adjacent to an existing or planned activity centre

4.4.2 Education

4.4.2.1 Public schools

Two public high schools and eleven public primary schools are located within the Shire of Mundaring:

High schools:

- Swan View Senior High School
- Eastern Hills Senior High School (Mount Helena)

Primary schools:

- Swan View Primary School
- Greenmount Primary School
- Helena Valley Primary School
- Parkerville Primary School
- Darlington Primary School
- Glen Forrest Primary School
- Mundaring Primary School
- Sawyers Valley Primary School
- Mount Helena Primary School
- Chidlow Primary School
- Wooroloo Primary School

Structure plans previously endorsed by the Shire for the proposed North Stoneville townsite include sites for a high school and primary school. No school sites have been identified for the proposed North Parkerville townsite. It will be necessary for the Department of Education and Training to be consulted in any future review and revision of the structure plans for North Stoneville and North Parkerville. Reserve 46042 Kanangra Court, Stoneville, which is adjacent to the proposed North Stoneville townsite, has previously been vested in the Department as a potential high school site, but the Department has acknowledged that the site is not an ideal location for a high school and that a site within the North Stoneville townsite could be considered instead.

No other public schools are currently proposed within the Shire and no additional public schools are anticipated to be required throughout the life of this Strategy. Indeed, the enrolments at Eastern Hills Senior High School have declined in recent years (from 1130 in 2004 to 918 in 2007).

Recommendations

- Consult with the Department of Education and Training in any future review and revision of the structure plans for North Stoneville and North Parkerville to ensure appropriate designation and location of public primary and high school sites
- Provide a site for a public high school in the proposed North Stoneville ("Stoneville Townsite") development, should residential development proceed

4.4.2.2 Private schools

In addition to public schools, eight private schools are located within the Shire of Mundaring:

- St Anthony's Primary School (Greenmount)
- Treetops Montessori School (Darlington)
- Helena College Junior School (Darlington)
- Helena College Senior School (Glen Forrest)
- Silver Tree Steiner School (Parkerville)
- Mundaring Christian College
- Sacred Heart School (Mundaring)
- Bible Baptist Christian Academy (Mount Helena)

At the time of writing, no new private schools are proposed within the Shire of Mundaring, although it is understood that one school is seeking to construct new premises on another site.

4.4.2.3 Higher education

No higher education facilities are located within the Shire of Mundaring. The nearest university campus is the Midland Campus of Edith Cowan University in Midland. The nearest TAFE facility is the Midland Campus of Swan Tafe in Middle Swan.

At the time of writing, there are no current proposals for higher education facilities within the Shire of Mundaring. The location of the Shire relative to the Perth Metropolitan Region and the present level of public transport services within the Shire mitigates against the location of regional facilities within the Shire.

4.4.3 Regional open space

The Shire of Mundaring is well endowed with regional open space – that is, land reserved under the Metropolitan Region Scheme for Parks and Recreation and State Forests (see Figure 11, in section 2.3 above). Much of this land is outside of the control of the Shire.

4.4.3.1 National Parks

The following National Parks are located wholly or partially within the Shire of Mundaring:

- Greenmount National Park
- John Forrest National Park
- Beelu National Park (formerly Mundaring National Park)

- Helena National Park

In addition to their conservation values, National Parks within the Shire provide for a wide range of recreational uses, both for residents of the Shire as well as for regional, national and international visitors. The Perth Hills National Parks Centre is a visitor centre located near Mundaring Weir, Mundaring, in Beelu National Park. A tavern, tearooms and kiosk are located within John Forrest National Park.

National Parks are managed by the Department of Environment and Conservation.

At the time of writing (September 2009), a proposed Metropolitan Region Scheme Omnibus Amendment intends to change land in the Beelu and Helena National Parks from the State Forests Reserve to the Parks and Recreation Reserve, to reflect their status as National Parks.

Recommendations

- Support recreational uses in National Parks within the Shire, to the extent they are consistent with protection of conservation values

4.4.3.2 Other regional open space

Wooroloo Regional Park

Wooroloo Regional Park (formerly Chidlow Regional Park) encompasses land in the east of the Shire of Mundaring, some managed by the Department of Environment and Conservation and some managed by the Shire. Lake Leschenaultia, the Leschenaultia Conservation Park, Beechina Nature Reserve and Beechina North Nature Reserve are part of the Regional Park, along with other reserves. Due to conservation values, land within the Beechina and Beechina North Nature Reserves is also identified as Restricted Access on the MRS.

Lake Leschenaultia, managed by the Shire, is a popular tourist attraction and recreation facility within the Shire, catering for canoeing, swimming, cycling and bushwalking. The facility includes a cafe and camping area.

Wooroloo Regional Park and other regional parks on the Darling Scarp or in the hills in other Metropolitan local governments were formerly collectively known as the Darling Range Regional Park, and are now referred to as "Parks of the Darling Range".

Other Parks and Recreation Reserves

A range of other reserves are included in the Parks and Recreation Reserve under the Metropolitan Region Scheme. These include former railway reserves, reserves along the Helena River, large reserves under Shire management particularly through Darlington, Glen Forrest and Mahogany Creek, Darlington Oval, Black Cockatoo Reserve in Mundaring and the land containing the Mundaring Golf Course, Oval, Bowling Club and Recreation Centre.

The Shire's network of walking and cycling trails along former rail reserves (including the Railway Reserves Heritage Trail and portions of the Munda Biddi Trail and the Kep Track), mostly contained within the Parks and Recreation Reserve under the MRS, provides an excellent recreational resources to residents of the Shire as well as being a significant factor in local tourism. The trails also provide safe pedestrian and cycle routes between many suburbs and towns in the Shire, and in particular to John Forrest National Park. Trek the Trail, a significant annual community and tourism event, makes use of the Railway Reserves Heritage Trail. Ongoing improvement of facilities to encourage increased use of these trails is recommended.

These reserves include land with important conservation and/or recreational values. Many, but not all, are under management control of the Shire.

Although within the MRS Parks and Recreation Reserve, the active recreational facilities at and adjacent to Mundaring Oval are included in the consideration of Local Open Space – Active Recreation in section 4.4.4 below.

State Forests and water catchments

A significant portion of the Shire comprises State Forest and/or water catchments. While this land has been set aside for those particular purposes of forestry and the Lake C.Y. O'Connor water catchment, it also serves an important environmental role. This land also provides some limited opportunities for passive recreation, where consistent with the primary purposes of the reserves.

Recommendations

- Progressively improve facilities along the Railway Reserves Heritage Trail, Munda Biddi Trail and Kep Track to encourage increased use of these trails
- Support recreational uses in the Wooroloo Regional Park, state forests and water catchments, to the extent they are consistent with protection of conservation values

4.4.4 Local open space - active recreation

Current facilities

The Shire is well provided with a wide range of active recreation facilities, catering for most recreational needs of residents.

The Shire's recreation centres are in Swan View (Brown Park Community Centre) and Mount Helena, serving population in the western and eastern portions of the Shire respectively. Each provide for various indoor sports. These are both single court stadiums which limits their capacity to be cost effective and to cater for an increase in community demand for indoor sports. The Mount Helena Recreation Centre located on Department of Education and Training land and is a facility jointly used by the community and by Eastern Hills Senior High School.

The Shire has two aquatic centres, Bilgoman Aquatic Centre in Darlington and the Mount Helena Aquatic Centre, which is located on Education Department land and is also jointly used by the community and by Eastern Hills Senior High School. The aquatic centres have outdoor pools and are thus only operate during the warmer months. Year-round indoor swimming is currently available just outside the Shire of Mundaring at the Swan Park Sports and Leisure Centre in Midvale, although it is understood that this facility may be relocated in the future.

Ovals/sporting fields are available to residents in most suburbs and localities in the Shire and provide for a range of outdoor sports for both seniors and juniors. Following are the ovals/sporting fields in the Shire (please note that these cater for a range of sports):

- Chidlow Oval
- Darlington Oval
- Glen Forrest Oval
- Helena Valley - Boya Oval
- Mount Helena - Elsie Austin Reserve
- Mundaring Oval
- Mundaring - Harry Riseborough Oval (two ovals)
- Parkerville Oval
- Sawyers Valley Oval
- Swan View - Brown Park (two ovals)

The Shire also contributes towards running costs for Koongamia Oval (along with City of Swan and DET), just outside the Shire boundary in the City of Swan.

The only town or suburb without access to an oval nearby is Wooroloo, where the limited population has not warranted development of an oval to date (the Wooroloo Primary School has its own small oval). Boya Oval, located in the portion of Helena Valley north of the Helena River, is 2-3 km from the growing residential area of Helena Valley south of the river.

Historically, the ovals with the highest levels of usage have been Brown Park, Parkerville Oval, Mundaring Oval, Harry Riseborough Oval and Chidlow Oval. However in recent years, growing participation in sport, particularly in junior field sports, has seen increased usage of the other ovals in the Shire.

The Shire also provides tennis courts and basketball/netball hard courts in various locations, along with four skate parks. A golf course is located adjacent to Mundaring Oval. Facilities for lawn bowls, squash, shooting, motocross and mountain biking are also located within the Shire.

Regional sporting facilities are provided nearby within the City of Swan, catering for a wider range of sports and higher levels of competition than facilities in the Shire of Mundaring.

Future active recreation needs

There is no significant deficiency in the provision of recreational facilities at present. The major issue with the current facilities is their age and condition. In the absence of significant new development within the Shire, it is not currently considered that a new oval or other significant new active recreational facilities will be required. However, demand for and supply of recreational facilities should be monitored.

Various upgrading will be required over time for the active recreation facilities within the Shire to meet the changing needs of the community. At the time of writing, future expenditure on recreational facilities is being considered in the formulation of the Shire's long term financial plan, which has a 20 year horizon.

The two most significant areas of population growth within the Shire over the life of this Strategy will be North Parkerville and North Stoneville ("Parkerville Townsite Development" and "Stoneville Townsite Development"), subject to lifting of Urban Deferment over the proposed townsites. At the time of writing, the Shire has adopted a Local Subdivision and Infrastructure Plan (LSIP) for each townsite. Neither LSIP shows an oval being developed within the Public Open Space to be created in those townsites, although the North Stoneville LSIP shows ovals as part of the proposed High School and Primary School for the townsite, which are located adjacent to Public Open Space. A country club is proposed for the North Parkerville development, and would incorporate some active recreation facilities.

The combined population of the two proposed townsites is anticipated to be over 7000. This will warrant an additional oval and other recreational facilities, rather than relying on existing facilities in Parkerville and Mundaring. Liveable Neighbourhood principles of walkability dictate that each proposed townsite should have its own active recreation facilities, however the smaller population of North Parkerville may not warrant a separate oval. Given the relatively close proximity of the proposed townsites, certain types of active recreation facilities, such as an oval, in one townsite may suffice to meet combined needs of the two townsites for that type of facility.

Any review or revision of the current structure plans for the townsites should determine, and demonstrate provision for, the active recreation needs generated by the developments. The possibility of sharing of an oval, and other recreational facilities, between the community and the proposed high school in North Stoneville should be explored.

Structure planning for the balance of future residential land in Helena Valley, south of the Helena River, should investigate the possibility of securing a site for an oval and/or other recreational facilities to provide for the population of Helena Valley south of the river. Alternatively, consolidation of facilities at Boya Oval can be pursued. Should residential development occur on any portion of the Bushmead Rifle Range in the adjacent City of Swan in the future, the Shire should liaise with the City of Swan to explore the possibility of co-operation in providing for recreational needs of Helena Valley and Bushmead. A portion of that site is identified for potential future residential use in the City of Swan's Hazelmere Enterprise Area Draft Structure Plan.

Consideration should be given to the development of an oval in Wooroloo if and when warranted by the population of the locality. However, this Strategy does not anticipate that substantial growth in Wooroloo that would generate the requirement for an oval during the life of this Strategy is likely.

Should the need for another recreation centre within the Shire become apparent, a location in fairly close proximity to transport routes and the commercial and community facilities in the Mundaring Town Centre would be preferable. Alternatively, land adjacent to Mundaring Oval could provide for a fairly-well located facility.

Recommendations

- Upgrade recreational facilities over time, in accordance with the Shire's long term financial plan
- In any review or revision of the current structure plans for the proposed North Parkerville and North Stoneville townsites, determine and demonstrate provision for the active recreation needs generated by the developments

- Explore the possibility of sharing of an oval, and other recreational facilities, between the community and the proposed public high school in North Stoneville
- In structure planning for the balance of future residential land in Helena Valley, south of the Helena River, investigate the possibility of securing a site for an oval and/or other recreational facilities to provide for the population of Helena Valley south of the river
- If a site for an oval and/or other recreational facilities is not secured in Helena Valley, south of the Helena River, pursue consolidation of facilities at Boya Oval
- Should residential development occur on any portion of the Bushmead Rifle Range in the adjacent City of Swan in the future, liaise with the City of Swan to explore the possibility of co-operation in providing for recreational needs of Helena Valley and Bushmead residents
- Monitor supply, condition and usage of and demand for recreational facilities on an ongoing basis to inform future decisions on provision of recreational facilities
- Should the need for another recreation centre within the Shire become apparent, give consideration to a location in fairly close proximity to transport routes and the commercial and community facilities in the Mundaring Town Centre, or to a site on Reserve 7045, adjacent to Mundaring Oval

4.4.5 Local open space - passive recreation

The Shire of Mundaring contains a range of local open space providing for passive recreation. This varies from large bushland reserves to small pocket parks containing grassed areas and play equipment. The small subdivisions of fragmented land that have comprised most subdivision activity in the Shire in recent decades have created a large number of small POS parcels and the cost of developing facilities on each of these has resulted in many being left in natural state, providing pockets of bushland in close proximity to many residences. Bushland within POS provides an attractive area for walking or cycling in most suburbs and towns within the Shire.

Since its adoption by Council in 2001, the identification and creation of Public Open Space (POS) throughout the Shire has been guided by the Shire's Public Open Space Strategy (see section 3.4 above). This sets out the recommended location, purpose and function of POS in each of numerous residential and rural-residential cells throughout the Shire, as well as where payments of cash-in-lieu of POS should be required and where such cash-in-lieu should be spent.

POS provision (land or payment of cash-in-lieu thereof) has been required in all residential subdivision (10% of subdivisional area), including special residential areas coded R5 and R2.5 and, under the Shire's Public Open Strategy, all rural-residential subdivision (5% of subdivisional area). This Local Planning Strategy endorses this approach and recommends its continuation. These requirements have been of particular benefit in securing areas of environmental value in POS in special residential and rural residential subdivisions. Larger lot sizes in special residential and rural residential areas mean that greater emphasis can be placed on conservation than in conventional and medium density residential areas where there is limited space for recreation and play on each residential (green title or strata) lot.

The Public Open Space Strategy has operated well since its adoption in 2001, providing adequate guidance and certainty for the Shire and subdividers. One concern is that the *Planning and Development Act 2005* allows two-lot subdivisions without a POS contribution, however decisions at the State Administrative Tribunal have confirmed that where POS is required in an endorsed Strategy or structure plan, POS can still be required for two-lot subdivisions.

Notwithstanding its successful operation to date, the Public Open Space Strategy should be reviewed as a matter of priority and revised as appropriate in order to:

- provide guidance on the provision of POS within new land identified in Local Planning Scheme No. 4 or this Local Planning Strategy for residential or rural-residential subdivision;
- ensure consistency with various recommendations of this Local Planning Strategy, including those relating to the Local Biodiversity Strategy, structure planning and bushfire management; and
- consider the ongoing role and purpose and upgrading and maintenance requirements of existing local open space.

In those limited areas of the Shire where subdivision will be assessed in accordance with Liveable Neighbourhoods (see section 2.2.5.5 above), the mandatory provisions of Liveable Neighbourhoods applies specific standards to the provision, use, location, layout and accessibility of POS. While some of the principles of Liveable Neighbourhoods are still applicable, the detailed provisions are based on a higher residential density than the special residential subdivision (R5 and R2.5) predominant throughout the Shire due to lack of reticulated sewerage.

Many of the Local Reserves for Public Open Space under the Shire's current Town Planning Scheme No. 3 contain areas of environmental value such as watercourses and substantial, intact parcels of bushland. The Public Open Space Strategy has emphasised a preference for POS contiguous with watercourses or having environmental significance, and in many areas the Strategy has identified particular watercourses to be secured in POS. POS can have both recreational value and environmental value; some limited access to areas of bushland still satisfies a demand for passive recreation. Alternatively, wholly or partly cleared parkland areas, with or without facilities such as seating or play equipment, can provide for passive recreation.

In recognition of the particular environmental values of some POS, Local Planning Scheme No. 4 delineates POS in two separate Local Reserves: Recreation and Conservation. This classification has been determined based on an assessment of each particular site, with areas of intact bushland of sufficient size to retain environmental values and minimise edge effects, and areas of other particular environmental value, included in the Conservation Reserve. The intention of this delineation is to indicate the primary emphasis for land in each Local Reserve. However, the identification of land as a Conservation Reserve does not exclude the possibility that some recreational use (generally passive recreation) may be made of that land or facilities provided to enable this (eg. car parks, walk trails). Nor does the identification of land as a Recreation Reserve indicate that bushland and other native vegetation on a site should all be cleared; rather it identifies that the primary purpose of that reserve is recreation, whether active or passive.

Land identified for inclusion in the Local Reserve for Conservation includes the following sites:

- Reserve 28362 Sunset Hill Road (Nalya Park), Swan View
- Reserve 28530 Mayhew Road, Darlington
- Reserve 37654 Cairnhill Court (Cairnhill Park), Darlington
- Reserve 31839 Burton Road (Burton Park), Darlington
- Reserve 29544 Pittersen Road (Pittersen Park), Darlington
- Reserves 9516 and 10636 Burton Road and Great Eastern Highway, Darlington
- Reserve 33079 Coulston Road (Mandoon Park), Darlington
- portion of Reserve 24143 Glen Road (Glen Park), Darlington
- Reserve 36330 Manjiri Drive, Glen Forrest
- Reserve 34885 Benowa Drive, Glen Forrest
- Reserve 23330 Thomas Road and Taree Street, Glen Forrest
- Lots 10 and 81 Homestead Road (Crown Land), Mahogany Creek
- Reserve 41670 Hilltop Close, Mahogany Creek
- Reserve 37790 Alexandra Road, Hovea
- Reserves 38224 and 47174 Callan Street and Glenroy Court, Hovea

- Reserve 10233 Clare Road, Hovea
- Reserve 32069 Dalby Road, Hovea
- Reserve 47206 Hidden Valley Road, Parkerville
- Reserve 40416 Boyamyne Road, Parkerville
- Reserve 11414 Byfield Road (Alice Hebb Park), Parkerville
- Reserve 38800 Swift Turn and portion of Reserve 40921 Doddington Place, Parkerville
- Reserves 13214 and 13766 Carawatha Road, Parkerville
- Reserve 14837 Yennerdin Road, Parkerville
- Lots 376 to 378 Yennerdin Road (Crown Land), Parkerville
- Lot 408 Kintore Road (Crown Land), Parkerville
- Reserve 45159 Clifton Road, Parkerville
- Reserve 10941 Kintore Road, Parkerville
- Reserve 46817 Gill Street, Parkerville
- Reserve 25507 Summit Road (Summit Park), Mundaring
- Reserves 12422, 20990, 22848 and 445000 Jarrah Road and Darkan Street (Black Cockatoo Reserve), Mundaring
- portion of Reserve 36411 Thornbury Close (Bugle Gully Park), Mundaring
- Reserve 9146 Stevens Street, Mundaring
- Reserve 37362 Gill and Hartung Streets, Mundaring
- Reserve 42346 Stoneville Road, Mundaring
- Reserve 41217 Jacoby Street, Mundaring
- Reserve 31697 Kambalda Road (Yilgarn Park), Mundaring
- Reserve 32073 Barlee Street (Barlee Park), Mundaring
- Reserve 45975 Humphry Road, Mundaring
- Reserve 46785 Patton Road, Mundaring
- Reserve 40208 Coolgardie Street, Mundaring
- Reserve 32795 Elizabeth Avenue, Mundaring
- Reserve 25879 Forrest Avenue, Mundaring
- Reserve 47442 Stoneville Road, Stoneville
- Lot 54 Stoneville Road (Crown Land), Stoneville
- portion of Reserve 37837 Cameron Road, Stoneville
- Reserve 38365 Parkland Road, Stoneville
- Reserve 31264 Gilfellon Stet (Gilfellon Park), Stoneville
- Reserve 46517 Kensitt Road, Stoneville
- Reserve 46834 Traylen Road, Stoneville
- Reserve 33352 Sunninghill Road (Sunninghill Park), Stoneville
- portion of Reserve 32910 Riley Road (Stoneville Park), Stoneville
- Reserve 6237 Forrest Street (Throssell Park), Sawyers Valley
- Reserve 38311 Mitton Place, Sawyers Valley
- Reserves 11073 and 38980 Cromwell and Sawyers Roads, Sawyers Valley
- Reserve 19709 Sawyers Road and adjacent Crown Land, Sawyers Valley
- Reserve 36895 Malabar Road, Sawyers Valley
- Reserve 33551 Houston Street, Sawyers Valley
- Reserve 45867 Glyn Place, Mount Helena

- Reserve 10924 Riley Road, Mount Helena
- Reserves 29733 and 47402 Dibble Street, Mount Helena
- Reserve 33279 Cook Street, Mount Helena
- Reserve 29861 Walker Street, Mount Helena
- Lot 69 to 74 Austin Close and Lot 100 Grahame Street (Crown Land), Mount Helena
- Reserves 34103 and 34965 Johnston Street, Mount Helena
- Reserve 38310 Houston Street, Mount Helena
- Reserve 4967 Frith Street, Chidlow
- Reserve 43197 Lilydale Road, Chidlow
- Reserve 38367 Rosedale Road, Chidlow
- Reserves 40179 and 43909 Rosedale Road, Chidlow
- Reserves 35665 and 35718 Warrigal Way, Chidlow
- portion of Reserve 38528 Anvil Way, Chidlow
- Reserve 40690 and 46376 Lilydale Road, Chidlow
- Reserve 37142 Liberton Road, Chidlow
- Reserve 34765 Stone Street, Chidlow
- Reserve 4041 Rosedale Road (Clifton Park), Chidlow
- Reserve 36333 Reservoir Street, Chidlow
- portion of Reserve 40820 Northcote Street, Chidlow
- Reserve 30619 Willcox Street, Chidlow
- Reserve 10804 Ash Road, Chidlow
- Reserve 36512 Tear Street, Chidlow
- Reserve 15216 Jason Street, Wooroloo
- Reserve 4198 (portion on Green Street), Wooroloo
- Reserve 4198 (portion on Mayo Road), Wooroloo
- Reserve 37156 Mayo Road, Wooroloo
- Reserve 22294 Wedge Street, Wooroloo
- portion of Reserve 35956 Allen Street and Wedge Street, Wooroloo
- portion of Reserve 35956 Allen Street and Burma Road, Bailup

Provision of new footpaths and walk trails to provide access to existing POS (in both residential and rural-residential areas) for residents should be a priority in ongoing Council infrastructure works. Structure planning and subdivisions should ensure adequate access is provided to POS in all new subdivisions.

Lots 14595 to 14597 Sexton Street have also been identified for inclusion in the Local Reserve for Conservation, but Landcorp, acting on behalf of the State of Western Australia, has sought Residential zoning over the land to facilitate future residential subdivision. Consideration should be given to a Scheme Amendment to change the lots from Reserve for Conservation to Residential R5 to better utilise existing and future services and facilities in the townsite subject to:

- confirmation that the ecological values of the site are not consistent with its reservation for conservation purposes;

- evidence that the rezoning and development of the land will be consistent with the amenity of the locality; and
- notification of the South West Aboriginal Land and Sea Council regarding a possible change in use.

Recommendations

- In Local Planning Scheme No. 4, separate local open space into two separate Local Reserves: Recreation and Conservation, to indicate the primary emphasis for land in each Local Reserve
- Review and, as appropriate, revise the Shire's Public Open Space Strategy as a matter of priority in order to
 - provide guidance on the provision of Public Open Space within new land identified in Local Planning Scheme No. 4 or this Local Planning Strategy for residential or rural residential subdivision
 - ensure consistency with the recommendations of this Local Planning Strategy, including those relating to the Local Biodiversity Strategy, structure planning and bushfire management
 - consider the ongoing role, purpose, and upgrading and maintenance requirements of existing local open space
- Provide new footpaths and walk trails to provide access to existing Public Open Space where existing access is inadequate
- Ensure adequate access is provided to Public Open Space in all new subdivisions
- Consider rezoning Lots 14595 to 14597 Sexton Street from Reserve for Conservation to Residential R5 to better utilise existing and future services and facilities in the townsite subject to: confirmation that the ecological values of the site are not consistent with its reservation for conservation purposes; evidence that the rezoning and development of the land will be consistent with the amenity of the locality; and notification of the South West Aboriginal Land and Sea Council regarding a possible change in use

4.5 Economy and employment

4.5.1 Economy and employment profile

Introduction

2006 census data (based on Place of Usual Residence Population) indicates there were 16,857 employed residents within the Shire of Mundaring. Of these, only 25.2% were employed within the Shire*. Another 19.0% of employed residents worked within the adjacent City of Swan, while 9.9% worked within the City of Perth. 2006 census data also indicates there were 7,141 jobs within the Shire, with 59.6% of these filled by residents of the Shire.

* For 9.8% of Shire residents, the place of work was not known or stated.

To allow a greater level of local self-sufficiency in employment, with the social, environmental and economic benefits that would bring, the level of employment within the Shire should be increased.

Employment within the Shire of Mundaring is provided in various sectors. Retail and commercial uses are located in the Mundaring town centre and many local centres throughout the Shire. Light industrial and service commercial uses are located in Midvale or the Mundaring Light Industrial Area, 1km east of the Mundaring town centre. In addition there are many small and home based businesses which provide a significant variety of trades, services and goods.

Rural land within the Shire is used for various farming uses. Several wineries produce quality wines. The Shire also contains tracts of native forests and some commercial softwood plantations. Tourism is an important industry throughout Mundaring. Tourist accommodation is provided by a variety of establishments and visitors are catered for by restaurants, cafés, tea rooms and take away food outlets.

Employment within Shire of Mundaring by sector

Data in this section is generated by a REMPLAN economic model, developed by La Trobe University and Compelling Economics P/L and based on census data.

This data estimated 7,026 jobs within the Shire of Mundaring as at May 2009. The breakdown of these jobs by sector is shown in Figure 39 and the table below. Retail trade, education and manufacturing are the three largest sectors by number of jobs.

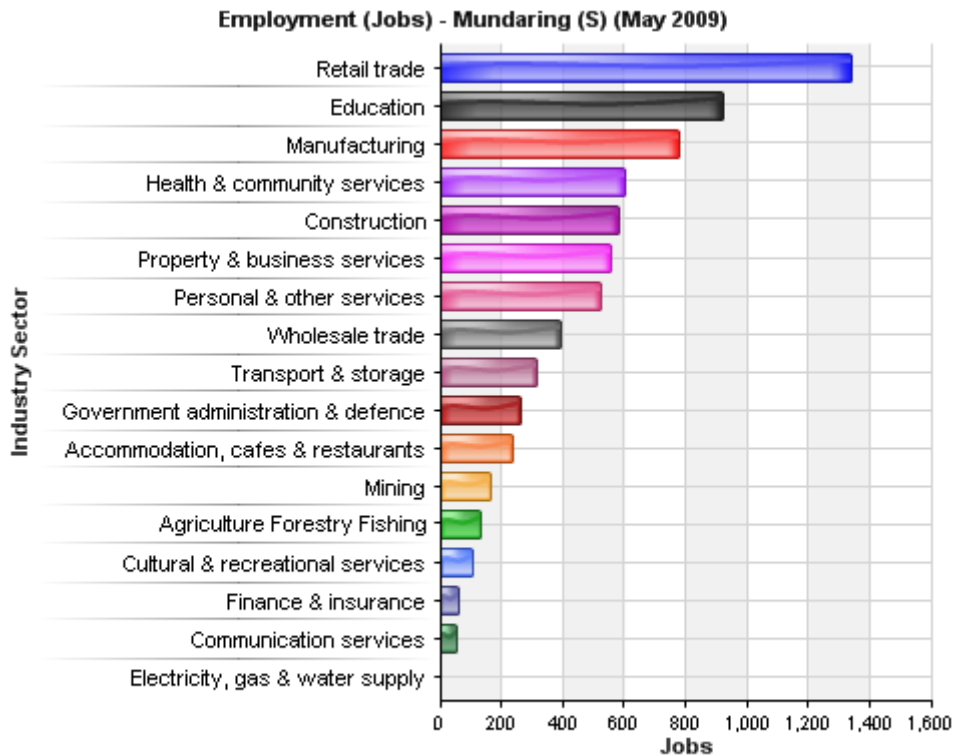


Figure 39: Employment within Shire of Mundaring by sector (May 2009 estimate)

**EMPLOYMENT WITHIN SHIRE OF MUNDARING BY SECTOR
(MAY 2009 ESTIMATE)**

Industry Sector	Jobs	%
Retail trade	1337	19.03%
Education	924	13.15%
Manufacturing	775	11.03%
Health & community services	601	8.55%
Construction	584	8.31%
Property & business services	558	7.94%
Personal & other services	522	7.43%
Wholesale trade	392	5.58%
Transport & storage	311	4.43%
Government administration & defence	262	3.73%
Accommodation, cafes & restaurants	237	3.37%
Mining	166	2.36%
Agriculture Forestry Fishing	133	1.89%
Cultural & recreational services	104	1.48%
Finance & insurance	56	0.80%
Communication services	54	0.77%
Electricity, gas & water supply	10	0.14%
Total	7026	

Economic output within Shire of Mundaring by sector

Data in this section is also generated by the REMPLAN economic model.

This data estimated economic output within the Shire of Mundaring to have a value of \$2,123 million (\$2.12 billion) in the year to May 2009. The breakdown of this economic output by sector is shown in Figure 40 and the table below. Manufacturing, construction and property & business services are the three largest sectors by economic output, with these sectors ranking higher comparatively than in employment (compare with Figure 39).

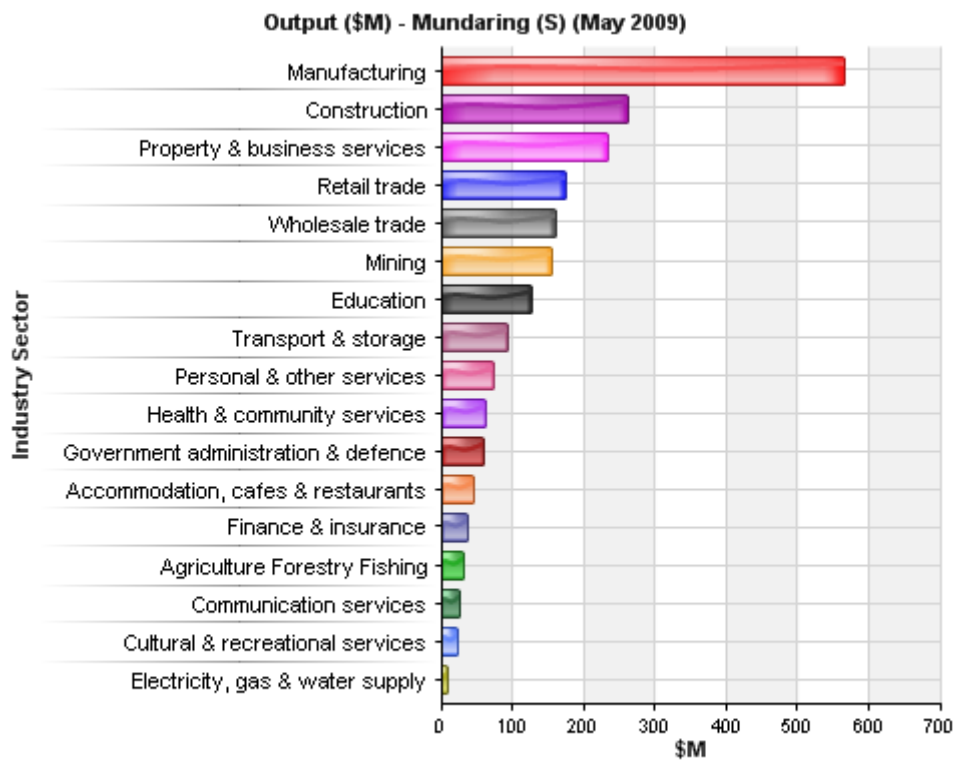


Figure 40: Economic output within Shire of Mundaring by sector (May 2009 estimate)

**ECONOMIC OUTPUT WITHIN SHIRE OF MUNDARING BY
SECTOR (MAY 2009 ESTIMATE)**

Industry Sector	\$M	%
Manufacturing	\$563.987	26.56%
Construction	\$260.528	12.27%
Property & business services	\$232.349	10.94%
Retail trade	\$173.374	8.16%
Wholesale trade	\$159.689	7.52%
Mining	\$154.347	7.27%
Education	\$125.184	5.90%
Transport & storage	\$92.015	4.33%
Personal & other services	\$73.538	3.46%
Health & community services	\$62.613	2.95%
Government administration & defence	\$57.676	2.72%
Accommodation, cafes & restaurants	\$44.485	2.10%
Finance & insurance	\$35.689	1.68%
Agriculture Forestry Fishing	\$32.254	1.52%
Communication services	\$26.095	1.23%
Cultural & recreational services	\$22.467	1.06%
Electricity, gas & water supply	\$7.104	0.33%
Total	\$2,123.394	

Employment – Shire of Mundaring residents

2006 census data (based on Place of Usual Residence Population) indicates there was a labour force of 17,402 residents within the Shire of Mundaring. This represented 62.8% of all persons aged 15 or over, which is the same proportion as for the Perth Metropolitan Region as a whole. Of the labour force of Shire residents, 16,857 (96.9%) were employed, meaning an unemployment rate of 3.1% for Shire residents, compared with 3.6% for the Perth Metropolitan Region as a whole. It is anticipated that the unemployment rate for Shire residents would have risen since 2006 due to the recent economic downturn.

Figure 41 and the following table show the breakdown of employment of Shire of Mundaring residents by sector. The three sectors employing the most residents were retail trade, health care & social assistance, and manufacturing. The breakdown of employment of Shire of Mundaring residents by sector is fairly similar to that for the Perth Metropolitan Region as a whole. Although slightly different classifications are used in Figure 41 compared to the REPLAN data in Figure 39, the two figures can be compared to gauge the imbalance between jobs Shire residents work and jobs available locally. There are more Shire residents employed in every comparable sector than there are jobs available in the Shire in that sector. This indicates the need to try to increase local employment opportunities across a broad range of sectors.

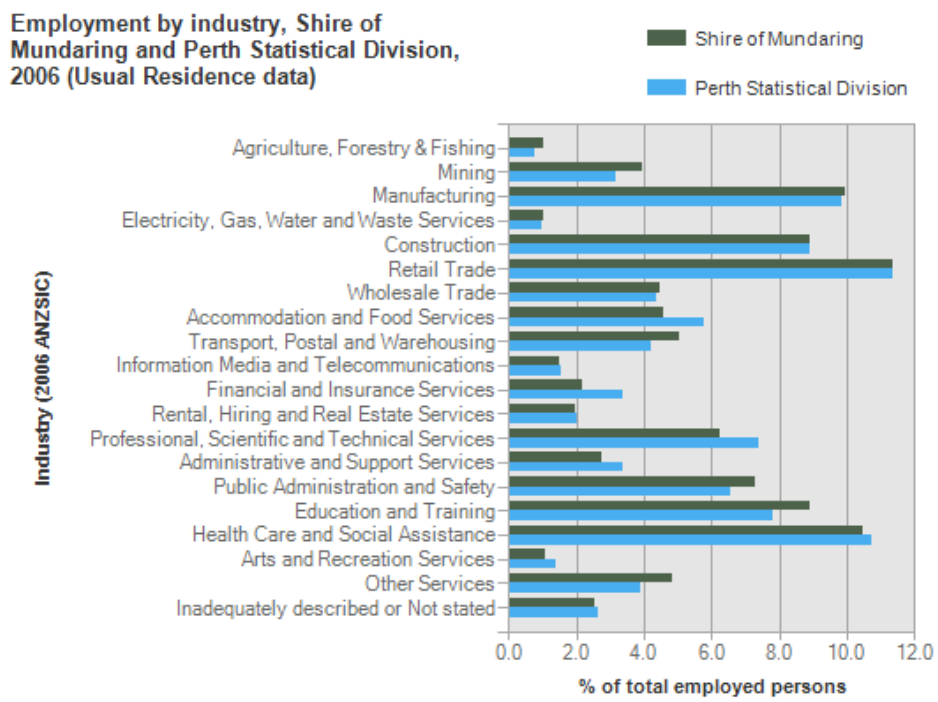


Figure 41: Employment of Shire of Mundaring residents by sector (2006 census data)
 (source: Informed Decisions, based on ABS census data – Place of Usual Residence)

**EMPLOYMENT OF SHIRE OF MUNDARING RESIDENTS BY
SECTOR (2006 CENSUS DATA)**

Industry Sector	Jobs	%
Retail trade	1911	11.3%
Health care & social assistance	1765	10.5%
Manufacturing	1676	9.9%
Construction	1499	8.9%
Education & training	1497	8.9%
Public administration & safety	1232	7.3%
Professional, scientific & technical services	1053	6.2%
Transport, postal & warehousing	848	5.0%
Other services	819	4.9%
Accommodation & food services	774	4.6%
Wholesale trade	750	4.4%
Mining	667	4.0%
Administrative & support services	459	2.7%
Finance & insurance services	365	2.2%
Rental, hiring & real estate services	331	2.0%
Information, media & telecommunications	249	1.5%
Arts & recreation services	180	1.1%
Agriculture, forestry & fishing	177	1.1%
Electricity, gas, water & waste services	175	1.0%
Inadequately described/not stated	428	2.5%
Total	16,857	

(Source: Informed Decisions, based on ABS 2006 census data – Place of Usual Residence)

4.5.2 Peak Oil

A significant issue which will affect the economy of the Shire, as well as the mobility of its residents, during the life of this Strategy, is Peak Oil. Peak Oil is the point in time at which maximum world oil production is reached – after which production will decline (possibly after a production plateau period) and oil shortages and consequent significant price increases are predicted.

Due to industry secrecy and the range of variables affecting oil supply and production, the precise date that Peak Oil will be reached is a matter of considerable debate. It has been argued by some experts that Peak Oil has already been reached; many others argue that it is imminent in the short term. For example, the Association for the Study of Peak Oil and Gas (ASPO) has predicted Peak Oil will be reached in 2010, while the UK Industry Taskforce on Peak Oil and Energy Security indicated in 2008 that Peak Oil is likely to be reached by 2013. A 2007 Queensland government taskforce report, *Queensland's Vulnerability to Rising Oil Prices*, noted that the range of credible predictions for a world peak oil situation run from 2005 to 2040, with the mean and standard deviations of all academic and industry predictions being 2013±7.

Therefore, while the exact timing of Peak Oil is uncertain, it can be confidently asserted (and it is prudent to assume) that it will most likely be reached during the life of this Strategy, and possibly in the immediate or short term future.

The infrastructure of our society is largely based on the current level of oil supply and production – land use and transportation, food production and supply, energy supplies and many products rely on relatively inexpensive oil supply. As oil supply dwindles and fails to meet demand, oil shortages and significant price increases can be expected. Higher oil prices will be reflected in the price of food, transport, heating, fertilisers, plastics, automobiles, pharmaceuticals and many other items. In the absence of effective alternatives, petroleum-based products will become increasingly scarce and trend towards being ultimately unavailable.

With respect to transport, it is widely considered that alternative fuels (including biofuels, hydrogen fuel cells and electric cars) will not, either in the short or longer term, be able to provide the same cheap and abundant transport energy as oil has. Nonetheless, it is likely that the use of such technologies will increase as the oil price rises.

It is widely predicted that the economic and social impacts of Peak Oil are likely to be dramatic due to the abrupt and sharp increase in the oil price and decrease in supply relative to demand (see, for instance, *Peaking of World Oil Production: Impacts, Mitigation, and Risk Management* by the U.S. Department of Energy 2005, known as the Hirsch Report). It is also widely recognized that the impacts of declining oil supply will be greater if efforts to adjust to a reduced oil supply are not made as far in advance of declining oil supply as possible.

State and local context

The WA State Sustainability Strategy (2003) recognises the significance of the issue of oil vulnerability. The Strategy notes that the world is using oil at a faster rate than it is being found. It also notes that there is just one week's supply of petrol in storage in Western Australia for emergency purposes and that in the medium term the oil and gas industry is also suggesting a major global oil crisis could occur. The strategy notes, among constraints to responding to oil vulnerability, the nature of Perth's development which has been highly car dependent [and this is particularly the case within the Shire of Mundaring] and the oil-intensive nature of Western Australian agriculture.

The Strategy recognises multiple benefits (economic, environmental, social) if less energy is used in transport and notes that transport energy demand can be minimised through urban design, quality public transport, and bicycle and walking options.

The Strategy's vision on this issue is for oil-based transport to move quickly to a combination of gas-based systems and an increase in the provision of public transport, cycling and walking infrastructure as a means to forestall oil vulnerability. The vision then continues to hydrogen becoming the basis of the provision of power for the economy, using fuel cells and hydrogen gas produced from renewable energy.

At a local level, the high reliance on private cars for transport throughout the Shire of Mundaring leaves many residents vulnerable to increasing fuel prices. Recent years have seen significant oil and petrol price volatility, including a global oil price spike in 2008. This saw the average price for unleaded petrol in the Perth Metropolitan Region rise from 112.7 cents per litre (cpl) in November 2006 to 157.8 cpl in June 2008 (a greater increase would have been experienced if not for the relative strength of the Australian dollar around that time). The average price has subsequently fallen due to a declining world oil price (due, at least in part, to reduced demand in a developing global economic recession), but further sharp increases can be expected in the future.

Many of the respondents to a survey conducted in preparing the Shire's Strategic Transport Plan, carried out in 2008, indicated that they had modified their vehicle use due to high petrol prices, either by driving less often or driving shorter distances. A more significant impact on residents' mobility can be expected with the much greater petrol price increases that would result from declining oil production.

Mapping of the vulnerability of Australian cities to both oil prices and also mortgages has been carried out in Griffith University research (*Unsettling suburbia: The new landscape of oil and mortgage vulnerability in Australian cities*, Jago Dodson and Neil Sipe, 2008). Mapping used the following variables, taken from census data, for each Collection District: proportion of those working who took journey to work by private car, proportion of households with two or more cars, median weekly household income, and proportion of dwellings being purchased. From this data, a level of vulnerability to mortgage, petrol and inflation risks was calculated for each Collection District. This mapping has been carried out for Perth (see Figure 42 below), and also Sydney, Melbourne, Brisbane and Adelaide. Although there are some varying patterns in each city, in general, mortgage and oil price vulnerability increases with distance from the city centre and is highest on and near the urban fringe.

In the Shire of Mundaring, the mapping was only carried out as far east as Glen Forrest. For the 2006 census, most of the Collection Districts mapped in the Shire were rated as having either a Moderate or High Vulnerability to mortgage, petrol and inflation risks and expenditure. Two Collection Districts had a Low Vulnerability while three Collection Districts had a Very High Vulnerability. The vulnerability for many Collection Districts had increased since the 2001 census. Based on mapping carried out for the urban fringe of other cities, it could be expected that eastern areas in the Shire of Mundaring would have similar or even higher vulnerability to those areas that have been mapped.

Responses to Peak Oil

There are several areas in which the Shire of Mundaring, and its residents, can prepare for Peak Oil and reduce its adverse impacts.

Community education:

Providing information on Peak Oil and the anticipated impacts of declining oil production on the community would enable residents of the Shire to make better informed decisions about transport options, vehicle purchases, job locations and other matters which will be affected by Peak Oil. Although the 2008 spike in the oil price made fuel prices a prominent issue, it is likely that the significant impacts and potentially imminent occurrence of Peak Oil are not yet widely understood across the community.

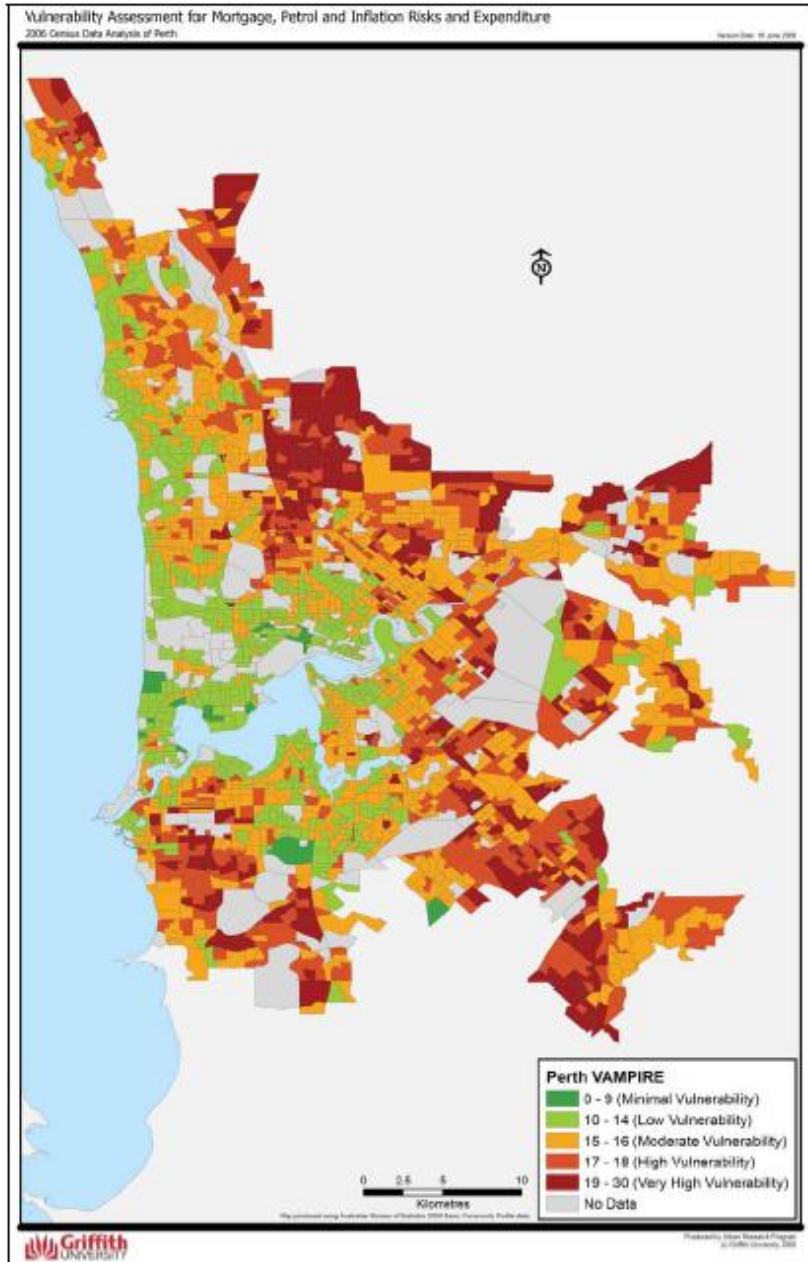


Figure 42: Oil and mortgage vulnerability in Perth, 2006

(from Jago Dodson and Neil Sipe: *Unsettling suburbia: The new landscape of oil and mortgage vulnerability in Australian cities*, Griffith University, August 2008)

As well as informing residents about impacts, an education package could promote responses such as carpooling, public transport, walking and cycling. The package could encourage both residents and local businesses to be aware of the issue of low food miles (ie. sourcing local products to minimise the distance they are transported) and to investigate online shopping and delivery of goods, particularly where not available locally. The Shire could also investigate participating in a 'Transition Town' pilot program (demonstrating and planning for transition to a post-oil economy); Transition Town projects are operating successfully in communities in the eastern states and United Kingdom, applying strategies for transitioning from oil dependence.

Reducing transport demand:

A key objective in this Local Planning Strategy is to reduce transport demand over time. This has the dual benefit of reducing the impact of Peak Oil and of minimising greenhouse gas emissions generated by transport, a key component of climate change mitigation.

Accordingly, this Strategy emphasises, as detailed in relevant sections:

- providing services and facilities within the Shire wherever possible in order to minimise the need for residents to travel outside the Shire;
- supporting increased reliance on existing local centres throughout the Shire for daily shopping and other services;
- supporting local employment and business, in particular working from home;
- concentrating new development in close proximity to existing townsites - in this respect, as outlined in Part 5, substantial new residential or rural residential development should not be supported in locations isolated from employment, services and facilities; and
- encouraging a higher density of development in those areas where sewerage is available.

Public transport and promotion of car pooling:

The Shire's Strategic Transport Plan has, based on the advice of the Public Transport Authority, assumed that increased frequency of bus services within the Shire is unlikely in the near future (see Section 3.9). This reflects the large catchment area, relatively small population and low density of development in the Shire, which reduce the viability of public transport. However, it is likely that the onset of Peak Oil and the significant fuel price increases it will bring, will severely disadvantage many residents of the Shire. On the one hand, this will make public transport more viable due to increased rates of patronage, while on the other, if the frequency and convenience of bus services are not increased, Shire residents will be more affected than most other people within the Perth Metropolitan Region. On this basis, it seems clear that there is a community service obligation for the state government, through the Public Transport Authority, to improve public transport services within the Shire. Accordingly, the Shire should aggressively lobby for these improvements.

In the first instance, improved services between Mundaring and Midland (in terms of frequency and directness) should be a focus, to encourage and facilitate a change of transport mode for existing commuting, shopping and other trips made by private car. Mundaring could operate as a 'park and ride' hub. Similarly, if and when the proposed Parkerville and Stoneville Townsite Development areas are developed, frequent and convenient bus services should be provided. However, improved services to other parts of the Shire are also important, particularly to Mount Helena, Sawyers Valley, Chidlow and Wooroloo, which currently only receive limited bus services. This issue is expanded on in section 4.6.4 below.

Promoting cycling and walking:

It is recognised that both topography and distance (given the low density of development and separation between villages) are limiting factors to cycling and walking across much of the Shire. An increasing incidence of hotter days in summer over time due to climate change will also be a constraint. Nonetheless, it is important to both encourage and facilitate an increase in walking and cycling, particularly for short journeys, in response to Peak Oil (and also to reduce greenhouse gas emissions).

The Shire's Strategic Transport Plan has identified actions to improve the Shire's pedestrian and cycling networks. These include preparing and then implementing new overall plans for footpaths and shared/dual-use paths. Among the required improvements identified in the Strategic Transport Plan are safe crossings of major roads, provision of paths along Great Eastern Highway, and improved linkages to areas of employment and recreation.

Urban design and detailed planning within urban areas, and particularly local centres and the Mundaring town centre, must emphasise safety and convenience for pedestrians and cyclists. This will include, amongst other things, shade for pedestrians, safe and convenient pedestrian crossings and bicycle parking facilities. It is also proposed to introduce bicycle parking requirements for new development into the Shire's new Local Planning Scheme No. 4.

Localised food production:

One important response to Peak Oil is reducing the distance that food is transported by encouraging the use of local produce. This generally entails increasing food production in or within close proximity to an urban centre, with that produce directed to the urban centre.

Small-scale food production already takes place within the Shire of Mundaring. It is anticipated that this will increase over the life of this Strategy, both for local consumption (either by the residents producing the food or other local buyers) and also for the wider Perth metropolitan region market.

To facilitate this, the Shire should support local food production wherever appropriate, including urban areas in some instances, and subject to any necessary controls. It should also encourage the development of community-operated gardens in appropriate locations, and support the development/holding of markets for the sale of local produce.

Shire fuel use and local purchasing:

The Shire of Mundaring, as an organization, can also respond to Peak Oil by ensuring its own operations and expenditure minimise reliance on oil. For instance, the Shire has switched much of its vehicle fleet from petrol to LPG; it should continue to seek to reduce petrol consumption by fuel efficiency, minimising overall travel and further reliance on oil. The Shire could consider contingency planning for the impact of possible oil shortages on its operations. The Shire should continue to support and prioritise purchases from local suppliers and producers where possible and reasonably cost-effective.

Accommodating motorcycles and scooters:

One response to rising oil prices may be increased use of motorcycles and scooters. As this takes place, the Shire may need to review its parking requirements to reflect changes in the composition of the vehicle fleet.

Recommendations

- Provide information on Peak Oil and the anticipated impacts of declining oil production on the community to enable Shire residents to make better informed decisions about transport options, vehicle purchases, job locations and other matters which will be affected by Peak Oil
- Promote responses to Peak Oil such as car pooling, public transport, walking and cycling
- Promote awareness of the desirability of sourcing local products to minimise the distance they are transported and encourage Shire residents and businesses to investigate online shopping and delivery of goods, particularly where not available locally
- Consider participating in a 'Transition Town' pilot program (demonstrating and planning for transition to a post-oil economy)
- Actively lobby for improved to public transport services within the Shire

- Support local food production wherever appropriate, including urban areas in some instances, subject to any necessary controls
- Encourage the development of community-operated gardens in appropriate locations, and support the development/holding of markets for the sale of local produce
- Shire of Mundaring continue to seek to reduce its petrol consumption by fuel efficiency, minimising overall travel and further reliance on oil
- Shire of Mundaring to consider contingency planning for the impact of possible oil shortages on its operations
- Shire of Mundaring to continue to support and prioritise purchases from local suppliers and producers where possible and reasonably cost-effective
- Review parking requirements over time to reflect any changes in the composition of the vehicle fleet

4.5.3 Mundaring town centre

Existing situation

The Mundaring town centre acts as the civic, commercial and community hub of the Shire, particularly for residents of the hills portion of the Shire. Land uses within the town centre include, but are not limited to:

- the Shire's administration office;
- two supermarkets;
- a medical centre and other health professionals;
- a pharmacy;
- a wide range of specialty retail stores;
- Albert Facey Memorial Library (sometimes referred to as the Mundaring Library);
- Mundaring Hall;
- Hub of the Hills community centre;
- various other community services;
- Police station;
- Post Office;
- child care services;
- hotel;
- restaurants and fast food outlets;
- 24-hour service station/convenience store;
- car wash;
- bank, real estate agencies and a range of other offices;
- Anglican Church;
- art gallery;
- tourist information centre;
- single houses; and

- aged housing in the form of grouped dwellings.

At a regional level, Mundaring is identified as an activity centre in *Network City* (see section 2.2.3.1 above). The *Outer Metropolitan Perth and Peel Sub-Regional Strategy* (see section 2.2.3.7 above) and the revised State Planning Policy 4.2 Activity Centres for Perth and Peel (see section 2.2.2.14 above), both identify Mundaring as a district centre.

Mundaring is connected to Midland and to other suburbs/villages in the Shire by bus services, although these are fairly poor in terms of frequency and directness (see section 4.6.4 below).

The town centre is primarily accessed by and capitalises on passing traffic on Great Eastern Highway, but it is also physically divided by the highway. This has implications for pedestrian and cyclist safety within what should be an integrated town centre, encouraging safe, convenient and pleasant movement by walking and cycling.

In 2012 works were carried out in association with Main Roads Western Australia, in an effort to improve pedestrian and vehicle safety along Great Eastern Highway in the Mundaring town centre. Works included asphalt resurfacing of the highway, incorporating parking embayments with brown asphalt, and the upgrade of four existing crossing points between Mann Street and the signals at Stoneville and Mundaring Weir Roads. At the steepest crossing point, pedestrians are now directed up/down a ramp to a staggered crossing. This crossing caters for all pedestrians.

At present the area is divided into two separate zones by the Shire's Town Planning Scheme No. 3, District Shopping and District Business. The District Shopping zone applies to land north of Great Eastern Highway (bounded by the highway, Stoneville Road, Hartung and Mann Streets) while the District Business zone applies to land south of Great Eastern Highway (bounded by the highway, Mindyah Court, Jacoby and Fenton Streets). The Scheme specifies twelve separate objectives for the District Shopping zone and eight for the District Business zone.

In addition, other land north of Great Eastern Highway, both west and east of the District Shopping zone (west to Gill Street and east to Chipper Street), is zoned Residential but is subject to Additional Uses under Town Planning Scheme No. 3, allowing a range of commercial uses.

The two zones provided a distinction between shopping to north of the highway and business (non-retail commercial) to the south. However, this distinction has been diminished over time through the approval and development of a convenience store, fast food outlets and other shops on the southern side of the highway.

Precinct Plans, prepared in 1997, have guided development within each of the District Shopping and District Business zones. These Precinct Plans are the:

- *Precinct Plan for the District Shopping Zone in the Shire of Mundaring 1997* (see section 3.6.1.1); and
- *Shire of Mundaring Precinct Structure Plan for The Business District Zone & The Civic & Cultural Precinct in the Mundaring Townsite* (December 1997) (see section 3.6.1.2).

In view of the objectives and recommendations of this Strategy, and the constraints to development imposed by limited sewerage treatment capacity (see below), it is considered important that these Precinct Plans be reviewed and a new integrated Precinct Plan prepared for the entire town centre.

Sewerage constraints

The Mundaring Wastewater Treatment Plant (WWTP) now operates at its full capacity of 120 kL/day of wastewater (see also section 4.6.2 below). Indeed, at the time of writing, wastewater inflows to the plant exceed this figure (generally by at least 10-15 kL/day) and the excess wastewater is tankered daily to a sewerage pumping station on the coastal plain.

Because there is no longer any additional wastewater treatment capacity available, development within the Mundaring town centre is severely constrained. The Water Corporation will not permit further development which entails either new connections or generation of additional effluent through existing connections to the sewerage system, until and unless the WWTP capacity is expanded. The Water Corporation plans to expand the capacity of the Mundaring WWTP from 120 kL/day to 240 kL/day (see section 4.6.2). It is currently anticipated that this expansion will be completed by mid-2012.

In the interim, new businesses or other uses are effectively limited to occupying any buildings that become vacant, which is a severe constraint to economic development and moving towards greater local self-sufficiency in commercial and community uses for residents of the hills portion of the Shire. Moreover, the current situation highlights the need to very carefully consider and allocate land use potential in a new Precinct Plan for the Mundaring town centre to optimise the use of the limited additional effluent disposal capacity that would result from expansion of the WWTP. There should be an emphasis on the commercial and community uses that will meet the longer term needs of the community and minimise the need for travel out of the Shire.

Town Centre zone

The development of a cohesive, integrated Mundaring town centre is considered critically important to the longer-term wellbeing of residents of the hills portion of the Shire. This Strategy supports the enhancement of the role of the Mundaring town centre in providing for as many needs of residents as possible, to increase local economic and employment self-sufficiency, minimise travel demand to reduce greenhouse emissions and reduce possible impacts of peak oil.

Accordingly, it is proposed to include all land zoned District Shopping and District Business under Town Planning Scheme No. 3, along with the adjacent street blocks zoned Residential but with Additional Uses allowing commercial uses, in a single Town Centre zone bounded by Gill, Hartung, Chipper, Fenton and Jacoby Streets and Mindyah Court.

Local Planning Scheme No. 4 specifies the following objectives for the Town Centre zone:

- to provide for development of the Mundaring town centre as the principal focus for retail, commercial, administrative, entertainment and cultural uses within the Shire;
- to provide for the retail, commercial and entertainment needs of residents of the hills portion of the Shire so as to minimise the need for travel out of the district;
- to provide for appropriate uses catering to tourism activity;
- to provide a safe and convenient environment in the town centre for pedestrians and cyclists, and to provide for good accessibility by public transport;
- to provide for well coordinated development of the town centre by way of precinct/structure planning, to ensure a high quality of urban design, appropriate disposition of land uses, and optimal use of infrastructure capacity; and
- to provide for uses that will encourage the use of the town centre outside normal retail or office hours.

To achieve these objectives over time, it will be necessary for a detailed new Precinct Plan to be prepared for the town centre. Local Planning Scheme No. 4 provisions will require that subdivision, development and use of land shall be in accordance with the controls set out in the Precinct Plan, which shall operate as if they were provisions of the Scheme. To achieve the objectives for the zone, it will also be necessary for additional wastewater treatment capacity to be provided at the Mundaring WWTP and for this capacity to be carefully allocated among potential new uses within the town centre.

There are many other matters to be taken into account in the preparation of a new Precinct Plan for the Mundaring town centre and in considering planning proposals for the town centre over time. These include:

- There is a need to balance demand for aged housing or grouped dwellings for other members of the community with the need for commercial and community uses that will reinforce the role of the town centre, providing for as many needs of residents as possible, to increase local economic and employment self-sufficiency and minimise travel demand.
- The new Mundaring town centre Precinct Plan should be prepared in conjunction with or in the context of a review of the Shire's Local Commercial Strategy.
- There is a need to investigate the location and provision of adequate parking for such a 'park and ride' hub as part of a new Precinct Plan for the town centre (see section 4.6.4 below).
- Traffic on Great Eastern Highway, including heavy vehicles, poses a barrier and safety concern for pedestrian movement with the town centre. Recently, a variable 50 km/h speed limit has been introduced for the highway through the town centre. Nonetheless, other traffic control options or other measures on Great Eastern Highway to improve pedestrian safety and connectivity within the town centre should be investigated.
- There is a need to emphasise and better accommodate safe, convenient pedestrian and cyclist movement in the town centre. Bicycle parking facilities need to be provided in appropriate locations.
- The possible need for a Community Resource Centre within the town centre should be considered as part of the Precinct Plan and planning for a specific civic and community area within the town centre.
- A possible requirement should be considered, either as a specific Scheme requirement or a local planning policy, for development within the town centre to provide or contribute to public art throughout the town centre.
- The new Precinct Plan should continue to encourage and require a high quality of urban design so that the town centre develops as an attractive, inviting and safe area for residents and visitors.

Recommendations

- Support and promote development of a cohesive, integrated Mundaring town centre
- Enhance the role of the Mundaring town centre in providing for as many needs of residents as possible, to increase local economic and employment self-sufficiency, minimise travel demand to reduce greenhouse emissions and reduce possible impacts of peak oil
- Include all land zoned District Shopping and District Business under Town Planning Scheme No. 3, along with the adjacent street blocks zoned Residential but with Additional Uses allowing commercial uses, in a single Town Centre zone bounded by Gill, Hartung, Chipper, Fenton and Jacoby Streets and Mindyah Court

- Prepare a new Precinct Plan for the Mundaring town centre, as a high priority
- Prepare the new Mundaring town centre Precinct Plan in conjunction with or in the context of a review of the Shire's Local Commercial Strategy
- Carefully allocate land use potential in a new Precinct Plan for the Mundaring town centre to optimise the use of the limited additional effluent disposal capacity that would result from expansion of the Mundaring Wastewater Treatment Plant, with an emphasis on the commercial and community uses that will meet the longer term needs of the community and minimise the need for travel out of the Shire
- Encourage and require a high quality of urban design in the new Precinct Plan for the town centre so that the town centre develops as an attractive, inviting and safe area for residents and visitors
- Incorporate a provision in Local Planning Scheme No. 4 requiring that subdivision, development and use of land shall be in accordance with the controls set out in an approved Precinct Plan, which shall operate as if they were provisions of the Scheme
- Actively advocate improved public transport between Mundaring and Midland (in terms of frequency and directness) to encourage and facilitate a change of transport mode for trips to Midland currently made by private car
- Investigate the location and provision of adequate parking for such a 'park and ride' hub as part of a new Precinct Plan for the town centre
- Investigate traffic control options or other measures on Great Eastern Highway to improve pedestrian safety and connectivity within the Mundaring town centre
- Emphasise and better accommodate safe, convenient pedestrian and cyclist movement in the town centre, and ensure provision of bicycle parking facilities in appropriate locations
- Consider the possible need for a Community Resource Centre as part of the preparation of a new Precinct Plan for the town centre and in planning for a specific civic and community area within the town centre
- Consider a possible requirement, either as a specific Scheme requirement or a local planning policy, for development within the town centre to provide or contribute to public art throughout the town centre

4.5.4 Local centres

Town Planning Scheme No. 3 and Local Commercial Strategy 1992

Local centres are identified in the Shire's 1992 Local Commercial Strategy (LCS) (see section 3.3 above) and included in a Local Centre zone under Town Planning Scheme No. 3. The Scheme specifies thirteen separate objectives for the zone.

The LCS includes a series of Commercial Strategy Statements for each local centre (as well as for the Shire as a whole, Great Eastern Highway and industrial areas). In short, the LCS reinforces the previously existing commercial structure within the Shire, with the Mundaring Town Centre as the major focal point in the Shire for commercial activity and a local centre in each village and suburb.

For most local centres, the LCS recommends maintaining the then (1992) current floorspace. In Chidlow, new commercial development is directed towards the Thomas Street local centre (the traditional village centre). In Wooroloo, the floorspace limit is based upon an ultimate maximum population for the locality of 5000 people.

The LCS also recommended the preparation of Precinct Plans for those commercial centres requiring a more comprehensive planning approach for the purpose of rationalisation or likely further growth.

Based on the Strategy Statements in the LCS, Town Planning Scheme No. 3 identifies three levels of local centre and delineates these on the Scheme Maps. From largest to smallest, these are:

- Local Centre 3 – Neighbourhood Commercial Centre
- Local Centre 2 – Local Commercial Centre
- Local Centre 1 – Convenience Store

Local Centre zones throughout the Shire are located and classified as follows.

Swan View:

- Neighbourhood Commercial Centre: Marlboro Road/Gladstone Avenue (Swan View Shopping Centre), the only local centre in the Shire at this level – the Local Centre zone includes adjacent grouped housing
- Local Commercial Centre: Morrison Road (Darling Ridge Centre)

Greenmount:

- Convenience Store: Old York Road

Helena Valley:

- Local Commercial Centre: Torquata Boulevard
- Convenience Store: Scott Street

Darlington:

- Convenience Store: Owen Road
 - Convenience Store: Montrose Avenue
- (The LCS indicates that these separate but close local centres should be considered jointly to constitute a single larger commercial centre)

Glen Forrest:

- Local Commercial Centre: Hardey Road
- Local Commercial Centre: Railway Parade

Parkerville:

- Local Commercial Centre: Owen Road
- Convenience Store: Seaborne Street

Stoneville:

- Local Commercial Centre: Richardson Road

Mahogany Creek:

- Convenience Store: Homestead Road

Sawyers Valley:

- Local Commercial Centre: Great Eastern Highway
 - Convenience Store: Great Eastern Highway
- (These local centres are located south and north of the highway respectively; the LCS indicates the land north of the highway should be developed for low-key commercial activities other than retail).

Mount Helena:

- Local Commercial Centre: McVicar Place
- Convenience Store: Keane Street East

Chidlow:

- Local Commercial Centre: Thomas Street
- Convenience Store: Rosedale Road

Wooroloo:

- Local Commercial Centre: Government Road

Town Planning Scheme No. 3 reinforces the recommendations of the LCS, requiring an economic impact statement to be prepared for any proposal for additional retail floorspace within local centres over and above that specified in the LCS. The provision requires that, for an approval to be issued, Council must be satisfied that the proposed expansion is justified and would preserve the existing level of service available to the local community. Notwithstanding this provision, and the Local Commercial Strategy's general recommendations to maintain retail floorspace at 1992 levels, the Shire has considered and approved proposed expansions of retail floorspace in some local centres beyond the limits specified in the Local Commercial Strategy.

Current situation and future strategies

Most local centres in the Shire have been developed to or beyond the retail floorspace limits set in the LCS. The main exceptions are underdeveloped local centres in Parkerville, Mahogany Creek, Chidlow and Wooroloo.

This Strategy supports retaining a Local Centre zone in Local Planning Scheme No. 4, distinct from the Town Centre zone for Mundaring. Local Planning Scheme No. 4, which proposes more succinct objectives for zones than is generally the case in Town Planning Scheme No. 3, specifies the following objectives for the Local Centre zone:

- to provide for a range of retail, commercial and community uses to meet the immediate needs of individual neighbourhoods and townsites;
- to provide for appropriate uses catering to tourism activity; and
- to ensure a high quality of urban design and development, in keeping with the existing character of each local centre.

The LCS has not been reviewed as part of the preparation of this Local Planning Strategy. However, it is recommended that the LCS be reviewed as a matter of priority. Among the matters to be considered in the review of the LCS are:

- the extent to which controls on the size of individual local centres are consistent with this Strategy's objectives of reducing transport demand, increasing local employment self-sufficiency;
- whether the existing three-tier hierarchy of local centres requires change; and
- the appropriate size of each Local Centre zone, taking into account potential population growth in those areas.

Consistent with other recommendations of this Local Planning Strategy, the Shire should support increased reliance on existing local centres throughout the Shire for daily shopping and other services.

Local Planning Scheme No. 4 proposes a similar provision to Town Planning Scheme No. 3, indicating that the Shire may require an economic impact statement for proposals for retail floorspace above that specified in the 1993 LCS for a given Local Centre zone. However the provision indicates that this is an interim measure pending the review of the LCS and that upon adoption of a new LCS, additional floorspace shall be in accordance with that new LCS.

Notwithstanding the need to review the LCS before substantially changing Local Centre zones and floorspace limits relating to such zones, some specific changes to individual Local Centre zones are warranted in Local Planning Scheme No. 4 at this point.

In Darlington, it is proposed to extend Local Centre zone boundaries to cover existing/recent commercial uses in the Darlington village centre and adjacent land to facilitate adequate commercial use in the village centre. This is in recognition of an apparent undersupply of retail floorspace and the desirability of encouraging low-scale tourist uses such as tearooms or a cafe.

In Sawyers Valley, it is proposed to extend the Local Centre zone to cover all land north of and abutting Great Eastern Highway between Sawyers Road and Old Sawyers Road land. This is in recognition of the impacts on residential amenity of traffic and location adjacent to or opposite commercial uses, rather than any undersupply of retail floorspace. The current recommendation of the LCS that land north of the highway be used for non-retail purposes should be reconsidered in the review of the LCS.

The LCS assumed a population of up to 5000 for Wooroloo in setting the floorspace limit for the Wooroloo Local Centre zone. As outlined in section 5.2.16, that assumption is now considered excessive. Also, the LCS noted the existing commercial use on Government Road near the intersection with Linley Valley Road but recommended that it be phased out as a non-conforming use.

However, given the lower expectations for residential growth in Wooroloo, it is considered that the existing Local Centre zone in Wooroloo can be reduced. Also, with less growth anticipated in Wooroloo, the need to phase out the existing small commercial use on Government Road is not clear. Accordingly, Local Planning Scheme No. 4 proposes to reduce the size of the Local Centre zone to reflect lower anticipated future population size and to include land on Government Road, east of White Gum Gully, in the Local Centre zone to reflect existing and historic land uses.

Precinct plans have been developed for Chidlow, Darlington, Glen Forrest, Mount Helena and Parkerville. Most of these address a wider area than the Local Centre zone itself, but the local centre is a key component of the precinct plans. These existing precinct plans should be reviewed. Also, consideration should be given to developing precinct plans over time for the Swan View (both Marlboro Road/Gladstone Avenue and Morrison Road), Helena Valley (Torquata Boulevard), Stoneville, Sawyers Valley and Wooroloo local centres and adjacent areas.

Structure plans delineate commercial development in each of the proposed North Parkerville and North Stoneville (“Parkerville Townsite” and “Stoneville Townsite”) developments. While these sites will be zoned Development under Local Planning Scheme No. 4, should residential and then commercial development proceed, it is anticipated that, over time, those commercial areas may be included in a Local Centre zone.

In Swan View, Local Planning Scheme No. 4 proposes Additional Use classification over residential land on Morrison Road between Fairfax Road and Talbot Road. This would allow for additional non-retail commercial uses, to develop a local activity corridor, but without a Local Centre zoning, which would allow a much wider range of uses.

Recommendations

- Maintain a provision in Local Planning Scheme No. 4 allowing the Shire to require an economic impact statement for proposals for retail floorspace above that specified in the 1993 Local Commercial Strategy for a given Local Centre zone, pending review of that strategy
- Support increased reliance on existing local centres throughout the Shire for daily shopping and other services
- Review the Shire’s Local Commercial Strategy as a matter of priority
- In the review of the Local Commercial Strategy, consider the extent to which controls on the size of individual local centres are consistent with this Strategy’s objectives of reducing transport demand, increasing local employment self-sufficiency
- Review and determine the appropriate size of Local Centre zones as part of the Local Commercial Strategy review, taking into account potential population growth in those areas
- Review existing Precinct Plans for Chidlow, Darlington, Glen Forrest, Mount Helena and Parkerville
- Consider developing precinct plans over time for the Swan View (both Marlboro Road/Gladstone Avenue and Morrison Road), Helena Valley (Torquata Boulevard), Stoneville, Sawyers Valley and Wooroloo local centres and adjacent areas
- Extend Local Centre zone boundaries to cover existing/recent commercial uses and adjacent land in the Darlington village centre

- Extend the Local Centre zone in Sawyers Valley to cover all land north of and abutting Great Eastern Highway between Sawyers Road and Old Sawyers Road land
- Reduce the size of the Wooroloo Local Centre zone to reflect lower anticipated future population size than previous projections
- Include land on Government Road, east of White Gum Gully, in the Wooroloo Local Centre zone to reflect existing and historic land uses
- Allow for additional non-retail commercial uses along Morrison Road between Fairfax Road and Talbot Road to develop a local activity corridor

4.5.5 Industry and service commercial

The Shire of Mundaring has two light industrial areas, in Midvale and in Mundaring, 1 km east of the Mundaring town centre. Each of these areas also has a service commercial area, specifically zoned Service Commercial, which provide for an extensive range of commercial activities which, because of the scale or the nature of the business, require or prefer a location outside of the town centre or local centres. There is no General Industry zone in the Shire to provide for those industries whose scale or nature of operations are likely to cause adverse off-site impacts such as noise, odour or other pollution.

The Midvale light industrial/service commercial area is an extensive estate in Midvale, located between Great Eastern Highway and Morrison Road. The area is mostly located east of Roe Highway, although a small area of light industrial land is located between Beaconsfield Avenue and Roe Highway, west of the highway. Service commercial zoning and use is located along Great Eastern Highway, Farrall Road and Morrison Road, to capitalise on exposure to passing traffic. The area has very good road access, is close to the Midland Regional Centre and nearby industrial/service commercial land in Bellevue in the City of Swan. Its location is easily accessible by and in close proximity to a large potential customer and employee base in surrounding residential areas, both in the Shire of Mundaring and the City of Swan. The area has a broad mix of light industries and service commercial businesses. The area has reticulated sewerage.

The Mundaring light industry/service commercial area enjoys direct access to the Great Eastern Highway, and has an extensive range of light industrial and service commercial businesses. The Max Williams Mundaring Emergency Services Centre and the Shire of Mundaring Operations Centre are also located in the light industry/service commercial centre, albeit the latter is on land reserved under Town Planning Scheme No. 3 for Public Purpose. The service commercial area, along Wandeara Crescent between Great Eastern Highway and the Railway Reserves Heritage Trail, is zoned Special Purpose under Town Planning Scheme No. 3, with the light industrial area zoned Light Industry. The lack of reticulated sewerage in the area acts as a constraint to some industries locating in the area.

The existing light industrial areas are very constrained and are effectively unable to expand. In Midvale, there is the opportunity, being pursued by the Shire, to slightly expand the Light Industry zone between Elmsfield Road and Park Road, although a strip of Local Reserve: Recreation is to be retained along Park Road (opposite residential lots on the northern side of Park Road) to ensure industrial vehicle access is via Elmsfield Road. In Mundaring, the Mundaring Weir Catchment prevents southward or eastward expansion and residential land is located to the west. Accordingly, with the exception of the minor expansion recommended in Midvale, it is proposed to maintain the current extent of the Light Industry and Service Commercial zones in Local Planning Scheme No. 4.

Both areas enjoy high occupancy levels. The Shire's Economic Development Strategy notes that without the capacity to expand these areas, attracting new investment to the Shire and retaining existing businesses which are expanding may be problematic. The Economic Development Strategy recommends the identification of land within the Shire suitable for new industrial/commercial development as a high priority.

Preliminary investigations have been conducted to identify possible locations for a new light industrial area. The existing subdivision and land use pattern in the Shire and a range of constraints make it difficult to identify a well-located area for new light industrial development. One site identified as having potential for a new Light Industry zone is primary cleared land including and behind the site of the former Stone House service station in Sawyers Valley, around 3 km east of the Sawyers Valley townsite. While relatively isolated from residential areas, and not currently serviced by public transport, the area does have good accessibility to Great Eastern Highway and relatively close proximity to Mundaring.

More detailed investigations are required to determine the suitability and serviceability of the land. If the site is found to be appropriate and suitable for a Light Industry zone, this zoning should be pursued by amendment to Local Planning Scheme No. 4 (and, if required, the MRS). Should detailed investigations conclude that the site is not suitable, further investigations will be required to identify another site, and because of the constraints on selecting such a site, the site chosen may have to be located further from Mundaring and/or away from highway access.

In Midvale, substantial upgrading of the intersection between Great Eastern Highway and Roe Highway is planned by the construction of a (grade-separated) flyover of Great Eastern Highway by Roe Highway by mid-2012 (see section 4.7.3.1 below). The revised intersection layout will have implications for access to/from Great Eastern Highway between Roe Highway and Farrall Road and traffic circulation in the adjacent light industrial/service commercial area, which requires investigation.

In Helena Valley, land near the western end of Helena Valley Road, zoned Rural under the MRS and affected by the ANEF 25-30 contours, is proposed to be zoned Rural Residential 4 in LPS 4, to maintain existing lot sizes, while desirable uses for the land are further considered. Given the constraints to residential use and the location of the land in close proximity to Hazelmere and Midland, it has potential to be developed for appropriate service commercial and light industrial uses. Accordingly, it would be appropriate to investigate potential rezoning of this land from Rural to Urban under the MRS, to accommodate service commercial and light industry uses suitable for a mixed business precinct that are consistent with State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport and to provide development which is of a high quality design to provide an attractive entrance to Helena Valley.

In Mundaring, it is proposed to include land on Wandeara Crescent between Great Eastern Highway and the Railway Heritage Trail, other than the emergency services centre (which will be a Local Reserve for Public Purposes), in the Service Commercial zone in Local Planning Scheme No. 4 rather than the Special Purpose zone. A strip of dual-frontage lots between Wandeara Crescent and Darkan Street were intended to provide for residences and industries on the same lot, with residences only fronting Darkan Street. However, only a few of these lots have had residences constructed on them to date. To encourage this to take place, and to avoid or minimise any adverse amenity impacts on the residential properties on the western side of Darkan Street, the portion of those lots fronting Darkan Street is proposed to be included in an overlying Restricted Use zone. This zone will limit use to residential use and prohibit vehicular access to Darkan Street from the service commercial uses on the balance portion of those lots.

Mining and mineral extraction within the Shire is considered in section 4.5.6 (Rural land use) below.

Recommendations

- As a high priority, investigate a potential new Light Industry zone on primarily cleared land including and behind the former Stone House service station, to capitalise on accessibility to Great Eastern Highway and to provide additional light industrial land in view of the Mundaring light industrial area being developed to near capacity
- If investigations demonstrate suitability of land including and behind the former Stone House service station for a new Light Industry zone, amend Local Planning Scheme No. 4 accordingly (and, if required, pursue concurrent or prior amendment to the MRS)
- Expand the Light Industry zone between Elmsfield Road and Park Road, Midvale, but retain a strip of Local Reserve: Recreation along Park Road to ensure industrial vehicle access is via Elmsfield Road
- Investigate potential rezoning of land north and south of Helena Valley Road and within the ANEF 25 contour from Rural to Urban under the MRS, to accommodate service commercial and light industry uses suitable for a mixed business precinct that are consistent with State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport and to provide development which is of a high quality design to provide an attractive entrance to Helena Valley
- Include land on Wandeara Crescent between Great Eastern Highway and the Railway Heritage Trail, other than the fire and emergency services co-location centre, in the Service Commercial zone rather than the Special Purpose zone, and also include the portion of those lots fronting Darkan Street in a Restricted Use zone to limit use to residential use and prohibit vehicular access to Darkan Street from the service commercial uses on those lots
- Other than the changes recommended in the above points, maintain existing extent of the Light Industry and Service Commercial zones in Local Planning Scheme No. 4
- Investigate Great Eastern Highway access and traffic circulation issues in the Midvale light industrial/service commercial area in the context of anticipated changes to Great Eastern Highway resulting from the construction of a grade-separated intersection between Great Eastern Highway and Roe Highway

4.5.6 Rural land use

This section deals with rural land uses other than rural residential and rural small holdings. These are addressed in section 5.3.

Existing situation

Larger privately owned rural lots in the east and northeast of the Shire are included in the General Rural zone under Town Planning Scheme No. 3. The General Rural zone covers virtually all privately owned land in Bailup and The Lakes, much of Wooroloo, and some of Mount Helena, Chidlow and Beechina. The Scheme specifies seven separate objectives for the General Rural zone. Agricultural production takes place not only land zoned General Rural, but also on some land zoned Rural Landscape Living under Town Planning Scheme No. 3. Land zoned Rural Landscape Living under Town Planning Scheme No. 3 and used for agricultural production is mostly proposed to be zoned Rural Small Holdings under Local Planning Scheme No. 4 (see section 5.3).

Rural production within the Shire of Mundaring encompasses agriculture, horticulture, viticulture and forestry. It is estimated that 133 people are employed within the Shire in these industries. Approximately 8800 ha within the Shire is dedicated to agricultural and horticultural use, according to the ABS 2006/07 Agricultural Survey. Use of that land is divided as indicated in the following table:

USE OF AGRICULTURAL/HORTICULTURAL LAND WITHIN SHIRE OF MUNDARING	
Land use	Area (ha)
Grazing	3969
Fallow	2123
Remnant vegetation/woodland not suitable for grazing	1727
Under crop, vegetables, fruit, nuts, broadacre crops, grapes, nurseries	583
Houses, sheds and other agricultural unproductive land	272
Environmentally sensitive areas fenced out of production	67
Wetlands or swamps not suitable for grazing	27

(Source: Shire of Mundaring Economic Development Strategy based on ABS data)

Agriculture and forestry was estimated to have an economic output of around \$32 million in the year to May 2009 (source: REMPLAN, see section 4.6.1 above).

Horticultural produce within the Shire includes vegetables, cut flowers, turf, nuts, stonefruit, citrus, apples, avocados and mangoes.

Wine production in the Shire is based on the production of grapes by a number of boutique vineyards located throughout the Shire. The Perth Hills region has an excellent reputation for high quality wine. Vineyards and wineries are a valuable contributor to local tourism, with wine tasting, cellar door sales and meals.

Historically, forestry was a significant industry within the Shire. Forestry continues on Crown land in the southeast of the Shire within the Mundaring Weir catchment, with commercial plantations managed and harvested by the Forest Products Commission.

General Agriculture zone

State Planning Policy 2.5 Agriculture and Rural Land Use Planning (see section 2.2.2.3 above) specifies the zones which should be used for different categories of rural land throughout the state. The four recommended zones are:

- Priority Agriculture
- General Agriculture
- Rural Small Holdings
- Rural Residential

The recommended Rural Small Holdings and Rural Residential zones are discussed in section 5.3. With respect to the two agricultural zones, the State Planning Policy describes the zones as follows:

Priority Agriculture: Land identified as an agricultural area of State or regional significance (by State agencies and the local government in consultation with the community) or land identified in a local planning strategy as an area of local agricultural significance. An Agricultural Impact Assessment is to accompany any proposed development, rezoning or subdivision to facilitate non-agricultural use.

General Agriculture: Rural land that is not identified an area of agricultural significance, nor identified and zoned for closer settlement.

A working paper prepared for the North Eastern Hills Settlement Pattern Plan (see section 2.2.3.4 above), addressing most of the Shire of Mundaring and adjacent land in the City of Swan, assessed land to identify special agricultural areas. Identified land units with a high capability for horticulture and good prospects for water supply may warrant Priority Agricultural zoning; however, these areas are mostly limited to creek valleys and are thus small and narrow, usually comprising only a small portion of a rural lot. Agricultural land of the highest category – where there is a coincidence of capable areas, favourable zoning and existing horticultural enterprises in proximity – was only identified in Gidgegannup, within the City of Swan.

In view of the findings of the working paper, it is considered that a Priority Agriculture zone is unwarranted for the Shire. Accordingly, Local Planning Scheme No. 4 proposes only a General Agriculture zone. This zone incorporates much of the land zoned General Rural under Town Planning Scheme No. 3, although areas with most lots below 40 ha have been included in the Rural Small Holdings zone (see section 5.3). The General Agriculture zone is thus limited to the Shire's easternmost localities of Bailup, Wooroloo and The Lakes.

Most properties within the General Agriculture zone are primarily cleared, but there are some significant Local Natural Areas within the zone as well. In most cases, there is sufficient cleared area on General Agriculture zoned lots to allow productive agricultural use.

Local Planning Scheme No. 4, which proposes more succinct objectives for zones than is generally the case in Town Planning Scheme No. 3, specifies the following objectives for the General Agriculture zone:

- to provide for a diversity of agricultural and rural purposes;
- to prevent land use and development (including subdivision) within the zone which may adversely impact on the continued use of land within the zone for agricultural and rural purposes; and
- to ensure conservation of soil and water resources and the protection of ecological and landscape values.

Further subdivision of land within the General Agriculture zone is not supported and will be prohibited by Local Planning Scheme No. 4. Fragmentation of land within the zone is considered to have the potential to remove the land from agricultural use.

In the case of land north of the proposed Perth-Adelaide Highway, in Bailup and adjacent parts of Wooroloo, most of which is proposed to be zoned General Agriculture under Local Planning Scheme No. 4, existing lot sizes should be maintained pending preparation of a limited rural strategy for the area. That strategy should investigate and determine desirable agricultural and other rural uses and the lot sizes that will best facilitate those uses. Depending on the conclusions of that strategy, some further rezoning of land within the area, probably to Rural Small Holdings, might be supported. However, the strategy should maintain a very strong presumption against rural residential subdivision throughout the area, except immediately adjacent to the Wooroloo townsite, due to isolation from services and employment.

Although it is noted that some rural residential subdivision has occurred and is still envisaged within adjacent areas in the Shires of Northam and Toodyay, it is not considered that such subdivision in an isolated area is sustainable or desirable, given the excessive travel demand that would be generated and in view of the likely impacts of peak oil. Minimising fragmentation of land will also preserve options for future major urban development in the area, should that be supported at regional level in the future, although such an outcome is neither anticipated nor supported by this Strategy.

Two 500 m buffers adopted by the Shire of Northam around the Linley Valley Abattoir and associated wastewater ponds, adjacent to the Shire boundary, also affect rural land within the Shire of Mundaring, in Wooroloo. Further subdivision of land affected by the abattoir should not be supported. Additionally, no dwelling or other sensitive land use should be approved within the buffer and any applications for development or land use within or near this buffer should be referred to the Shire of Northam for comment.

Mining

This section is largely based on information provided by the Department of Industry and Resources.

As of July 2007, there were seven granted mining tenements, seven mining tenement applications, and one petroleum tenement wholly or partly within the Shire of Mundaring. The mining tenements cover most of the Shire, and the main minerals of interest are bauxite and gold. One of the mining tenements is a State Agreement which covers bauxite mining operations in State Forest (*Alumina Refinery (Worsley) Agreement Act 1973*). The petroleum tenement covers the Perth Basin in the western portion of the Shire.

A State Agreement is between the State and a private sector company and gives the company exclusive rights to develop a natural resource (owned by the State) in return for the company undertaking to establish and operate a resource project. The Agreement provisions, where they are inconsistent, may override the existing statutory laws of the State.

On Crown land, construction materials are defined as a “mineral” and hence there is a need for mining leases for rock or gravel extraction. On private property, construction material extraction and sale is authorised by the Shire through grant of Extractive Industry Licences. Mining of construction materials will be required for new infrastructure built within in the Shire and region.

It is important for existing resource extraction sites, whether Mining Leases on Crown land or extractive industry sites under Shire authority, where those resources will last for a number of years, to be protected from developments that would conflict with the extraction, such as any new special rural subdivisions or townsite expansions. Protection of construction material sites is important because all developments require supplies of cost-effective, high quality resources. The EPA's buffer guidelines require setbacks between quarry sites and dwellings and the Shire should ensure housing is not approved within specified distances.

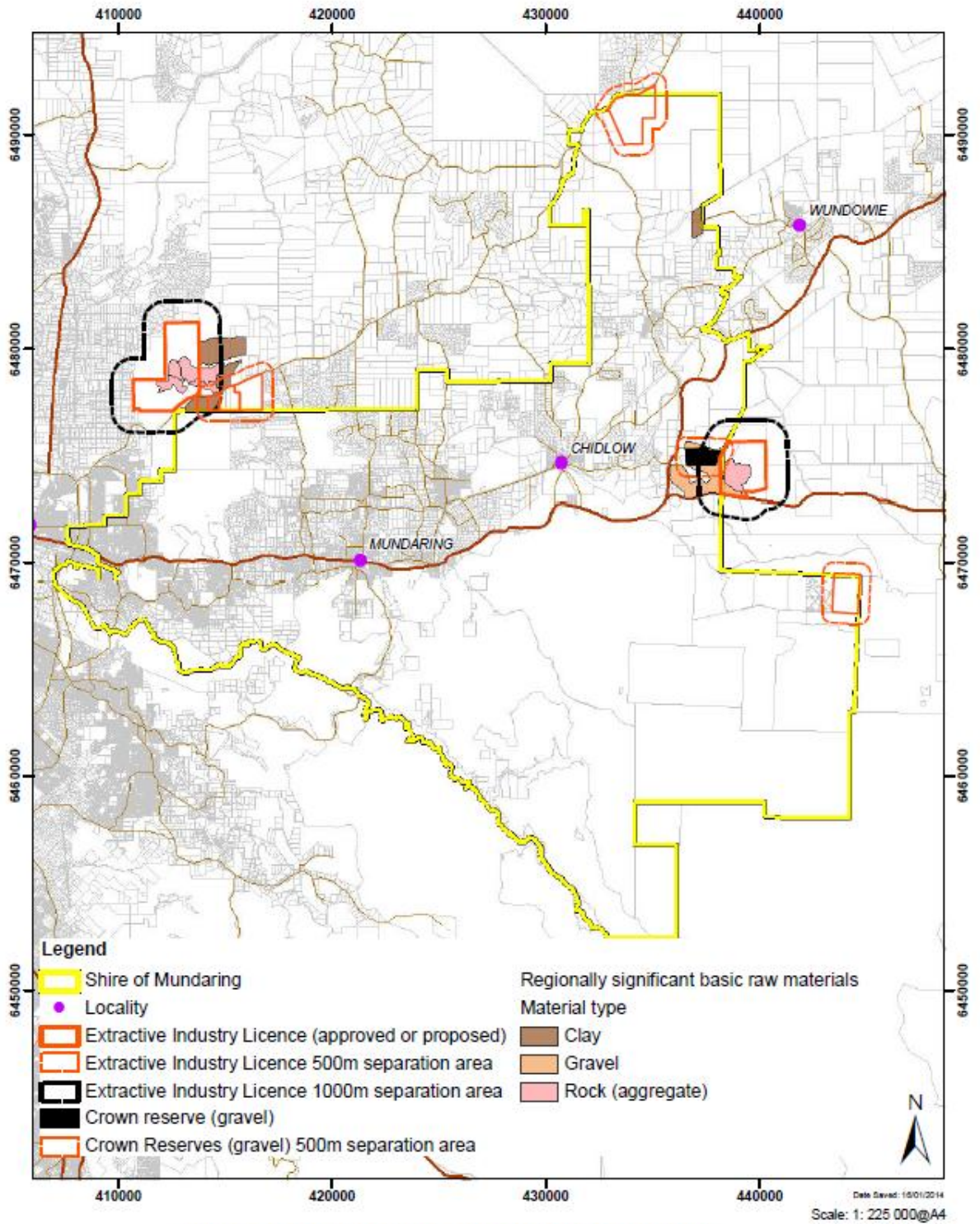
Statement of Planning Policy No. 2.4. identifies one Extraction Area within the Shire, the Shire's gravel pit at The Lakes, east of Great Eastern Highway. No additional subdivision potential is proposed for the surrounding area under Local Planning Scheme No. 4. Likewise, no additional subdivision potential is proposed in areas near the Shire boundary which may be affected by adjacent Priority Resource Locations, Key Extraction Areas and Extraction Areas in abutting local governments (see section 2.2.2.2 for more information on these areas).

Figure 43 identifies existing Basic Raw Material extraction operations and buffers, and also identifies areas with Basic Raw Material potential.

The Department of Mines and Petroleum has advised that a significant clay resource exists on Reserve 35956, on Burma Road in Bailup and expressed an objection to a zoning that confers subdivision potential on land within 500 m of that clay resource on that Reserve (Figure 44). It is appropriate to recognise this 500 m buffer, and to avoid permitting any new dwellings or other sensitive land uses within it.

Section 120 of the Mining Act states that town planning schemes and local laws are to be considered, but do derogate from the Mining Act. Therefore, planning schemes cannot prohibit or affect the granting of mining tenements (mining leases and exploration licences) or the carrying out of any mining operation authorised by the Mining Act.

Although the use class Industry – Mining probably thus lies outside of the planning system, should any proposals fall within this use class and not be subject of the overriding power of the Mining Act, it is considered that such uses are inappropriate within land zoned under the Shire's Scheme. Industry – Extractive is proposed to be an 'A' use (discretionary, subject to mandatory advertising for public comment) in the General Agriculture zone but prohibited in other zones. These proposed Zoning Table classifications are generally consistent with those in other outer Metropolitan local government town planning schemes.



Shire of Mundaring - Basic Raw Materials

Extractive industry licences, reserves (gravel),
regionally significant basic raw materials and separation areas

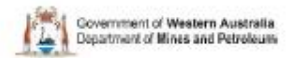
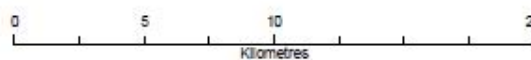


Figure 433: Basic raw materials extraction, buffers and areas of potential

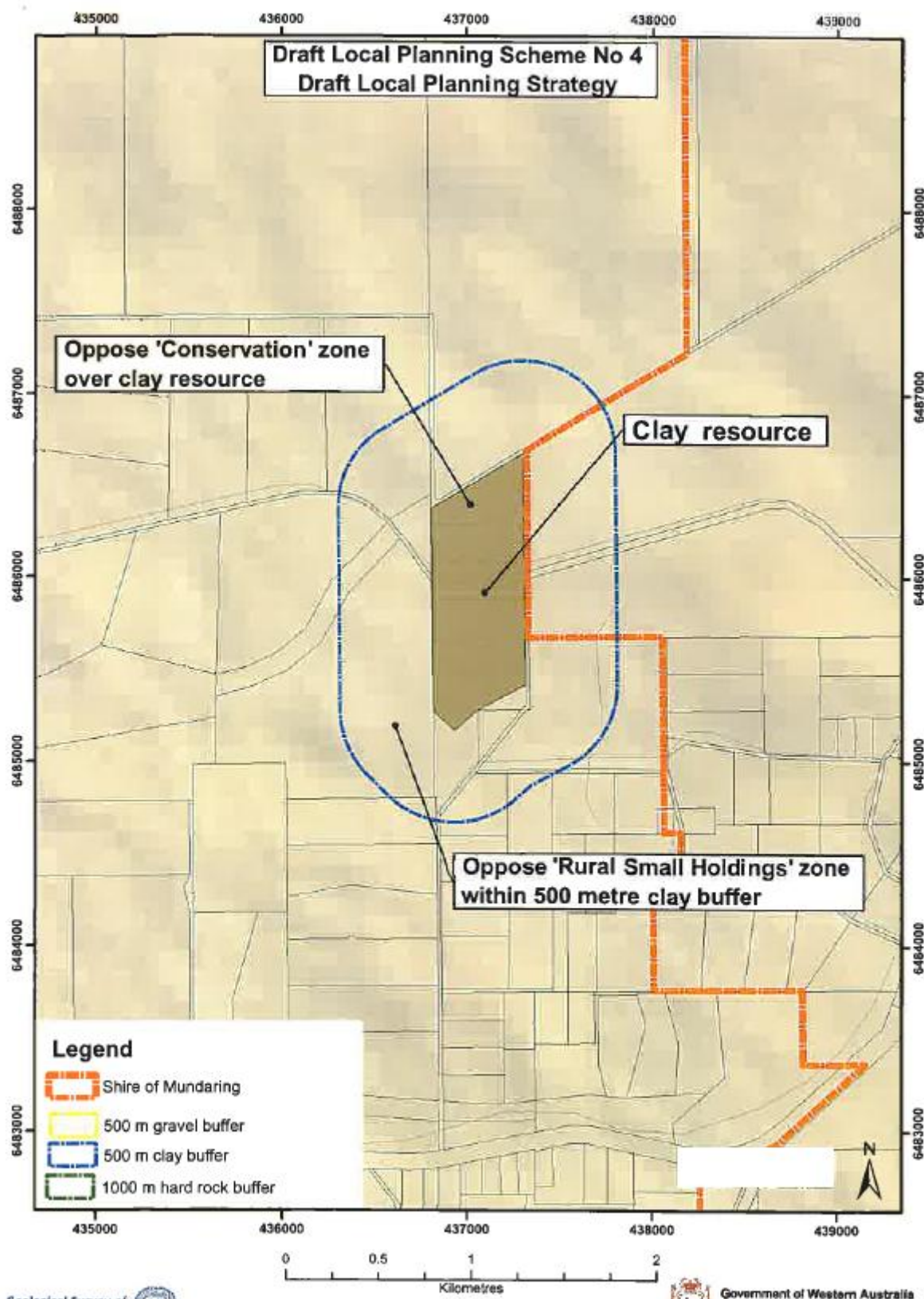


Figure 444: Clay resource and buffer, Reserve 35956, Burma Road, Bailup

Recommendations

- Incorporate land zoned General Rural in Town Planning Scheme No. 3 and where most lots are over 40 ha in area in a General Agriculture zone under Local Planning Scheme No. 4
- Do not support further subdivision within the General Agriculture zone
- Prepare a limited rural strategy for the General Agriculture zone (and larger adjacent Rural Small Holdings lots) in Bailup and Wooroloo to determine desirable agricultural and other rural uses and the lot sizes that will best facilitate those uses, but maintaining a very strong presumption against rural residential subdivision, except immediately adjacent to the Wooroloo townsite, due to isolation from services and employment
- Maintain existing rural lot sizes in Bailup pending completion of the limited rural strategy referred to in the above point by including land in the General Agriculture zone, within which further subdivision will not be supported
- Avoid locating any new dwellings or other sensitive land uses within 500 m of the identified clay resource on Reserve 35956, Burma Road, Bailup
- Maintain existing lot sizes in Wooroloo on land within the 500 m buffers of the Linley Valley Abattoir and associated wastewater ponds, located nearby in the Shire of Northam
- Avoid locating any new dwellings or other sensitive land uses within the 500 m buffers of the Linley Valley Abattoir and associated wastewater ponds, and refer any applications for development or land use within or near this buffer to the Shire of Northam for comment
- Maintain existing lot sizes in the vicinity of gravel extraction at The Lakes and adjacent Priority Resource Locations, Key Extraction Areas and Extraction Areas in abutting local governments

4.5.7 Tourism and tourist accommodation

Tourism within the Shire is a significant contributor to the local economy.

Tourism WA data, for the 2005 – 2007 period, suggests annual visitor numbers to the Shire are as follows:

Overnight visitors:	40,000 (including 3,700 international)
Overnight visitors nights:	203,100
Average length of stay:	5.1 nights
Domestic daytrips:	302,200

The Shire's Economic Development Strategy estimates the total direct income for the local economy from tourism to be around \$10.38 million per annum. Using a Tourism Research Australia multiplier, the Economic Development Strategy estimates that tourism ultimately contributes around \$18.07 million per annum to the local economy and supports around 130 jobs. Visitor spending is not confined to accommodation, refreshments and fuel; many other businesses throughout the community including newsagents, supermarkets, chemists, and health services benefit from visitor expenditure. Tourism and hospitality providers also benefit the local economy by their local expenditure. Because tourism promotion and marketing is largely carried out regionally, tourism efforts in the Shire also contribute to and reinforce the benefits of tourism throughout the region.

Mundaring has a Level One Visitor Centre, open daily and staffed by a full-time manager and a team of volunteers. In conjunction with various tourism industry stakeholders, the Mundaring Visitor Centre supports and promotes the tourism industry within the Shire. Visitor information is also provided by the Department of Environment and Conservation at the Perth Hills National Parks Visitor Centre in Beelu National Park near Mundaring Weir.

Major tourist attractions in the Shire include:

- John Forrest National Park;
- Mundaring Weir;
- Lake Leschenaultia; and
- walking and cycling trails - the Railway Reserves Heritage Trail, Bibbulmun Track and Munda Biddi Trail.

In general, the natural environment is the primary reason for most visits to the Shire. This highlights the need to protect the environmental values that attract visitors; such protection is a strong focus of this Strategy. In addition, fine food and wine and local arts and crafts are significant tourism drawcards for the Shire.

Given the proximity of the Shire and the Perth Hills region generally to the rapidly growing urban population of Perth on the coastal plain, there is great potential for tourism in the Shire to increase over time.

Tourist accommodation

There is a range of tourist accommodation available within the Shire of Mundaring, ranging from hotels and chalets to bed and breakfasts and camping areas. However, accommodation shortages in each category of accommodation can be experienced at peak times, particularly weekends during special events.

This Strategy supports the development of a range of accommodation to better cater to existing and future tourist accommodation demand.

Accordingly, the use class of Holiday Accommodation is proposed to be discretionary (an 'A' or 'D' use) in all zones other than Light Industry and Service Commercial. This will provide the flexibility to consider on their merit a range of holiday accommodation proposals in various locations. Hotel/Motel is proposed to be a discretionary ('A' or 'D') use only within the Town Centre and Local Centre zones and prohibited in other zones. Existing Special Purpose zoning in Town Planning Scheme No. 3 for various tourist accommodation will generally be reflected in Local Planning Scheme No. 4 by way of Special Use zones or Additional Uses.

While it is proposed that Holiday Accommodation proposals be considered on their merit throughout the Shire, this Strategy recommends particularly encouraging and supporting the development of various forms of Holiday Accommodation in appropriate locations in close proximity to major tourist attractions and concentrations of tourism activity. These areas are:

- Mundaring
- Mundaring Weir
- Lake Leschenaultia
- Railway Reserves Heritage Trail/Kep Track

Areas adjacent to John Forrest National Park have not been included in this list due to concerns about bushfire hazard, but well-located proposals near the National Park can still be considered on their merits. While Mundaring Weir has been included in this list, it should be noted that development near Mundaring Weir will be constrained in scale and location by catchment protection considerations (see section 4.2.3 above).

The Shire has no policy generally on tourist accommodation, although it has a policy on bed and breakfast accommodation. Given the recommended inclusion of the Holiday Accommodation use class as a discretionary use within the Residential zone, a local planning policy should be prepared to guide the Shire in considering Holiday Accommodation proposals and to ensure that any Holiday Accommodation located in a Residential zone respects and is consistent with residential amenity. Such a policy could address matters including on-site management, length of stay, and the size and scale of any development.

The Shire has only one small caravan park, in Mundaring, in which many sites are taken by long-stay guests. This represents a deficiency in the local tourist accommodation market. The Shire's Economic Development Strategy recommends the Shire support the identification of suitable sites for, and the development of, caravan parks.

Preliminary investigations have revealed difficulties in finding an adequate well-located site for a caravan park close to facilities and attractions. Nonetheless, the development of a caravan park is supported by this Strategy. Rather than identifying a specific site however, it is recommended that the Shire work with prospective proponents and consider proposals for caravan parks on their merit. Because of the possible scale of development and impacts on surrounding properties, Local Planning Scheme No. 4 proposes to prohibit the use class of Caravan Park in all zones on the Zoning Table; however, individual Caravan Park proposals can be pursued by way of Scheme Amendments for specific sites, which would be zoned Special Use.

Tourism WA support the development of strategic tourism sites in appropriate locations throughout the state. Strategic tourism sites are defined by Tourism WA as:

... those [sites] which display characteristics that set them apart from other tourism sites in terms of their potential for tourism development and benefit to the tourism industry. As such these sites will be limited to tourism purposes only and permanent residential use will not be permitted. A strategic tourism site designation will essentially reflect that the site is required in entirety for tourism purposes as its highest use. However, ancillary commercial uses may be required to support this as part of the overall tourism enterprise.

While it would vary according to the development proposed, in general, a strategic tourism site would be a minimum of 4 ha (perhaps down to a minimum of 2 ha if close to a town centre).

A preliminary desktop review of potential strategic tourism sites within the Shire of Mundaring did not identify sites meeting all of Tourism WA location criteria for strategic tourism sites. However, the Shire should continue to work in conjunction with Tourism WA to identify opportunities for tourist accommodation development and possibly strategic tourism sites within the Shire.

Recommendations

- Include Holiday Accommodation as a discretionary ('A' or 'D') use within all zones on the Zoning Table in Local Planning Scheme No. 4 other than Light Industry and Service Commercial
- Particularly encourage the development of various forms of Holiday Accommodation in appropriate locations in close proximity to major tourist attractions and concentrations of tourism activity:
 - Mundaring
 - Mundaring Weir
 - Lake Leschenaultia
 - Railway Reserves Heritage Trail/Kep Track

- Prepare a local planning policy should be prepared to guide the Shire in considering Holiday Accommodation proposals
- Include provisions in a local planning policy to ensure that any Holiday Accommodation located in a Residential zone respects and is consistent with residential amenity (the policy may address matters including on-site management, length of stay, and the size and scale of any development)
- Improve facilities to encourage increased use of the Shire's network of walking and cycling trails along former rail reserves
- Support caravan park development in an appropriate location(s)
- Consider individual caravan park proposals on their merits by way of amendments to Local Planning Scheme No. 4 for specific sites, which would be zoned Special Use
- Work in conjunction with Tourism WA to identify opportunities for tourist accommodation development and possibly strategic tourism sites within the Shire

4.5.8 Home based employment

Home based employment in the Shire accounts for a small but significant portion of the workforce and has the potential to grow. 2006 census data (census count) on journey to work indicated 825 people (5.1%) worked from home, a higher proportion than for the Perth Metropolitan Region as a whole (3.6%).

Home based employment can include telecommuting from jobs normally located elsewhere, as well as home occupations and home businesses. These may be operated in addition to another regular job based away from the home. Broadband internet provides improved opportunities for home based employment (see section 4.6.6 below).

Home based employment is consistent with broad objectives of this Strategy. Home occupations and home businesses can increase local employment self-sufficiency. Home based employment has the potential to reduce transport demand, both by eliminating the journey to work and, for home occupations and home businesses, reducing the need for customers to travel out of the Shire. Accordingly, the Shire should generally support proposals for home based employment unless clearly incompatible with the amenity of the area in which they are located.

Local Planning Scheme No. 4 proposes a variation to a Model Scheme Text definition for Home Business. In the Rural Small Holdings and General Agriculture zones, the maximum floorspace for a Home Business is proposed to be 100 m² rather than 50 m². This reflects the current situation in Town Planning Scheme No. 3 and is more supportive of Home Businesses on larger lots where the distance from neighbouring properties reduces or eliminates any amenity concerns.

Recommendations

- Generally support proposals for home based employment unless clearly incompatible with the amenity of the area in which they are located
- Vary the Model Scheme Text definition for Home Business in Local Planning Scheme No. 4 to allow the maximum floorspace for a Home Business in the Rural Small Holdings and General Agriculture zones to be 100 m²

4.6 Infrastructure

4.6.1 Water and water treatment plant

The Shire is serviced by two reticulated water supply systems, the Water Corporation's metropolitan supply system and, in eastern portions of the Shire, the Goldfields and Agricultural water supply scheme, sourced primarily from Mundaring Weir (Lake C.Y. O'Connor). However, the two systems are now linked as part of an Integrated Water Supply System for the south-west of the state.

Figure 45 shows the location and extent of reticulated water supply in the Shire of Mundaring. Residential areas in the Shire have reticulated water supply available – and reticulated water supply is a prerequisite for any new or expanded residential areas. The supply is also available to some rural residential areas, generally in close vicinity to townsites or along the major water mains, although a portion of Hovea also has reticulated water supply.

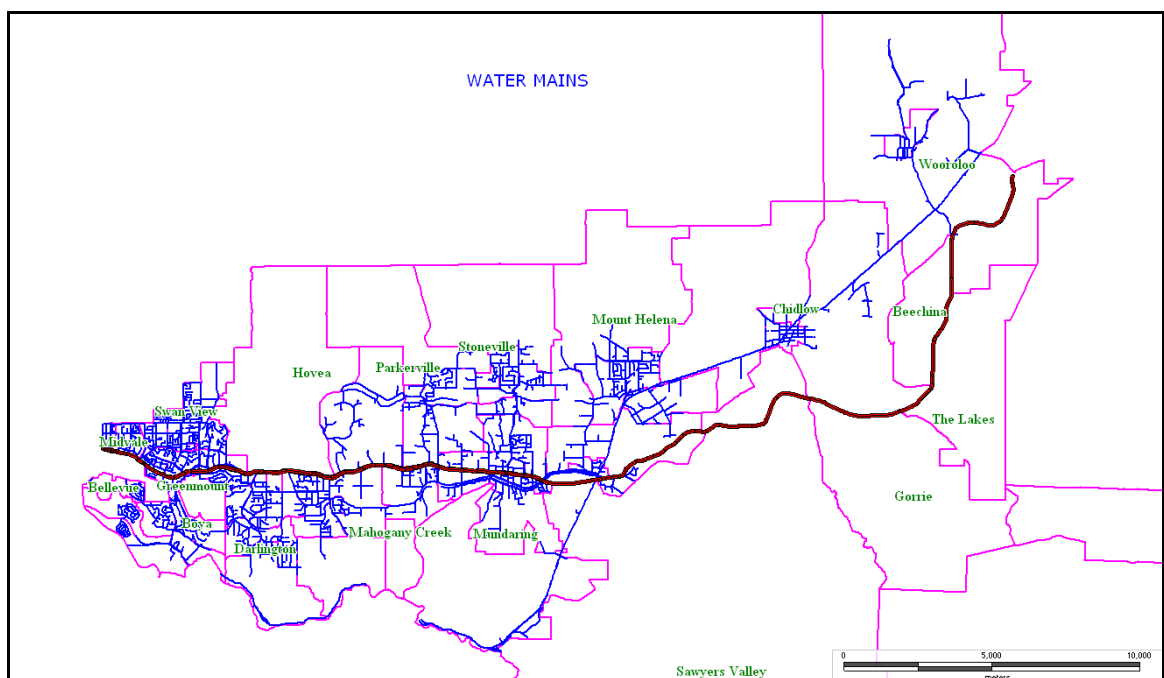


Figure 455: Water mains in the Shire of Mundaring

Historically, subdivision policy in Western Australia dictated 2 ha as the lot size threshold below which reticulated water would be required. This is reflected in the locations of Rural Landscape Living 1 zones (1 ha minimum lot size) in Town Planning Scheme No. 3 where reticulated water is available.

At the time of writing, however, the Commission's DC Policy 3.4 states that when approving lots for rural residential development (ie. 1 to 4 ha), the Commission will generally require connection to reticulated water supply where it is practical and reasonable to do so. The policy goes on to say that where it is not practical or reasonable for lots to connect to a reticulated water supply, the Commission may consider an alternative water supply, and that in making its decision the Commission may consider the difference in cost between a reticulated or alternative water supply, and the reliability of an alternative water supply.

Where land already zoned for rural residential subdivision under Town Planning Scheme No. 3, or identified in Local Planning Scheme No. 4 as an incremental addition to existing subdivision, is in area remote from reticulated water supply, a requirement to connect to reticulated water would be onerous and is not supported. However, adequate water must be available for drinking purposes (potable water), other household use and for firefighting purposes, and provisions are proposed for Local Planning Scheme No. 4 requiring this.

Rainwater tanks may be essential for properties without reticulated water supply, but can also be provided where a property is connected to reticulated water supply, either in rural residential or in residential areas. These can be used for supplying drinking water, or just for other household purposes (eg. toilets, sprinklers). The Shire should encourage the widespread use of rainwater tanks, as a way of reducing pressure on the region's water supply system.

Reuse of greywater (eg. for toilets and in some instances for watering gardens) is another mechanism that can reduce overall water consumption and ease pressure on the region's water supply system. The use of greywater is regulated by the Department of Health.

Mundaring Water Treatment Plant

A new water treatment plant is required near Mundaring Weir to ensure that water supplied to the goldfields and wheatbelt areas meets Australian Drinking Water Guidelines and current demands.

After a detailed site selection process, which included public consultation and community forums, the Water Corporation has selected a site for the new Water Treatment Plant at the corner of Mundaring Weir Road and Allen Road. Also, a water pumping station is required to pump water from below Mundaring Weir to the proposed new Water Treatment Plant.

At the time of writing, these proposals have been referred by the Water Corporation to the Commonwealth Department of Environment and Water, Heritage and the Arts for determination under the *Environment Protection and Biodiversity Conservation Act 1999* and to the Environmental Protection Authority for determination under the Western Australian *Environmental Protection Act 1986*.

Recommendations

- Support rural residential subdivision, where it is supported by this Strategy and Local Planning Scheme No. 4 in areas remote from reticulated water supply, if a sustainable alternate water supply can be demonstrated in accordance with current State policy
- Incorporate a provision in Local Planning Scheme No. 4 requiring that for lots without reticulated water supply, any dwelling must be provided with a sustainable supply of potable water, either an underground bore or a rainwater storage system and sufficient roof catchment, that meets appropriate standards for potable water
- Incorporate a provision in Local Planning Scheme No. 4 requiring that where a proposed rural residential lot does not have connection to reticulated water, any dwelling must have an adequate supply of water for fire fighting purposes, in accordance with the *Planning for Bush Fire Protection Guidelines*
- Encourage the widespread use of rainwater tanks, including on properties that also have connection to reticulated water supply, as a way of reducing pressure on the region's water supply system

4.6.2 Sewer and wastewater treatment

Only two portions of the Shire of Mundaring are currently serviced by reticulated sewerage. In the rest of the Shire, the lack of reticulated sewerage acts as a significant constraint to development.

Some urban areas west of the scarp, in Midvale, Swan View, Greenmount and Helena Valley, are connected to the metropolitan sewerage system (see Figure 46 below). However, there are large portions of Swan View, Greenmount and Helena Valley, as well as the suburb of Boya, that are unsewered. Some of these unsewered areas have previously been identified for future provision of sewerage as part of the state government's Infill Sewerage Program, but at the time of writing the Infill Sewerage Program has been deferred. Accordingly, there is hence no current prospect of extension of sewerage to those areas, unless funded privately by owners or developers. It is recommended that the Shire advocate the progress extension of sewerage to these areas as part of an Infill Sewerage Program.

A second small, isolated sewerage system has been provided to serve the Mundaring Town Centre and two nearby schools (see Figure 47 below). At the time of writing, the Mundaring Wastewater Treatment Plant is operating at, or indeed above, capacity, but expansion is proposed. This issue is addressed in a separate sub-section below.

Development and subdivision controls for unsewered areas, based to the level on on-site effluent disposal generally considered acceptable, are set out in the Government Sewerage Policy: Metropolitan Region (see section 2.2.4.1 above). With few exceptions, this sets 2000 m² as the minimum lot size for a residential lot without connection to reticulated sewerage. Accordingly, this sets the R5 Residential Design Code density as the maximum that can be applied throughout most residential areas in the Shire, including all hills townsites (other than for residential development in the Mundaring Town Centre). The requirements of the Government Sewerage Policy also act as a constraint to the development of other uses generating on-site effluent, notably businesses such as restaurants and holiday accommodation. This runs contrary to the objectives of this Strategy to facilitate more local employment and greater local self-sufficiency.

The rigid and inflexible requirements of the Government Sewerage Policy do not allow for site-specific consideration of on-site effluent disposal capacity. In many instances, site characteristics would allow for on-site effluent disposal for a particular development without risk to the environment or public health, but the overly cautious provisions of the Government Sewerage Policy prevent that development from taking place. Accordingly, it is recommended that the Shire actively advocate the review of the Government Sewerage Policy: Metropolitan Region, with a view to allowing more flexibility and consideration of the effluent disposal capability of specific sites.

Mundaring Wastewater Treatment Plant

The Mundaring Wastewater Treatment Plant (WWTP), on Darkan Street, was constructed in 1996 to serve the Mundaring Town Centre, Mundaring Christian School and Mundaring Primary School.

The WWTP was originally constructed with a wastewater treatment capacity of 100kL/day, being about the volume of wastewater generated by 500 people. Aerators were installed in 2005 to increase the capacity to 120 kL/day.

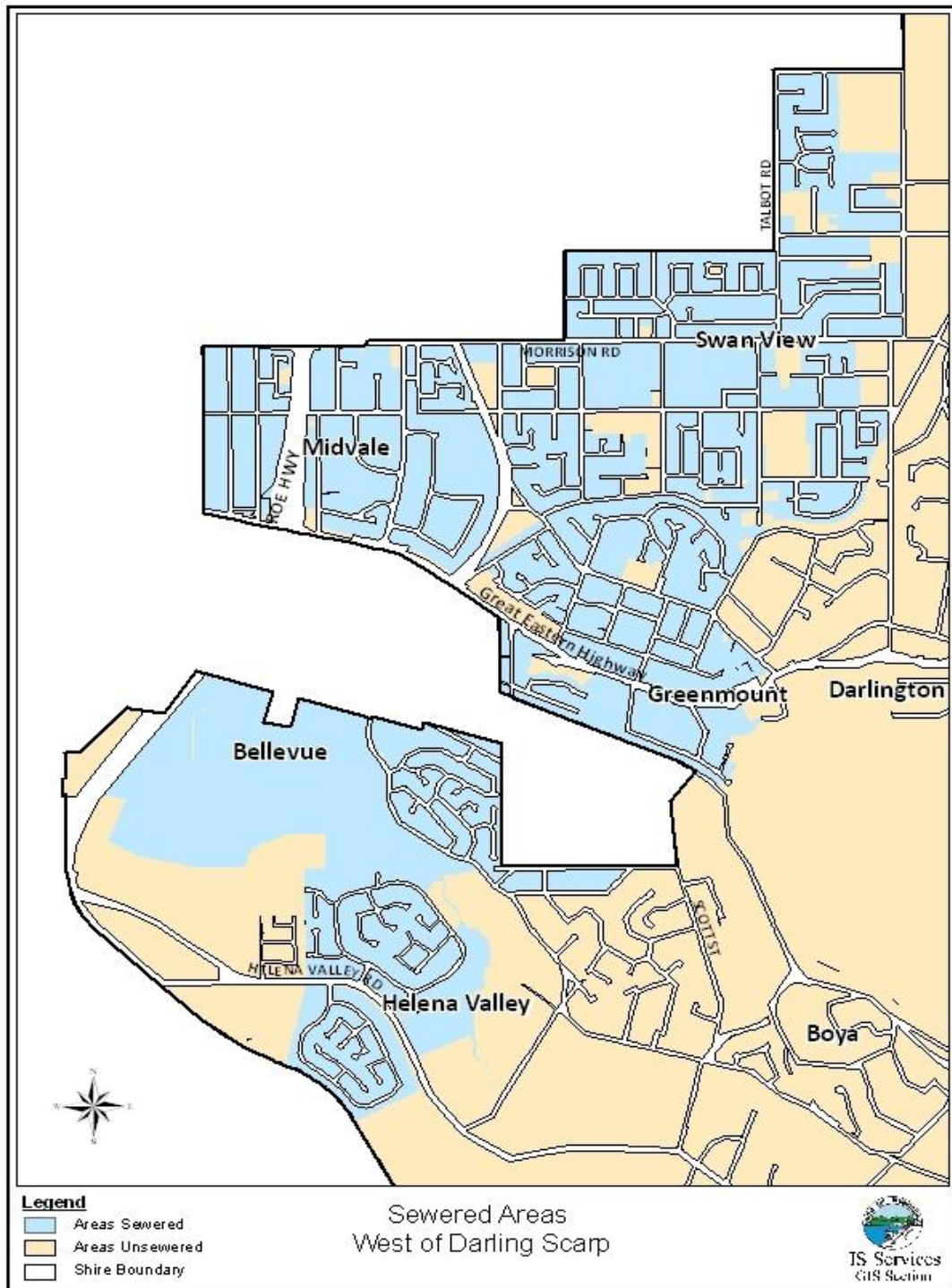


Figure 466: Sewered areas, west of Darling Scarp

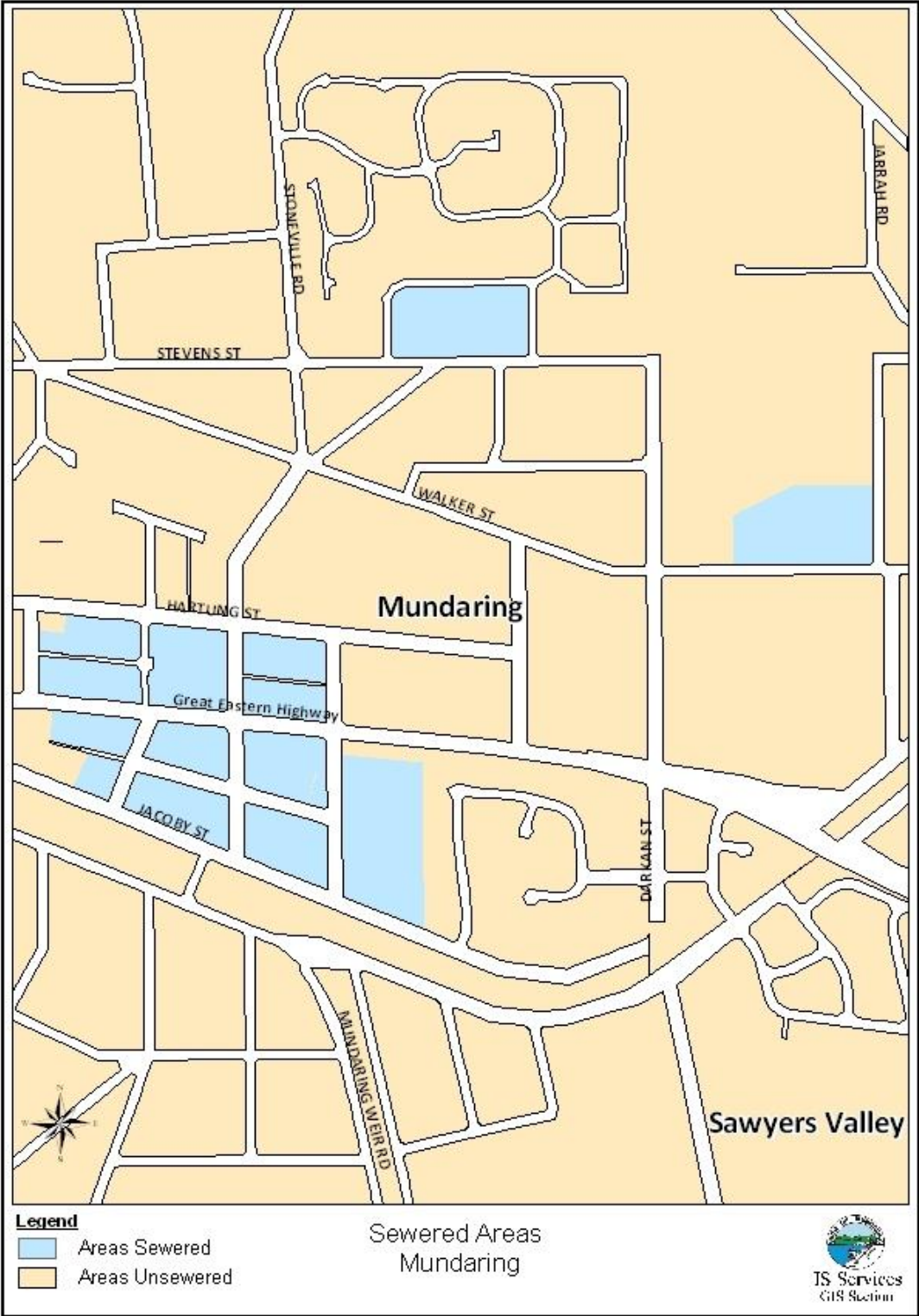


Figure 477: Sewered areas, Mundaring

The wastewater treatment process currently used at the plant is an activated sludge process. The raw wastewater is treated by aerating and decanting the wastewater alternately. The wastewater is then disinfected through ultra-violet light and sent to a constructed wetland where additional polishing occurs. The treatment process removes the nutrients and pathogens from the raw wastewater so it can be re-used safely without causing any public health or environmental impacts.

During summer, the treated wastewater from the plant is used to irrigate Harry Riseborough Oval, with the irrigation program is managed by the Shire and regulated by the Department of Health. During winter, the treated wastewater is discharged to Jarrah Creek via a 2km pipeline from the WWTP. The Water Corporation undertakes monthly monitoring of the water in Jarrah Creek at a number of sites, taking samples to measure the concentrations of nutrients and pathogens upstream and downstream of the discharge point.

The WWTP now operates at its full capacity of 120 kL/day of wastewater. Indeed, at the time of writing, wastewater inflows to the plant exceed this figure (generally by at least 10-15 kL/day) and the excess wastewater is now tankered daily to a sewerage pumping station on the coastal plain. The Water Corporation considers this arrangement undesirable and not a sustainable long-term solution.

Because there is no longer any additional wastewater treatment capacity available, development within the Mundaring Town Centre is severely constrained. The Water Corporation will not permit further development which entails either new connections or generation of additional effluent through existing connections to the sewerage system, until and unless the WWTP capacity is expanded. Accordingly, expansion of the WWTP is essential if the objectives of this Local Planning Strategy for development in the Mundaring Town Centre are to be achieved.

After considering various options for wastewater treatment for Mundaring, through a process which included public consultation, the Water Corporation now plans to expand the capacity of the Mundaring WWTP from 120 kL/day to 240 kL/day. The proposed expanded WWTP will use membrane filtration technology. Additional summer irrigation using treated wastewater is proposed on nearby school land. At the time of writing, it is currently anticipated that the expansion will be completed by early 2015.

As a wastewater treatment capacity of 240 kL/day should be considered to be the ultimate capacity of the WWTP, it is essential that development within the Mundaring Town Centre is carefully considered so as to optimise the overall community benefit, in accordance with strategic planning objectives in this Strategy, from the limited available additional wastewater treatment capacity (see section 4.5.3 above).



Figure 488: Mundaring Wastewater Treatment Plan odour buffer
(source: Water Corporation)

The Water Corporation has scientifically calculated an odour buffer for the proposed expanded WWTP. Because of the proposed use of membrane filtration technology, the Water Corporation anticipates that there will be a significant decrease in the extent and intensity of odour from the WWTP. The revised buffer is a 220 m radius from the WWTP (see Figure 48 above).

Because of the smaller size of this buffer than the generic 500 m buffer for WWTPs, and the location of the site adjacent to Black Cockatoo Reserve, the odour buffer only affects one privately owned property, the site of the Mundaring Christian College. The odour buffer affects part of the site of that school, and it is likely that odours would usually be strongest in evenings or night-time, outside of school hours. Nonetheless, it is recommended that a provision in Local Planning Scheme No. 4 require the referral of development applications within the odour buffer to the Water Corporation for comment. Odour management measures, such as building design, could be considered as conditions of planning approval.

Other areas

The identification of a suitable wastewater treatment and disposal solution is a prerequisite for the lifting of Urban Deferment and the residential development in the proposed new townsite developments in North Parkerville and North Stoneville, as outlined in sections 5.2.9 and 5.2.12 below. It is possible that an integrated solution for both proposed townsites will be required, rather than two separate wastewater treatment plants, as previously proposed. Any proposed wastewater treatment and disposal solution should be carefully considered by the Shire, with a view to avoiding or minimising adverse environmental or amenity impacts or expense to the Shire.

For other towns in the hills portion of the Shire, consideration of providing reticulated sewerage is not recommended within the life of this Strategy, notwithstanding the constraints to development posed by lack of sewerage. The currently anticipated or proposed form of development within the hills portion of the Shire does not justify the expense of creating another isolated sewerage system with a new WWTP or of connecting to the metropolitan sewerage system.

Recommendations

- Advocate the progress extension of reticulated sewerage to unsewered residential areas in Swan View, Greenmount, Helena Valley and Boya as part of the Infill Sewerage Program
- Actively advocate the review of the Government Sewerage Policy: Metropolitan Region, with a view to allowing more flexibility and consideration of the effluent disposal capability of specific sites
- Support the expansion of the Mundaring WWTP to a wastewater treatment capacity of 240 kL/day, in order to facilitate appropriate development within the Mundaring Town Centre, in accordance with this Local Planning Strategy
- Require the referral of development applications within the Mundaring WWTP odour buffer to the Water Corporation for comment, and impose conditions of approval requiring odour management measures where appropriate

- Any proposed wastewater treatment and disposal solution for the North Parkerville and North Stoneville townsite developments should be carefully considered by the Shire, with a view to avoiding or minimising adverse environmental or amenity impacts or expense to the Shire

4.6.3 Roads

4.6.3.1 Regional road network

Four existing roads and one proposed road within the Shire are reserved as Primary Regional Roads under the Metropolitan Region Scheme (MRS): Great Eastern Highway, Roe Highway, Great Southern Highway, Toodyay Road and the proposed Perth – Adelaide Highway (also known as the “Orange Route”). Primary Regional Roads are controlled access highways, with access points and adjacent development subject to the MRS

Great Eastern Highway

Great Eastern Highway is the most important transport link in the Shire, being both the primary access route to the hills portion (and hence great majority) of the Shire and the major road link between Perth and the eastern wheatbelt, goldfields and eastern states. The road traverses the Shire, from Midvale to Wooroloo, a distance of approximately 40 km. For most of that distance the highway is a four-lane divided road: the highway is divided from the intersection of Roe Highway to the intersection with Great Southern Highway. Traffic volumes on parts of the highway exceed 30,000 vehicles per day and indeed one traffic count in 2008 recorded in excess of 38,000 vehicles per day on the highway in the vicinity of Greenmount and Darlington.

The highway caters for most travel by residents of the hills portion of the Shire to Midland and the rest of the Perth Metropolitan Region, for commuting to work and a range of commercial and recreational trips. Sections of Great Eastern Highway are also used for trips within the Shire, particularly for access to commercial, community and other facilities in the Mundaring Town Centre, the major activity centre in the Shire.

The highway also provides vehicular access between port facilities and industrial areas in the Perth Metropolitan Region and the wheatbelt and goldfields regions and the eastern states. In addition, heavy vehicles travel between quarries near The Lakes and the coastal plain via the highway. Consequently, there are conflicts between local traffic and industrial/freight transport, exacerbated by the slope of the route on Greenmount Hill and by the number of direct residential access points to the highway. If and when the proposed Perth – Adelaide Highway (see subsection on this below) is constructed, this would operate as the main heavy vehicle route and remove some of these conflicts.

To maintain and improve traffic safety on Great Eastern Highway, a provision in Local Planning Scheme No. 4 should require vehicular access points to and from Great Eastern Highway from any development to be limited as far as practicable, with shared access arrangements between properties and access to/from secondary streets encouraged to avoid or minimise vehicular access points to/from Great Eastern Highway.

Traffic through the Mundaring Town Centre, including heavy vehicle movements, poses some threat to pedestrian safety within the Town Centre. In 2010, variable electronic speed limit signs (reducing the limit from 60 km/h to 50 km/h) have been installed for Great Eastern Highway through the Town Centre. In 2012, pedestrian facilities were improved along a section of Great Eastern Highway in the Town Centre. This included asphalt resurfacing and the upgrade of four existing crossing points between Mann Street and the signals at Stoneville and Mundaring Weir Roads.

However, it is recommended that the Shire, in consultation with Main Roads Western Australia, continue to investigate other traffic control options or other measures on Great Eastern Highway to improve pedestrian safety and connectivity within the Mundaring Town Centre, as required.

The intersection between Great Eastern Highway and Roe Highway in Midvale is planned to be substantially upgraded by the construction of a (grade-separated) flyover of Great Eastern Highway by Roe Highway (concept plan at Figure 49 below). At the time of writing, construction of this upgrade is anticipated to commence in January 2011 and to be completed by 2012.

The Great Eastern Highway/Roe Highway intersection is currently used by around 60,000 vehicles per day, including around 6,000 truck movements. The intersection experiences traffic congestion and is one of the top ten traffic accident black spots in the Metropolitan area. The intersection upgrade seeks to:

- improve safety by reducing the number and severity of accidents;
- reduce road user cost and vehicle emissions resulting from delays;
- reduce the likelihood of neighbouring areas being used as “rat runs”;
- improve the approach to Great Eastern Highway for heavy vehicles; and
- improve the level of service of Roe Highway.

Associated works will include pedestrian/cyclist access through the interchange via underpass and bridge, upgrading the Great Eastern Highway/Farrall Road intersection, and additional slip lanes for the nearby Roe Highway/Morrison Road intersection. The revised intersection layout will have implications for access to/from Great Eastern Highway between Roe Highway and Farrall Road, with Stanhope Gardens limited to left-out access to the Highway only. Highway access is likely to be limited to service roads, although adequate access to a service station on that section will need to be retained.

Should residential development proceed in the proposed North Parkerville and North Stoneville (“Parkerville Townsite” and “Stoneville Townsite”) development, an upgrading of the intersection between Brooking Road and Great Eastern Highway would be required (see sections 5.2.9 and 5.2.12 below).

Great Eastern Highway has recently been upgraded between Sawyers Valley townsite and The Lakes, to a four-lane divided road standard. Now that work on that upgrade is complete, it is apparent that some previously proposed road widenings reserved in the MRS as Primary Regional Road are no longer required. The Commission should be encouraged to rectify this by way of an MRS amendment as soon as practicable.

It is understood that the State government is investigating the possibility of upgrading the highway to a divided and/or four-lane road through Sawyers Valley townsite.



The design concept for the new interchange

Figure 499: Great Eastern Highway/Roe Highway Intersection Upgrade (source: Main Roads WA)

Roe Highway

Two very short sections of Roe Highway are located in the Shire: an approximately 1 km section between Morrison Road and Great Eastern Highway, and another shorter section in Bellevue and Helena Valley, just north of Helena Valley Road. Roe Highway is an important link for the Shire, connecting Great Eastern Highway with industrial areas, Fremantle port, southern and eastern suburbs and, via the Great Eastern Highway Bypass, the central city area. There are no access points to private property from Roe Highway.

The proposed upgrading of the Roe Highway/Great Eastern Highway intersection is discussed above in the sub-section on Great Eastern Highway.

Great Southern Highway

A very short section of the Great Southern Highway is located within the Shire of Mundaring. The highway commences at its intersection with Great Eastern Highway at The Lakes and provides the main access route to the town of York. The highway also services surrounding parts of the wheatbelt. From York it travels south, via Narrogin and Katanning to meet the Albany Highway near Cranbrook.

A new intersection between Great Southern Highway and Great Eastern Highway was recently constructed and a MRS amendment has been gazetted to reflect the new alignment and remove obsolete road widening requirements from the site of the roadhouse next to the intersection. However, the MRS still shows the former alignment and road widening to the south-east of it; it is presumed that this will be addressed by the Commission in a subsequent MRS amendment.

Toodyay Road

A very short section of Toodyay Road is located within the Shire of Mundaring, in the locality of Bailup in the north-east of the Shire. Toodyay Road provides access to the town of Toodyay and surrounding parts of the north-eastern wheatbelt.

Perth – Adelaide Highway

In view of the already recognised pressures on Great Eastern Highway, the 1988 Eastern Corridor Major Roads Study examined a number of possible alternate routes for a national highway between Perth and Adelaide through the eastern corridor of the Perth Metropolitan Region and beyond. Following extensive consultation, what was known as the “Orange Route” (and is still sometimes referred to by that name) was adopted and was subsequently reserved in the MRS as the route for the Perth – Adelaide National Highway.

The proposed Perth – Adelaide Highway route generally follows the existing alignment of Toodyay Road between Middle Swan and the Gidgegannup townsite, albeit with a different alignment through the Darling Scarp near Jane Brook, before heading generally east along a new road link from Gidgegannup to Great Eastern Highway near Wundowie. Part of this proposed new section of highway is located within the Shire of Mundaring, traversing the locality of Wooroloo to the north of the Wooroloo townsite (see Figure 50 below).

The proposed new highway would provide a safer route for heavy vehicle traffic by having an improved grade and alignment crossing the Darling Scarp, by having no direct access to private properties, by minimising intersections and by reducing conflicts with local traffic.

The proposed Perth – Adelaide Highway would advantage the Shire of Mundaring by removing heavy vehicles travelling through the Shire to regions further east or interstate from Great Eastern Highway, reducing traffic conflicts with local traffic and impacts on residents living adjacent to Great Eastern Highway as well as improving pedestrian safety and general amenity in the Mundaring Town Centre.

The Perth – Adelaide Highway is not currently proposed to be constructed within either the short or medium term. The significant upgrading of Great Eastern Highway between Sawyers Valley and The Lakes can be seen as representing a commitment to Great Eastern Highway remaining the main heavy vehicle link to the east for at least the medium term. In view of factors such as peak oil, there may be some uncertainty as to the future development of the Perth – Adelaide Highway. However, given the substantial benefits to safety and amenity for residents of the Shire that the proposed highway would bring, the Shire should lobby for its construction at the earliest feasible opportunity.

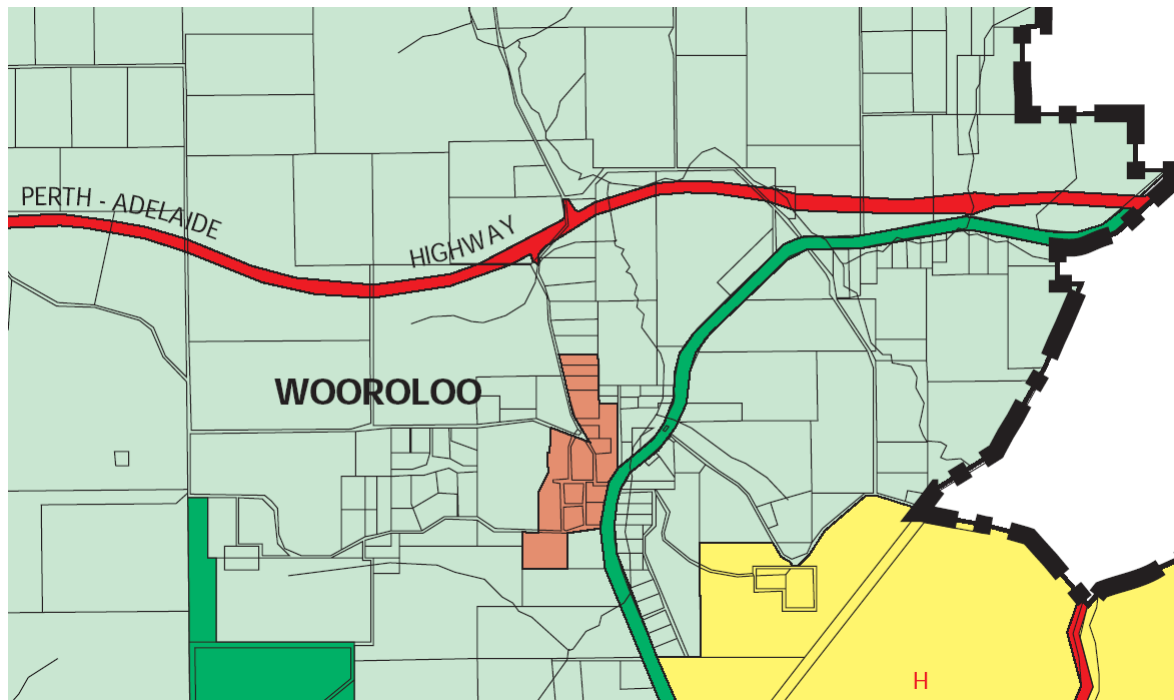


Figure 500: Route of proposed Perth-Adelaide Highway through Shire of Mundaring (Metropolitan Region Scheme extract)

Recommendations

- Incorporate a provision in Local Planning Scheme No. 4 requiring vehicular access points to and from Great Eastern Highway from any development shall be limited as far as practicable, with shared access arrangements between properties and access to and from secondary streets encouraged to avoid or minimise vehicular access points to and from Great Eastern Highway
- Investigate traffic control options or other measures on Great Eastern Highway to improve pedestrian safety and connectivity within the Mundaring Town Centre
- In conjunction with Main Roads Western Australia, investigate the optimum access arrangement for businesses in Midvale between Roe Highway and Farrall Road, noting that as a result of the upgrading of the Great Eastern Highway/Roe Highway intersection, access to/from Great Eastern Highway between Roe Highway and Farrall Road is likely to be limited to service roads, although adequate access to a service station on that section will need to be retained
- Encourage the Commission to remove now obsolete road widening requirements along Great Eastern Highway between Sawyers Valley townsite and The Lakes from the MRS Primary Regional Roads Reserve by way of an MRS amendment as soon as practicable
- Lobby for construction of the Perth – Adelaide Highway at the earliest feasible opportunity

4.6.3.2 Important local roads

There are several roads within the Shire that fulfil the role of District Distributor Roads, defined in the Commission's policy DC 1.4 (Functional Road Classification Planning) as roads that "carry traffic between different industrial, commercial and residential areas and link these cells to the primary network".

To recognise these roads as the most important local roads, and to allow for Scheme controls relating to them, proposed Local Planning Scheme No. 4 includes these roads in an Important Local Roads Reserve. This is based primarily on Main Roads Western Australia's Perth Metropolitan Area Functional Road Hierarchy. The existing roads (all or some of each road) identified as important local roads are:

- Morrison Road
- Farrall Road
- Swan View Road
- Talbot Road
- Old York Road
- Innamincka Road
- Woolloomooloo Road
- Amherst Road
- Scott Street
- Helena Valley Road
- Clayton Street
- Katharine Street
- Clayton Road
- Marriott Road
- Coulston Road
- Darlington Road
- Glen Road
- Leithdale Road
- Ryecroft Road
- Glen Forrest Drive
- Hardey Road
- Thomas Road
- Phillips Road
- Brooking Road
- Seaborne Street
- Byfield Road
- Roland Road
- Riley Road
- Mundaring Weir Road
- Stoneville Road
- Sawyers Road
- Evans Street

- Cook Street
- Bunning Road
- Keane Street
- Elliott Road
- Old Northam Road
- Thomas Street
- Northcote Street
- Lilydale Road
- Government Road*
- Bailup Road
- Werribee Road*

* Government Road and Werribee road are not included in a Local Reserve under Local Planning Scheme No. 4 because they are adjacent to the former Chidlow – Northam rail reserve and thus fall within the Regional Reserve for Parks & Recreation.

Two proposed roads, which will be necessitated should residential development proceed in the proposed North Parkerville and North Stoneville (“Parkerville Townsite” and “Stoneville Townsite”) developments, also fit into this category. The first is the proposed diversion of Roland Road to connect with Brooking Road and bypass the Parkerville village centre. Brooking Road has been identified in proposed Local Planning Scheme No. 4 for this reason, but as the route of the diversion has not been precisely determined, it has not been included in Local Planning Scheme No. 4 at the time of writing. The second is the proposed Hills Spine Road (sometimes referred to as the “Hills Spine Route”).

The Hills Spine Road was identified in the Eastern Corridor Major Roads Study (1988). The road links the proposed Perth – Adelaide Highway (currently Toodyay Road) in the City of Swan with an alignment running along the northern boundary of the proposed North Parkerville and North Stoneville development areas, following the alignment of Cameron Road between Roland Road and Stoneville Road (widening and substantial upgrading of Cameron Road, including a crossing of a tributary of Susannah Brook, would be required). This alignment is also the boundary between the Shire of Mundaring and City of Swan, with the road to be located primarily in the City of Swan. It is possible that the road would subsequently continue east to Bunning Road. Construction of the Hills Spine Road would provide an alternative and more direct route to the coastal plain, Midland and Perth for residents of North Parkerville and North Stoneville.

As the reserve width requirements for any section of the Hills Spine Road that would fall within the Shire of Mundaring are not yet certain, it has not been shown in proposed Local Planning Scheme No. 4 at this stage. The requirement to construct the Hills Spine Road as a prerequisite to residential development of North Parkerville and North Stoneville is addressed in sections 5.2.9 and 5.2.12 below.

A provision in Local Planning Scheme No. 4 should allow the Shire, where appropriate, to require vehicular access points to and from important local roads from any development to be limited as far as practicable, with shared access arrangements between properties and access to/from secondary streets encouraged to avoid or minimise vehicular access points to/from those important local roads. This requirement would be applied on merit having regards to current and anticipated traffic volumes on the given road, the likely traffic volumes generated by the proposed development and the traffic safety characteristics of the particular location.

Recommendations

- Incorporate district distributor roads, primarily based on Main Roads Western Australia's Perth Metropolitan Area Functional Road Hierarchy in a Local Reserve for Important Local Roads under Local Planning Scheme No. 4
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to require, where appropriate, that vehicular access points to and from Important Local Roads from any development shall be limited as far as practicable, with shared access arrangements between properties and access to and from secondary streets encouraged to avoid or minimise vehicular access points to and from those Important Local Roads
- Include the proposed diversion of Roland Road to connect to Brooking Road in the Important Local Road Reserve when the alignment of the road has been determined and secured
- Include any portion of the proposed Hills Spine Road falling within the Shire of Mundaring in the Important Local Road Reserve when the precise alignment of the road has been determined

4.6.3.3 Other Local Roads

The Local Road network has developed progressively over time through structure planning (Local Subdivision and Infrastructure Plans) and subdivision design processes as areas within the Shire have been developed. The local network comprises mainly distributor and access roads and in recent decades has been designed in accordance with Commission and Shire policy and implemented primarily through subdivisions approved by the Commission.

Shortcomings in the local road network with respect to bushfire safety are addressed in section 5.1 below. Other than the changes required to address this issue, no other significant improvements to the local road network are anticipated to be necessary.

One matter to be addressed as structure planning and subdivision proceed in Helena Valley, on land that has been rezoned to Urban in MRS Amendment 1160/41, is the need to secure a potential road link into the former Bushmead Rifle Range land in the adjacent City of Swan, so that a connecting road can be constructed should residential or other substantial development proceed on a portion of the former Bushmead Rifle Range. The Bushmead Rifle Range site is largely affected by a Bush Forever site and, at the time of writing of this Strategy, its future is unclear, though a portion of the site is identified for potential future residential use in the City of Swan's Hazelmere Enterprise Area Draft Structure Plan. If development proceeds, it will be appropriate to provide a direct road link between Bushmead and Helena Valley.

The road reserve for Beacon Road, in Parkerville and Hovea, needs to be delineated, secured and then reserved in Local Planning Scheme No. 4. This includes a section in Hovea north of Wilson Road and a section between Wilson Road and the planned realignment of Roland Road connecting to Brooking Road.

Recommendations

- In all new subdivisions, and where possible in all new developments, ensure adequate vehicular access to/from and within bushfire prone areas, both for escape by residents and for access by emergency vehicles, particularly fire fighting appliances
- Conduct an audit of the adequacy of vehicular access/egress in bushfire prone areas throughout the Shire

- Use the audit referred to in the point above to prepare a strategy for improving access/egress identified as inadequate and progressively implement that strategy, which may involve actions including:
 - construction of new roads
 - opening of closed roads
 - widening of existing roads
 - removal of barriers within road reserves
- In structure planning and subdivision of that land in Helena Valley rezoned to Urban by MRS Amendment 1160/41, secure a potential road link into the former Bushmead Rifle Range land in the adjacent City of Swan, so that a connecting road can be constructed should residential or other substantial development proceed on a portion of the former Bushmead Rifle Range
- Delineate, secure and then reserve in Local Planning Scheme No. 4 the road reserve for Beacon Road, in Parkerville and Hovea, specifically the section in Hovea north of Wilson Road and the section between Wilson Road and the planned realignment of Roland Road connecting to Brooking Road

4.6.4 Public transport

ABS 2006 census data records the modes of transport used for the journey to work. Only 5.7% of Shire of Mundaring residents used public transport (as the only mode or as one of multiple modes) in the journey to work, which is lower than the 7.4% for the Eastern Metropolitan Region as a whole (Cities of Bayswater, Belmont and Swan, Town of Bassendean and Shires of Kalamunda and Mundaring) and also lower than the Metropolitan Region as a whole. Of that 5.7%, 2.3% used a car *and* public transport, the great majority driving to the Midland railway station and then taking the train to their destination. The use of public transport for at least some of the journey to work was proportionally highest in Swan View, Boya and Mundaring. The use of public transport for at least some of the journey to work was proportionally lowest in Hovea, Sawyers Valley and Wooroloo, three areas poorly serviced by public transport.

The Shire also has a higher rate of two- and three- car households than the Metropolitan Region as a whole. This reflects the predominance of the private car for transport in the Shire, which is characterised by (primarily) low density residential and rural residential development and relatively poor public transport. As outlined in section 4.5.2 on Peak Oil, this level of car dependency leaves the residents of the Shire vulnerable to rises in the petrol price. It also disadvantages those unable to drive due to age or other factors, and has implications for the generation of greenhouse gas emissions.

The Shire's Strategic Transport Plan (see section 3.9 above) draws the following conclusions from the 2006 census data:

- Private car use for the journey to work within the Shire is higher than the Perth Metropolitan Region as a whole.
- Bus use for the journey to work is far below the PMR average, reflecting the sparse and infrequent local bus service.
- Train use for the journey to work is marginally higher than the PMR average, reflecting multiple-mode trips (primarily private car then rail from the Midland Train Station).
- Private car use for the journey to work increased over the 2001-2006 period, while cycling, walking and working from home decreased.
- Only 25% of employed Shire of Mundaring residents work within the Shire.
- A further 19% of employed Shire of Mundaring residents work within the adjacent City of Swan.
- Shire of Mundaring residents make up around 60% of those people working within the Shire.

Public transport within the Shire is in the form of buses operated by the Public Transport Authority (through Transperth). The following bus routes operate within the Shire of Mundaring:

307	Midland – Helena Valley (via Helena Valley Road)
314	Midland – Swan View – Stratton – Midland (via Morrison & Talbot Rds)
315	Midland – Swan View – Stratton – Midland (via Morrison & Myles Rds)
320	Midland – Mundaring (via Great Eastern Hwy & Mahogany Creek)
321	Midland – Glen Forrest (via Great Eastern Hwy & Darlington)
322	Midland – Glen Forrest (via Clayton & Scott Sts, Coulston Rd & Darlington)
323	Midland – Swan View (via Morrison Rd, Amherst Rd & Greenmount)
324	Midland – Swan View – Stratton – Midland (via Morrison & Talbot Rds)
325	Midland – Swan View – Stratton – Midland (via Morrison & Myles Rds)
326	Midland – Midvale – Midland (via Great Eastern Hwy & Victoria Pde)
327	Midland – Swan View (via Morrison, Myles & Blanchard Rds)
328	Midland – Wundowie (via Great Eastern Hwy, Parkerville, Stoneville, Mount Helena, Chidlow & Wooroloo) – sometimes terminates in Chidlow
331	Mundaring – Wundowie (via Stoneville, Mount Helena, Chidlow & Wooroloo) – sometimes terminates in Chidlow
332	Mundaring – Parkerville – Stoneville – Mundaring
720	Midland – Mundaring (via Great Eastern Hwy) Also, twice a day on weekdays: Midland – Sawyers Valley (via Great Eastern Hwy, Midland, Stoneville & Mount Helena)

These routes, except for routes east of Chidlow, are shown at Figure 51 below.

Services to Midland terminate at the Midland railway station, allowing passengers to continue their journey on the Transperth train network.

The suburbs of Midvale and Swan View are relatively well serviced by public transport. However, services to the rest of the Shire operate hourly on weekdays at best (in many cases much less often). East of Mundaring services are infrequent, limited to two or three services a day on some routes. Services are even more restricted on weekends, with some areas (Sawyers Valley, Wooroloo) having no services at all. Due to the low density of development in the hills townsites, some residents of urban areas are located a long distance from the nearest bus stop (over 500 m and in some instances around 1 km).



Figure 511: Bus routes in Shire of Mundaring (excluding east of Chidlow) at November 2009

The Shire's Strategic Transport Plan report notes that, based on Transperth timetables and communication with residents, "bus services within the Shire are infrequent and erratic with many express services and changes to termini which make successful trip planning difficult" and that "essentially, the low number of services in the area attempt to cover a large catchment area, with limited success".

As outlined in sections 3.9 and 4.5.2 above, the report, prepared based on consultation with the Public Transport Authority, concluded that, due to the large catchment area and the relatively small population within the Shire, it is unlikely that sufficient demand exists to profitably increase bus service within the area, and that it is unlikely that the frequency of Transperth services will be increased in the near future. This current situation disadvantages those unable to drive or without vehicles. However, with the onset of Peak Oil and the significant fuel price increases it will bring, the level of public transport service will strongly disadvantage many residents of the Shire. Given that there is a community service obligation for the state government, through the Public Transport Authority, to improve public transport services within the Shire, the Shire should aggressively lobby for these improvements.

As outlined in section 4.5.2 above, improved services between Mundaring and Midland (in terms of frequency and directness) should be the first priority, to encourage and facilitate a change of transport mode for existing commuting, shopping and other trips made by private car. Mundaring could operate as a 'park and ride' hub. The provision of adequate parking for such a 'park and ride' hub should be an important objective of revised precinct plans for the Mundaring Town Centre.

If and when residential development proceeds in the proposed North Parkerville and North Stoneville ("Parkerville Townsite" and "Stoneville Townsite") development areas, frequent and convenient bus services should be provided.

However, improved services to other parts of the Shire are also important, particularly to Mount Helena, Sawyers Valley, Chidlow and Wooroloo.

Recommendations

- Actively advocate improved public transport throughout the Shire generally and between Mundaring and Midland in particular
- Identify and plan for provision of car parking for a 'park and ride' hub in the revision of precinct plans for the Mundaring Town Centre
- Actively advocate the provision of frequent and convenient bus services to residential development in the proposed North Parkerville and North Stoneville developments, if and when it proceeds

4.6.5 Walking and cycling

2006 ABS data shows only 1.5% of people walked or cycled to work in the Shire of Mundaring, compared to a figure of 2.4% for the Eastern Metropolitan Region as a whole. Suburbs on the coastal plain such as Midvale, Swan View and Helena Valley are reasonably conducive to walking and cycling to commercial facilities and in some instances employment, the lower density and topography of hills townsites means that walking or cycling to commercial facilities, employment or even public transport is often more difficult or inconvenient. However, on the other hand, the natural environment of the Shire and the recreational facilities that allow enjoyment of it, in particular the Railway Reserves Heritage Trail, Kep Track and Munda Biddi Trail, encourage recreational walking and cycling.

There are over 86 km of footpaths within the Shire with a total value approaching \$5 million. The distribution of these footpaths is mainly within the town/village centres in the hills and the residential suburbs on the coastal plain. A program of upgrading the footpath/cyclepath network over time is included in the infrastructure component of the Shire's financial planning. Footpaths or dual use paths, or contributions towards these can also be required as a condition of subdivision, where consistent with Commission policy.

In keeping with other recommendations of this Strategy emphasising localisation, the environment for cyclists and pedestrians within suburbs and hills townsites should be improved as far as practicable. Footpaths to access commercial and community facilities and bus stops should be prioritised. To encourage cycling, a requirement for end-of-trip bicycle parking/storage facilities should be incorporated into Local Planning Scheme No. 4. The Shire should also advocate the provision of secure bicycle parking facilities at key bus stops, in the Mundaring Town Centre and also other local centres.

As outlined in section 4.6.3.1 above, further traffic control options or other measures on Great Eastern Highway should be investigated to improve pedestrian safety and connectivity within the Mundaring Town Centre.

The Railway Reserves Heritage Trail provides an excellent recreational facility for residents and tourists, but also a safe and convenient means of walking or cycling between townsites/suburbs for other purposes. Accordingly, upgrades to the Railway Reserves Heritage Trail are already, and should continue to be, given high priority in the Shire's infrastructure works program. One planned project which will improve safety for users of the Railway Reserves Heritage Trail is a proposed underpass of Morrison Road where it crosses the trail in Swan View.

Opportunity exists for another recreational cycling and walk trail system along the Helena River and the development of such paths (separate where possible) should be supported by the Shire, in conjunction with the City of Swan and other agencies.

An important pedestrian link which needs to be secured is the pedestrian crossing of the Helena River linking residential areas in Helena Valley to the north and south of the river. This route presently traverses private land. The route needs to be formalised or an alternative considered.

Consideration should be given to a dedicated bicycle network plan to consider the needs of cyclists separate from pedestrians.

In considering, advocating for, requiring, developing or managing infrastructure used for walking or cycling, the Shire should be guided by and seek to implement its Access and Inclusion Plan.

Perth Bike Network

The Department of Transport's Perth Bike Network (1996) is a network of cycling routes comprising principal shared path routes, recreational shared path routes, local bicycle routes and end-of-trip facilities. It now comprises the Metropolitan component of the draft *Western Australian Bicycle Network Plan 2012-2021* (WABN), which identifies how Western Australia's expanding cycling needs will be serviced over that period, with a particular focus on riders commuting to work and delivery of sustainability benefits. Ongoing implementation of the WABN will be by the WABN Implementation Reference Group, containing representatives from government agencies and cycling groups.

Incorporating the WABN Plan into Local Planning Strategies is identified by Objective 3 of the plan which states that:

Progressing the WABN is a core component of sub-regional growth management strategies, structure plans and local planning strategies and it is essential to integrate cycling infrastructure within new developments from their outset.

In particular, Local Government works on cycling facilities are partly funded through the Perth Bicycle Network Local Governments Grants Programs which is administered by the Department of Transport. Funding is allocated for cycling projects based on priorities identified within Local Bike Plans (Network Plans).

Responsibility for the construction of the Principal Shared Path components lies with Main Roads WA and the Public Transport Authority whereas Local Government is responsible for constructing local routes using grants from the Perth Bicycle Network Local Government Grants Programs.

As the main demand for commuter cycling is within a 15km radius of the Perth CBD along freeways and railway lines, the WABN Plan focusses on links within this radius to obtain maximum benefit for cyclists. Accordingly, no upgrades are identified within the Shire of Mundaring in the WABN Plan. The nearest upgrade is a Principal Shared Path intended to be installed along the Perth to Midland Railway Line from Bassendean to Midland.

EMRC Regional Cycle Infrastructure Masterplan

A regional funding submission prepared by EMRC for a Regional Cycle Infrastructure Masterplan was successful in obtaining funding from the Department of Transport through the Perth Bicycle Network Local Government Grants. The Masterplan incorporates input from EMRC member local governments (Bassendean, Bayswater, Belmont, Kalamunda, Mundaring and Swan) in partnership with Curtin University, and in consultation with community and user groups.

The Masterplan was developed in response to one of the priority actions in the EMRC's *Regional Integrated Transport Strategy 2010-2013* and addresses regional connectivity of local bike plans and identifies existing and new paths that need realignment and/or development to provide connected cycle paths across various municipalities. It guides and informs the future provision of cycle infrastructure throughout Perth's Eastern Region, focussing on providing a cycle network that:

- is convenient, accessible and safe;
- is comprehensive, providing access to most destinations for most cyclists;
- establishes connectivity; and
- has regional coverage.

The Masterplan identifies barriers to successfully increasing participation in cycling. Particularly in the Shire of Mundaring, longer journeys to work, topography, a dispersed population and inadequate cycling facilities are responsible for a higher proportion of shorter trips with the overall number of these trips declining. The Masterplan also identifies a decreasing trend for trips to attractors such as schools; an objective of the *Western Australian Bicycle Network Plan 2012-2021* is to increase trips to schools.

The Railway Heritage Trail forms the spine of the cycling and pedestrian network in the Shire of Mundaring. The Masterplan identifies the extent of cycling infrastructure and gaps in connectivity.

The findings of the Masterplan should be used in the development of a Local Bike Plan for the Shire, but noting that review of findings will be required to ensure they remain valid at that time.

Recommendations

- Emphasise and better accommodate pedestrian and cyclist movement throughout the Shire generally and in and around commercial areas particularly
- In considering, advocating for, requiring, developing or managing infrastructure used for walking or cycling, be guided by and seek to implement the Shire of Mundaring Access and Inclusion Plan
- Require footpaths or dual-use paths, or contributions towards such paths, where consistent with Commission policy, as a condition of subdivision and identify this requirement in structure plans
- Incorporate end-of-trip bicycle parking requirements for various developments into Local Planning Scheme No. 4
- Provide or advocate provision of secure facilities for parking bicycles and scooters at key bus stops
- Investigate traffic control options or other measures on Great Eastern Highway to improve pedestrian safety and connectivity within the Mundaring Town Centre
- Continue to upgrade the Railway Reserves Heritage Trail to improve its condition and facilities for walkers and cyclists
- Pursue construction of an underpass beneath Morrison Road on the Railway Reserves Heritage Trail
- Support development of pedestrian and cycle paths (separated from each other if and where possible) along the Helena River, linking Helena Valley to Midland
- Develop a dedicated bicycle network plan (Local Bike Plan) for the Shire, seeking to achieve a greater ridership to local attractions and improved connection to major shared paths, and having regard to the findings and recommendations of the EMRC Regional Cycle Infrastructure Masterplan
- Formalise a pedestrian crossing of the Helena River linking residential areas in Helena Valley to the north and south of the river

4.6.6 Other infrastructure

Perth Airport

Perth Airport is a critical strategic transport facility for the region and the state. The airport is located outside of the Shire of Mundaring, and the airport land is over 2.5 km from the Shire at its nearest point. The primary impact of the airport on the Shire is aircraft noise.

State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport (see section 2.2.2.16 and Figure 3 above) gives force to Australian Noise Exposure Forecast (ANEF) contours for Perth Airport. ANEF contours measure the anticipated cumulative noise exposure over a year for a given future level of flight movements. The ANEF contours in the State Planning Policy were prepared by Westralia Airports Corporation for a future level of airport operations of 350,000 movements per year, and assume the development of a third, roughly north-south, runway east of the current International Terminal. The State Planning Policy recommends that these ANEF contours be incorporated into relevant local government Town Planning Schemes and they are incorporated into proposed Local Planning Scheme No. 4 as a Special Control Area. Proposed Special Control Area provisions in the Scheme are based on the State Planning Policy.

A Perth Airport Preliminary Draft Master Plan 2009 was advertised for public comment from June to August 2009. The Master Plan was approved by the Federal Minister for Infrastructure, Transport, Regional Development and Local Government on 3 November 2009.

The Master Plan addresses a range of issues, including land use and precinct development across the Perth Airport site. Allowance is made for a possible passenger rail connection to the airport. The Master Plan's projections are for increased flight movements, but these are not anticipated to be sufficient to warrant construction of the third runway within the 20-year timeframe of the Master Plan.

The 2009 Master Plan incorporates revised ANEF contours based on certain new assumptions, including some recent revisions to flightpaths (see below). Not all recent changes to flightpaths were included in the revised ANEF calculations because some recently introduced flightpaths will not be required when a third runway is in place. The changes to ANEF contours affecting the Shire of Mundaring are relatively minor. Local Planning Scheme No. 4 incorporates the 2009 ANEF contours.

ANEF Contours are a conservative, long-term planning tool for reducing incompatible development in areas of future high aircraft noise exposure. However, that does not mean that development outside of the ANEF 20 Contour will not be subject to levels of aircraft noise that may impact on some residents. Indeed, aircraft noise well below the ANEF 20 Contour level may be of concern, particularly where there is a substantial increase in overflights from what has previously been experienced.

During 2008 and 2009, there has been concern expressed by members of the community within the Shire of Mundaring about the noise impacts resulting from changes in flight paths and frequency over parts of the Shire resulting from the Western Australia Route Review Project (WARRP). Within parts of the Shire of Mundaring, there has been a significant increase in overflights over generally quiet rural residential or low-density residential areas in a rural setting, where ambient noise levels are much lower and thus the incremental or proportional increase in noise from aircraft overflights may be greater than for suburbs nearer the airport. Those changes were of an extent that arguably warranted direct community consultation and information.

Accordingly, with respect to issues of aircraft noise and operations, it is recommended that the Shire recognise the economic and social importance of aircraft operations at Perth Airport, but lobby for improved public consultation regarding changes to aircraft flight paths.

Airspace protection

Under the *Federal Airports Act 1996* and the *Airports (Protection of Airspace) Regulations 1996*, the Shire has certain obligations with respect to the impact of land use and development within the Shire on the airspace of Perth Airport. A Protected Airspace Boundary for the airport (see Figure 52 below) affects much of the Shire. Proposals within the Protected Airspace Boundary that are defined as “controlled activities” under the legislation require approval by the Federal Government.

Any proposed structures exceeding heights shown on a Structures Height Control Contours plan supplied by Westralia Airports Corporation are to be referred to Westralia Airports Corporation (operators of Perth Airport) for assessment by the Westralia Airports Corporation, the Civil Aviation Safety Authority and Airservices Australia. Approvals are issued by the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government. In some instances, temporary structures (those that will be in place for less than three months) such as cranes may not require referral; Westralia Airports Corporation should be contacted to confirm this.

The Structures Height Control Contours mapping is available at the Shire but would be difficult to interpret at A3 scale so has not been incorporated into this Strategy at this time. Subject to more legible electronic version being made available, the plan should subsequently be incorporated into this Strategy.

The height limit above which structures require referral and approval ranges from 15 m in parts of the protected airspace area to as much as 110 m in others. Given controls on building heights contained in proposed Local Planning Scheme No. 4, it is likely that few proposals will exceed the applicable height limit.

Controlled activities also include non-structural elements: artificial light, reflected sunlight, emissions of smoke, dust or other particulate matter, and emissions of steam or other gas. Any proposals generating these activities and which have the possibility of entering Perth Airport's protected airspace may also require Federal Government Approval. However, this does not apply to domestic or household activities.

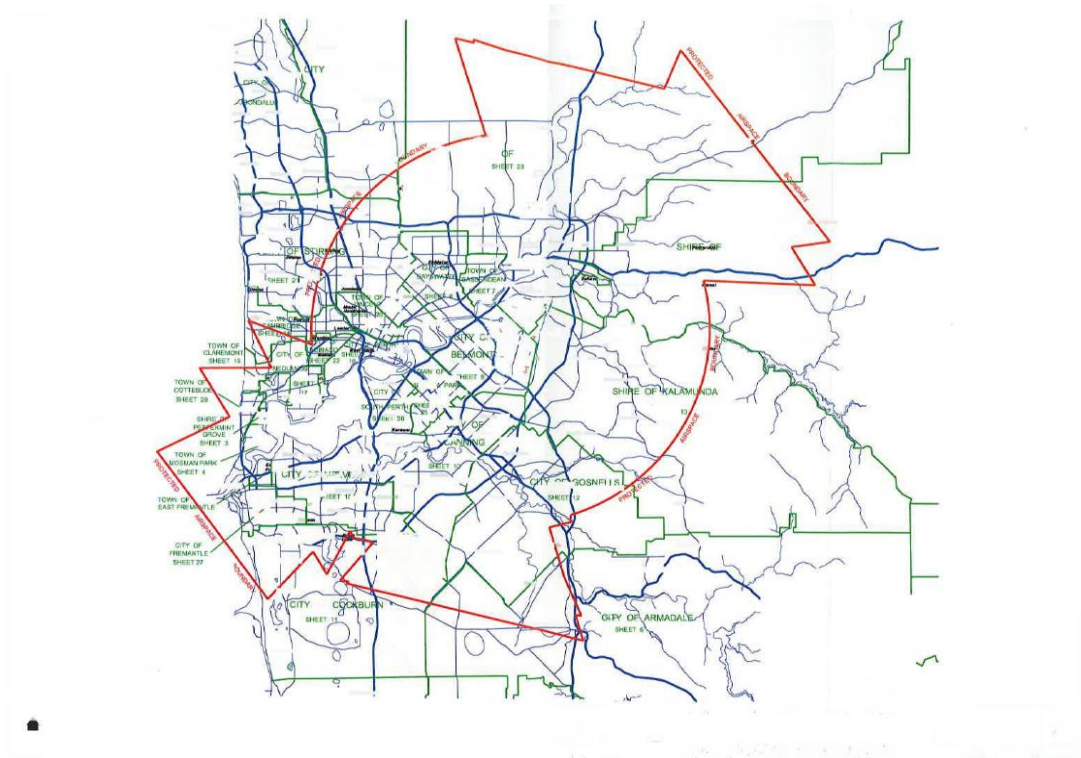


Figure 522: Perth Airport Protected Airspace Boundary

Telecommunications

The quality of telecommunications services throughout the Shire of Mundaring is generally good. However for some residents in more remote locations, internet speeds are known to be much lower, particularly when located more than 5 km from a telephone exchange. There are also instances throughout the Shire of 'pair gain' telephone service, where two or more subscribers share one telephone line and which, in its basic form, is unsuitable for accessing broadband services.

Broadband internet access is available throughout most of the Shire, but there are a number of broadband “black spots”. Broadband internet access is important to many businesses, including home-based businesses, as well as for residents of the Shire who ‘telecommute’. A recent survey carried out by the EMRC identified problems experienced by many residents of the Shire and identified several broadband black spot clusters in the hills portion of the Shire. Measures need to be taken to eliminate broadband black spots and meet contemporary requirements for fast, reliable internet access.

Energy

Western Power supplies electricity throughout the Shire. The power supply is generally adequate, although some remote customers and, in the past, the Mundaring Light Industrial Area, experience supply difficulties. Adequate infrastructure may need to be installed to cater for future growth. Reticulated gas is only available west of the Darling Scarp, in Midvale, Swan View, Greenmount and Helena Valley, and a portion of Boya.

Renewable energy generation

One way that the Shire can support efforts to lower greenhouse gas emissions and help mitigate severe climate change is in facilitating the introduction of renewable energy generation within the Shire, by way of wind turbines or solar energy systems. These technologies can be implemented at various scales, ranging from small-scale energy generation for individual homes and businesses through to major commercial enterprises contributing to regional energy supply.

These technologies should be generally supported, given their environmental and, potentially, economic benefits. However, depending on their location, scale and design, such systems may have the potential for adverse amenity impacts (and possibly also safety or environmental impacts). It is expected that the use of these systems will become much more common over the life of this Strategy.

To guide the Shire in determining such proposals, including identifying which proposals would and would not require planning approval, a Local Planning Policy should be prepared (and, if necessary, Scheme provisions). Such a policy should be generally supportive of such proposals except where there are overwhelming amenity, safety or environmental concerns with a particular proposal.

Recommendations

- Incorporate Australian Noise Exposure Forecast (ANEF) Contours for Perth Airport into Local Planning Scheme No. 4 as a Special Control Area and incorporate Special Control Area provisions based on State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport
- Recognise the economic and social importance of aircraft operations at Perth Airport, but lobby for improved public consultation regarding changes to aircraft flight paths
- Refer the following proposals, constituting controlled activities under relevant federal legislation and regulations, to Westralia Airports Corporation for approval by the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government:
 - structures exceeding the height limits shown on a Structures Height Control Contours plan prepared by Westralia Airports Corporation for any particular site within the Perth Airport Protected Airspace Boundary
 - proposals having the potential to cause artificial light, reflected sunlight, emissions of smoke, dust or other particulate matter, or emissions of steam or other gas to enter Perth Airport's protected airspace
- Contact Westralia Airports Corporation for confirmation of whether approval is required where there is any doubt as to whether a proposal constitutes a controlled activity as set out in the above criteria, or where a structure exceeding the height limits will only be in place for less than three months
- Advocate measures to eliminate broadband black spots and meet contemporary requirements for fast, reliable internet access across the whole Shire
- Prepare a Local Planning Policy and, if necessary, Scheme provisions, to address the generation of energy by way of solar or wind power, with such policy generally supportive of such proposals except where there are overwhelming amenity, safety or environmental concerns with a particular proposal

5.0 SETTLEMENT PATTERN

Part 5 begins by setting out guiding principles for the Shire's settlement pattern. It then explores one of the most significant determinants of future settlement pattern in the Shire: bushfire hazard. It then examines in detail the settlement pattern, densities and proposed Scheme controls relating to residential, rural residential and rural small holdings uses in the Shire.

As with Part 4, recommended strategies are identified, which are also compiled in the *Local Planning Strategy: Strategies Document*.

Guiding principles for settlement pattern

The development of the hills portion of the Shire in the form of a series of discreet villages separated by rural buffers has occurred over time, at first naturally as each village developed around stations on the two railway lines through the Shire, and then as a deliberate Council policy. This has been reinforced more recently by recommendations of the North Eastern Hills Settlement Pattern Plan, which supports landscape corridors separating towns. This Strategy recommends the continuation of this form of development for the following reasons:

- visual amenity, landscape values, the “hills lifestyle” and ecological/wildlife corridors are all best preserved by retaining rural (including rural residential) buffers between towns/villages;
- this pattern of development reinforces the identity of each village, both for residents and tourists;
- this form of development is best suited to addressing the issues of bushfire hazard and protection of Local Natural Areas;
- given the low density of residential development necessitated by the lack of sewerage, discreet villages may arguably be more sustainable in terms of residents being able to meet many day-to-day needs locally in the future to reduce transport demand.

To capitalise on existing facilities and services and relative proximity to the Midland regional centre, residential development should be intensified by increasing residential densities where reticulated sewerage is available and in close proximity to public transport, shops, schools, employment and other facilities.

To improve the self-sufficiency of individual towns/villages in the hills portion of the Shire, to encourage the viability of shops and other services and facilities and thereby reduce transport demand, incremental expansion of hills towns/villages should be pursued where suitable adjacent land exists which is primarily cleared and capable of on-site effluent disposal, unless the existing Residential zoned land will be sufficient to cater for projected or likely growth through the life of this Strategy.

Rural living necessarily involves locations outside of towns/villages and thus usually some distance from services and facilities, but in order to reduce transport demand and promote a more sustainable form of rural residential development, additional rural residential subdivision within the Shire should be concentrated in relatively close proximity to existing towns/villages, commercial facilities, schools and employment sources.

Recommendations

- Continue to support the development of the hills portion of the Shire in the form of a series of discreet villages separated by rural buffers
- To capitalise on existing facilities and services and relative proximity to the Midland regional centre, intensify residential development by increasing residential densities where reticulated sewerage is available and in close proximity to public transport, shops, schools, employment and other facilities
- To improve the self-sufficiency of individual towns/villages in the hills portion of the Shire, encourage the viability of shops and other services and facilities and thereby reduce transport demand, pursue incremental expansion of hills towns/villages where suitable adjacent land exists which is primarily cleared and capable of on-site effluent disposal, unless the existing Residential zoned land in a town/village will be sufficient to cater for projected or likely growth through the life of this Strategy
- To reduce transport demand and promote a more sustainable form of rural residential development, additional rural residential subdivision within the Shire should be concentrated in relatively close proximity to existing towns/villages, commercial facilities, schools and employment sources

5.1 Bushfire hazard

Introduction

Because bushfire hazard is one of the most significant planning considerations in the Shire of Mundaring, and hence a major influence on any changes to the Shire's settlement pattern, the planning implications of the issue are addressed in detail in this section. The bushfire hazard assessment process and findings are outlined briefly in section 4.1.8 above.

As identified in section 4.1.8 above, bushfire hazard is one of the most significant planning considerations in the Shire of Mundaring, given that so many residents of the Shire live in close proximity to native bushland. There is a statutory requirement to address the issue in this Local Planning Strategy and its Local Planning Scheme No. 4 as the *Planning for Bush Fire Protection Guidelines*, published by the WAPC, the Fire and Emergency Services Authority and the Department of Planning (see section 2.8 above) have been incorporated by reference into State Planning Policy 3.4 (Natural Hazards and Disasters).

It is also significant that the bushfire hazard to residents of the Shire is anticipated to increase over time due to the impacts of climate change, such as hotter, drier (in terms of rainfall and humidity) and more extreme weather, and earlier and longer fire seasons.

Planning for Bush Fire Protection Guidelines requirements

It should be noted that this Local Planning Strategy and the Shire's Local Planning Scheme No. 4 were prepared in accordance with the 2001 *Planning for Bush Fire Protection* document and the WAPC DC 3.7 Fire Planning, both subsequently rescinded by the 2010 *Planning for Bush Fire Protection Guidelines*. At the time of writing, those Guidelines are still in a review period and further changes are anticipated. Upon the release of a revised version or successor document to *Planning for Bush Fire Protection Guidelines*, the recommendations of this Local Planning Strategy and the provisions in proposed Local Planning Scheme No. 4 may need to be reviewed and updated. Also, any other bush fire safety requirements that may be introduced at a State level or nationally, particularly in response to the 2009 Victorian bushfires tragedy and the subsequent Royal Commission, will need to be adhered to.

It should also be understood that the *Planning for Bush Fire Protection Guidelines* indicate that they are generally not designed to be applied retrospectively (see section 2.8 above), although at the same time there is a strong duty of care for decision makers and the information in the guidelines should be applied wherever practicable. This lack of clarity with respect to retrospective application is a significant shortcoming in the Guidelines, which may be addressed in further review.

Planning for Bush Fire Protection set out a methodology for categorising land into areas of Extreme, High, Medium and Low bushfire hazard, based on the predominant vegetation class and type and the slope of land. Areas with an Extreme, High or Medium bushfire hazard are considered to be bushfire prone areas. Based on the Type 1 and Type 2 bushfire hazard assessment that has been conducted, land within the Shire of Mundaring fits only into the Extreme, Medium and Low categories (see Figure 26, in section 4.1.8 above). Subsequently, *Planning for Bush Fire Protection Guidelines (2010)* specifies a similar methodology, but has merged the High and Medium hazard levels into a single level called Moderate. FESA advice has indicated that the Shire's bushfire hazard assessment for this Strategy is consistent with the 2010 Guidelines.

General principle 3 of *Planning for Bush Fire Protection Guidelines* indicates that more intensive subdivision/development such as residential, rural residential, hobby farms, tourist and industrial developments should be avoided in Extreme fire hazard areas unless certain fire protection measures can be implemented. General principle 4 of the Guidelines indicates that where such subdivision/development is considered unavoidable, permanent hazard level reduction measures need to be implemented to reduce the hazard level to low or moderate.

The Guidelines state that in areas with Moderate fire hazard levels, subdivision and development for more intensive purposes will only be approved where it can be undertaken in accordance with the general principles of those Guidelines. Principle 5 of those Guidelines requires structure plans, subdivision and development in areas with Moderate (or Extreme) bush fire hazard to be supported by an assessment of the bushfire risk and compliance with the performance criteria and acceptable solutions set out in the Appendix 2 to the Guidelines. These requirements for bushfire protection for subdivision and development address such matters as vehicular access, water supply, siting of development (including hazard separation and building protection zones) and design of development.

Where subdivision/development does not comply with all acceptable solutions in Appendix 2 to the Guidelines, the proposal is to be referred to FESA for advice. The performance criteria and the advice of FESA will guide the decision maker (WAPC or the Shire) in determining the proposal.

Implications of *Planning for Bush Fire Protection Guidelines* for vegetation protection

As outlined in various sections throughout this Strategy, native vegetation in the Shire of Mundaring has significant environmental and aesthetic value. The natural environment is strongly valued by most residents of the Shire and is indeed a major factor in residents' decision to move to or remain within the Shire. Accordingly, this Strategy supports a general presumption against the clearing of native vegetation wherever practicable.

However, living in close proximity to bushland and other native vegetation can expose residents to significant bushfire hazard. Compliance with the requirements of the *Planning for Bush Fire Protection Guidelines* would significantly reduce the bushfire hazard for such residents, but this could require thinning or removal of significant amounts of native vegetation.

Firstly, the *Planning for Bush Fire Protection Guidelines* indicate that residences (as well as tourist accommodation and industrial developments) should not be permitted in Extreme bushfire hazard areas without permanent hazard level reduction measures to reduce the hazard level to Moderate or Low. This would involve the clearing of vegetation such that the resulting predominant vegetation class was low shrubs, open woodland, open shrubland or grassland. As can be seen from Figure 26, if this requirement were to be applied retrospectively to existing development, this would affect a very large proportion of the Shire.

Secondly, acceptable solution A4.3 of the *Planning for Bush Fire Protection Guidelines* requires a building protection zone to be provided around all buildings in bushfire prone areas. A building protection zone is to be 20 m wide around the entire building. In this zone, fuel load is to be reduced to and maintained at 2 tonnes per hectare. Trees (crowns) are to be a minimum of 10 m apart, must be low pruned to at least a height of 2 m, and must not be located within 2 m of a building. No tree crowns are to overhang the building. Shrubs are to have no dead material within the plant, while trees are to have no dead material within the plant's crown or on the bole. Tall shrubs are not to be planted in clumps within 3 m of the building.

Thirdly, acceptable solution A4.4 of the *Planning for Bush Fire Protection Guidelines* requires an 80 m hazard separation zone around every building, measured from the outer edge of the building protection zone, in the case of vegetation classified by the Guidelines as forests, woodlands, closed shrub, open shrub, mallee/mulga and rainforest. A hazard separation zone is an area of reduced fuel levels such that the fuel load is reduced to below 8 tonnes per hectare for jarrah/marri forest and woodlands. In a hazard separation zone, trees (crowns) are to be a minimum of 10 m apart, while trees in the hazard separation zone are to have no dead material within the plant's crown or on the boles. Accordingly, some thinning of vegetation, including undergrowth, may be required within that hazard separation zone, although clearing of all vegetation would not be required.

Planning for Bush Fire Protection Guidelines itself acknowledges the potential conflict between bushfire safety and vegetation protection:

"It should be noted that building protection zones can adversely affect the retention of native vegetation. Where this loss of vegetation is not acceptable or causes conflict with either landscape or environmental objectives, reducing lot yield may be necessary in order to minimise the removal and modification of remnant vegetation."

As stated above, the *Planning for Bush Fire Protection Guidelines* lack clarity with respect to their retrospective application, but note the duty of care on decision makers means that the information in the Guidelines should be applied wherever practicable.

The Shire must find an appropriate balance between vegetation protection for environmental or aesthetic reasons and safety of human life and property, but in so doing, bushfire safety objectives must be paramount. Therefore, the underlying principle behind the Shire's approach to bushfire hazard is as follows:

The Shire of Mundaring values, and places strong emphasis on, the protection of vegetation for environmental and aesthetic reasons, but where there is a conflict between vegetation protection and bushfire safety, Council will make decisions having regard to bushfire safety objectives.

Proposed Special Control Area provisions for addressing bushfire hazard

Consistent with the *Planning for Bush Fire Protection Guidelines*, the Shire will declare areas of Extreme or Moderate bushfire hazard to be a Bushfire Prone Area in Local Planning Scheme No. 4 and will impose a Special Control Area over all such land. The main purpose of the Special Control Area will be to implement the *Planning for Bush Fire Protection Guidelines* within the context of the particular local characteristics of the Shire of Mundaring. Proposed wording for Scheme provisions for the Special Control Area have been carefully prepared to address the issue of bushfire hazard.

The objectives of the Special Control Area will be to:

- identify bushfire prone areas, where bushfires pose a significant threat to life and property;
- avoid new residential development in areas where there is a significant risk to life and property from bushfires, except where such development rights existed immediately prior to the gazettal of this Scheme and there is no alternative location for development on a particular land parcel that has a lower risk;
- encourage the improvement of vehicular access and egress for residents and fire fighting vehicles in bushfire prone areas;
- ensure that a bush fire attack level assessment is carried out on land that is subject, or likely to be subject, to bush fire hazard; and
- ensure that land use and development in areas where there is a significant risk to life and property from bushfires takes into account bushfire safety requirements and includes specified protection measures, while having regard for the amenity and environmental characteristics of the locality.

The Scheme will specify that the Bush Fire Hazard Special Control Area also comprises a designated Bushfire Prone Area. To reduce the risk of damage to property, dwelling construction within a Bushfire Prone Area will be subject to the relevant bushfire prone area building requirements of the Building Code of Australia and Australian Standard 3959.

Proposed provisions specify that the development of, or external addition to, a dwelling within the Special Control Area will require a planning approval. Non-residential buildings within the Special Control Area in which workers, occupiers or visitors may be exposed to bushfire hazard will be assessed in accordance with *Planning for Bush Fire Protection Guidelines* as if they were residential development. Provisions will allow for the imposition of conditions of approval relating to bushfire hazard, including notifications on title, or the refusal of applications, including 'P' uses, where a proposed development is inconsistent with the Special Control Area objectives, non-compliant with Scheme requirements or does not satisfy the Acceptable Solutions or Performance Criteria in *Planning for Bush Fire Protection Guidelines*.

Consistent with the *Planning for Bush Fire Protection Guidelines*, structure plans, subdivisions and development applications must be accompanied by a bush fire attack level assessment. Development applications must also be accompanied by a statement or report that demonstrates that all relevant Acceptable Solutions or, alternatively, all relevant Performance Criteria, in Appendix 2 of the *Planning for Bush Fire Protection Guidelines*, have been considered and complied with, and effectively address the level of bush fire hazard applying to the land.

The *Planning for Bush Fire Protection Guidelines* require that any development that does not fully comply with the relevant Acceptable Solutions is to be referred to FESA for advice. In the case of the Shire of Mundaring, seeking comment from the Shire's Chief Bush Fire Control Officer, who is jointly employed by the Shire and FESA, will satisfy this requirement.

The provisions will also allow for review of the bushfire hazard level for any particular property based on a more detailed bushfire hazard assessment procedure (see section 4.1.8 above). Such reviews, at the request of an owner, would be determined on the basis of the advice of the Shire's Chief Bush Fire Control Officer. If the Shire determined that a different bushfire hazard level applies to a portion of land than that shown on the Special Control Area on the Scheme Maps, this other level would apply to the consideration of a subdivision or development proposal, notwithstanding the bushfire hazard level shown on the Special Control Area on the Scheme Maps. However, this does not negate the requirement for a bush fire attack level assessment at structure plan, subdivision or development stage.

Given the emphasis of this Local Planning Strategy on protection of bushland and native vegetation, and noting the loss of vegetation required to achieve bushfire safety requirements, areas of Extreme bushfire hazard should be avoided when rezoning land for closer subdivision and more intensive development, wherever possible. It will need to be accepted that, if areas of Extreme bushfire hazard are rezoned, then portions of the bushland in those areas will be lost to reduce bushfire hazard to acceptable levels. The following statement is proposed to be included in Local Planning Scheme No. 4 with respect to new rezonings:

In order to protect the safety of human life and property as well as the environmental and aesthetic values of bushland, there shall be a strong presumption against any rezoning or recoding of land with an Extreme bush fire hazard level to facilitate intensification of development and/or subdivision potential.

At the time of writing, the *Planning for Bush Fire Protection Guidelines* remain under review and it is anticipated that further changes will be made to the Guidelines. If any changes to the proposed provisions of Local Planning Scheme No. 4 are necessitated by anything in the revised *Planning for Bush Fire Protection Guidelines*, these can be made as modifications (prior to final approval of the Scheme) or by way of a Scheme Amendment after the gazettal of the Scheme.

While the Scheme itself does not impose a retrospective requirement on existing dwellings to have adequate building protection or hazard separation zones (this is a matter that may be addressed by other laws or regulations), it should be noted that wherever an owner of an existing dwelling seeks to establish a building protection or hazard separation zone on their property that would be consistent with the *Planning for Bush Fire Protection Guidelines*, the Shire has a moral, and perhaps legal, obligation to permit this.

A review of the bushfire hazard mapping for the Shire will be warranted over time, to take into account changes in vegetation (including any revegetation/regrowth). Such review may necessitate a change to the Special Control Area mapping.

Vehicular access to/from bushfire prone areas

For the preservation of both human life and property, it is essential to ensure adequate vehicular access to/from and within bushfire prone areas, both for escape by residents and for access by emergency vehicles, particularly fire fighting appliances. This is of particular importance given that existing development in residential or rural residential areas already zoned prior to Local Planning Scheme No. 4 in many cases may not have the building protection zones and hazard separation zones specified by the *Planning for Bush Fire Protection Guidelines*.

The *Planning for Bush Fire Protection Guidelines* sets out the performance criteria and detailed acceptable solutions for access and egress in bushfire prone areas. The key requirements in the acceptable solutions include:

- all public roads should allow for two-way traffic and for conventional two-wheel drive vehicles to travel on them;
- in bushfire prone areas, two different routes of access should be available to residents;
- battleaxe accesses should generally be avoided in bushfire prone areas;
- culs-de-sac are generally not encouraged in bushfire prone areas, but where used they should not exceed 200 m in length (in some instances a length up to 600 m may be acceptable where there is emergency access between cul-de-sac heads; and
- turnaround areas should allow fire appliances to turn around safely and should be available at cul-de-sac heads, house sites and at 500 m intervals along driveways and fire service accesses.

Much of the existing residential and rural residential development within the Shire of Mundaring, particularly in areas subdivided some decades ago, fails to meet these key requirements, leaving many residents with potentially inadequate escape routes and emergency vehicles with inadequate access for fire fighting and evacuation purposes. Also, these homes may not be constructed to the standards that should apply today for building in bushfire prone areas.

The *Report into the Bush Fire Hazard Assessment for the Shire of Mundaring* by FirePlan WA (July 2007), made the following comments with respect to vehicular access and egress:

“Roads, access and egress for many areas is not up to the required standard as detailed in “Planning for Bush Fire Protection”. There are many culs-de-sacs that are greater than the 200 metres with inadequate turn around areas. Access roads when areas have been subdivided have in some cases had the old gravel road that wound along the road reserve and around trees have been bituminised without straightening the road alignment. In some cases it would be difficult for two large fire appliances to pass in the daytime let alone in an emergency at night in smoke.

Some roads have been blocked on either side of a major road. To access the other side of the major road in some cases requires a major detour of some kilometres to achieve an actual distance of only 50 metres. They are blocked off by a very short bollard and some rocks. However motor bikes can still go through the bollard. The bollards because they are low could be dangerous for fire appliances travelling along the road at night, in the smoke. Drivers may not see the bollard and damage the underneath of the vehicle. This would especially apply to fire appliances not familiar with the area. In some areas the shoulders of the road have not been graded and vegetation/trees have been allowed to grow thus reducing the trafficable surface and increasing the risk to fire fighters. In a major fire incident there may be many brigades from outside the Shire or personnel without local knowledge. Fighting bushfires at night in smoke decreases the visibility and increases the risk of vehicle accidents. This would be exacerbated in some areas due to the poor road standards.

It is recommended that all existing and future roads comply with the requirements detailed in “Planning for Bush Fire Protection”.

While all new subdivision within the Shire of Mundaring should be required to comply with the access requirements of the *Planning for Bush Fire Protection Guidelines*, it is also appropriate that existing deficiencies in access/egress be remedied wherever possible.

This Local Planning Strategy recommends that an audit be conducted of the adequacy of vehicular access/egress in bushfire prone areas throughout the Shire (at the time of writing, the first stage of the audit has been conducted and implementation has commenced). The audit should then be used to prepare a strategy for improving access/egress identified as inadequate. Progressive implementation of that strategy should then occur. This may involve actions including:

- construction of new roads;
- opening of closed roads;
- widening of existing roads; or

- removal of barriers within road reserves.

Special Control Area provisions for bushfire prone areas in Local Planning Scheme No. 4 should indicate that the Shire may support a proposed subdivision which would result in improved vehicular access within a bushfire prone area and where vehicular access in that area has been recognised as inadequate by appropriate experts, notwithstanding that the subdivision would otherwise not be supported by the Scheme.

Community information

At the time of writing, the Shire of Mundaring and Fire and Emergency Services Authority already have very good community information programs regarding bushfire hazard and its implications for residents and landowners. However, in light of the introduction of bushfire hazard mapping into Local Planning Scheme No. 4 by way of a Special Control Area, it will be appropriate for community information programs to be reviewed and revised or strengthened where appropriate to ensure that both new and existing residents and landowners are aware of the new information and Scheme provisions, and of the bushfire hazard generally.

Recommendations

- Adopt a position that the Shire values, and places strong emphasis on, the protection of vegetation for environmental and aesthetic reasons, but where there is a conflict between vegetation protection and bushfire safety, Council will make decisions having regard to bushfire safety objectives
- Seek to ensure compliance with the *Planning for Bush Fire Protection Guidelines*, as current at any point in time, or any successor document
- Declare areas of Extreme or Moderate bushfire hazard to be a Bushfire Prone Area in Local Planning Scheme No. 4
- Include areas of Extreme or Moderate bushfire hazard in a Special Control Area in Local Planning Scheme No. 4
- Make dwelling construction within a Bushfire Prone Area subject to the relevant bushfire prone area building requirements of the Building Code of Australia and Australian Standard 3959
- Incorporate a provision in Local Planning Scheme No. 4 requiring a planning approval for the development of, or external addition to, a dwelling within the Bush Fire Hazard Special Control Area
- Assess proposed non-residential buildings within the Bush Fire Hazard Special Control Area, in which workers, occupiers or visitors may be exposed to bushfire hazard, in accordance with the *Planning for Bush Fire Protection Guidelines* as if they were residential development
- Allow for review of the bushfire hazard level for any particular property at the request of an owner, with the request to be determined on the basis of the advice of the Shire's Chief Bush Fire Control Officer

- In order to protect the safety of human life and property as well as the environmental and aesthetic values of bushland, incorporate into Local Planning Scheme No. 4 a strong presumption against any rezoning or recoding of land with an Extreme bush fire hazard level to facilitate intensification of development and/or subdivision potential
- Permit any owner of an existing dwelling who seeks to establish a building protection or hazard separation zone on their property that would be consistent with the *Planning for Bush Fire Protection Guidelines* to do so
- Review the bushfire hazard mapping for the Shire periodically, to take into account changes in vegetation (including any revegetation/regrowth), and amend the Special Control Area mapping as appropriate to reflect the outcome of the review
- In all new subdivisions, and where possible in all new developments, ensure adequate vehicular access to/from and within bushfire prone areas, both for escape by residents and for access by emergency vehicles, particularly fire fighting appliances
- Conduct an audit of the adequacy of vehicular access/egress in bushfire prone areas throughout the Shire
- Use the audit referred to in the point above to prepare a strategy for improving access/egress identified as inadequate and progressively implement that strategy, which may involve actions including:
 - construction of new roads
 - opening of closed roads
 - widening of existing roads
 - removal of barriers within road reserves
- Incorporate provisions in Local Planning Scheme No. 4 indicating that the Shire may support a proposed subdivision which would result in improved vehicular access within a bushfire prone area and where vehicular access in that area has been recognised as inadequate by appropriate experts, notwithstanding that the subdivision would otherwise not be supported by the Scheme
- Review, revise or strengthen community information programs on bushfire safety to ensure that both new and existing residents and landowners are aware of the bushfire hazard mapping and Scheme provisions, and of the bushfire hazard generally
- Review the recommendations of this Strategy and the provisions of Local Planning Scheme No. 4, and amend these as required, to ensure consistency with any revised version or successor document to the *Planning for Bush Fire Protection Guidelines*, and any other bush fire safety requirements that may be introduced at a State level or nationally

5.2 Residential

This section outlines proposed controls relating to residential development in the Shire's Local Planning Scheme No. 4. It considers all development within the Residential zone, which within the Shire encompasses a range of densities from medium density (R30 and R40) down to the very low density "special residential" development (R2.5 and R5) found in the numerous unsewered residential areas of the Shire. It identifies some guiding principles for considering future residential development. It also analyses the location, extent and density of residential development, in each of the various suburbs and localities within the Shire, and provides recommendations on future residential development.

Residential Zone controls

Removal of dual codes

The Shire's Town Planning Scheme No. 3 contains dual density codes (ie. Residential Design Codes Density Codes), whereby the density of development permissible under the higher code is dependent on certain criteria. Development in accordance with the higher code is only permitted where:

- development is to be connected to reticulated sewerage or the Department of Health advises that exceptional circumstances warrant the relaxation of this requirement;
- two or more lots are amalgamated to ensure an integrated development, or the subject lot is large enough to ensure an integrated development; and
- any existing house the Council considers worthy of retention is retained.

It is proposed to eliminate these dual codes in Local Planning Scheme No. 4. It is considered that dual codes can cause confusion and are unnecessary. Where sewer is not available, and unlikely to be available in the short to medium term, a dual code should not apply, but rather the lower code (generally R5 should apply). Otherwise, only the higher code should apply, and connection to sewer in accordance with the Government Sewerage Policy: Perth Metropolitan Region (see section 2.2.4.1 above) will be a requirement, as the Government Sewerage Policy applies regardless of the provisions of a local government Scheme.

Ensuring a sufficient site area to achieve an integrated development can be achieved by setting a minimum lot size for development or subdivision. To ensure an improved aesthetic quality of development and to ensure greater levels of visibility and surveillance, it is considered that on land with a code higher than R20, 1500 m² is an appropriate threshold below which a lot should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space. A Scheme provision is proposed to this effect.

As regards retention of existing dwellings, while noting that there are some benefits to this (embodied energy, aesthetics), an actual requirement to retain an existing dwelling should only apply where that building has heritage value recognised under the Scheme.

Variations to R Codes

The Residential Design Codes will provide guidance and control of residential development in proposed Local Planning Scheme No. 4, as they have done in Town Planning Scheme No. 3. However, in both Schemes, there are some variations to the requirements of the Residential Design Codes.

In Town Planning Scheme No. 3, aged or dependent persons' dwellings are subject to provisions that differ from the Residential Design Codes. It is proposed to retain this approach in Town Planning Scheme No. 4, with greater allowance for aged or dependent persons' dwellings (by way of density bonus) than is provided for in the Residential Design Codes, in light of the Shire's aging population and recognised need for additional aged or dependent persons' housing. Some criteria for this density bonus in Town Planning Scheme No. 3, such as a specific separation distance from similar facilities, are considered an unnecessary constraint and are not included in Local Planning Scheme No. 4.

It is anticipated that Local Planning Scheme No. 4 will contain provisions relating to outbuildings that vary the requirements of the Residential Design Codes. In particular, it is anticipated that these will reflect the different prevailing or intended lot sizes in areas with different residential density codes. However, at the time of writing, outbuildings provisions for Local Planning Scheme No. 4 have not been finalised. It is intended that provisions in Local Planning Scheme No. 4 will reflect those in Amendment No. 74 to Town Planning Scheme No. 3, once submissions on that amendment and any possible changes resulting from those submissions are considered by Council and the amendment is approved by the Minister and gazetted.

Rather than relying on the objectives, design principles and deemed-to-comply requirements of the Residential Design Codes relating to building height, Local Planning Scheme No. 4 proposes a 10 m maximum throughout the Shire (in the Residential zone but also all other zones). This is changed from the 9 m maximum specified in Town Planning Scheme No. 3. Several buildings over 9 m have been approved by the Council during the life of Town Planning Scheme No. 3.

Local Planning Scheme No. 4 proposes to vary the ancillary dwellings provisions of the Residential Design Codes and to prevail over the Residential Design Codes to the extent of any inconsistency. The R Codes set a deemed-to-comply requirement of a maximum floor area of 70 m², with the design principle merely indicating "... without compromising the amenity of adjoining properties". In order to give more direct guidance on the matter of size of ancillary dwellings, Local Planning Scheme No. 4 sets 60 m² as the maximum floor area, but indicates that where exceptional circumstances warrant a larger floor area, up to 80 m² may be approved. Government Sewerage Policy requirements will still apply to ancillary dwellings on unsewered lots. Proposed Local Planning Scheme No. 4 provisions also specify that ancillary dwellings shall be constructed in style, colours and materials that are complementary to those of the main residence on the lot, and that ancillary dwellings shall be located in as close proximity to the main residence on the lot as reasonably practicable. The latter requirement is considered necessary given the larger lot sizes in the unsewered areas of the Shire of Mundaring for aesthetic reasons (clustering of development) and so as to reinforce the relationship of the ancillary dwellings to the main dwelling on a lot.

Another variation to the Residential Design Codes that is contained within Town Planning Scheme No. 3 is a set of criteria that proposed grouped dwellings must meet to be approved, even where they are consistent with the density code applying to a particular area. It is considered that most of these criteria act as an unnecessary constraint to the development of grouped dwellings and the provision of housing at an appropriate density to capitalise on proximity to facilities, and accordingly those provisions are not included in Local Planning Scheme No. 4.

Structure plans

Under the Shire's Town Planning Scheme No. 3 and its predecessor, Town Planning Scheme No. 1, a multitude of mostly very small-scale structure plans, referred to as Local Subdivision and Infrastructure Plans (LSIPs), have been adopted by the Shire and by the Western Australian Planning Commission. At the time of writing, over 300 such LSIPs are operational, covering both residential and rural residential subdivision. In the majority of cases, subdivision of the areas subject to LSIPs has been completed. Individual LSIPs have often been prepared over a single property that is proposed to be subdivided and in most other cases cover only a very limited area. The limited geographical extent of LSIPs has in many cases led to fragmented development that does not lead to adequately integrated development, particularly with regard to connectivity but in some instances also with regard to infrastructure provision such as drainage.

As many LSIPs are now essentially obsolete, Local Planning Scheme No. 4 proposes to effectively revoke them by incorporating a schedule of continuing structure plans; LSIPs operational under Town Planning Scheme No. 3 will only continue to operate as structure plans under Local Planning Scheme No. 4 if included in this schedule. It is not intended that building envelopes will generally be required in the Residential zone (see below), so building envelopes on those LSIPs being revoked that relate to the Residential zone will generally not be included in the Register of Building Envelopes (see below).

To ensure that future structure plans are of adequate geographical extent, proposed Local Planning Scheme No. 4 indicates that the extent of the area to be covered by a structure plan shall be determined by the Shire and must be sufficient to provide adequate coordination of subdivision and/or development, having regard to various relevant matters. Local Planning Scheme No. 4 will also allow the Shire to waive the requirement for a structure plan for limited infill subdivision where it considers that the adjacent/nearby area having subdivision potential and the number of lots that could be created are so limited that the coordination of subdivision and development by way of a Structure Plan is not required.

Proposed Local Planning Scheme No. 4 incorporates provisions based on draft Model Scheme Text structure plan provisions that were prepared by the (then) Department for Planning and Infrastructure, but not formally added to the Model Scheme Text. These provisions set out in detail the process for the preparation, advertising and determination of structure plans. Should uniform structure planning provisions be imposed statewide as part of proposed revisions to the Model Scheme Text, these provisions may be modified or replaced.

Building envelopes

Under Town Planning Scheme No. 3, a number of low density residential areas had building envelopes applied, primarily to ensure retention of native vegetation on the balance portion of the lot. In some instances this is warranted. However, in light of the limited ecological value of very small patches of bushland and also the building and hazard separation zones around dwellings required for bushfire safety, it is considered that in most cases building envelopes should not be required for new residential subdivision. However, building envelopes may still be required on sites where there are features of special environmental significance to be protected, including granite outcrops, Declared Rare Flora or under-represented vegetation complexes (see section 4.2.2.2 above), or in exceptional circumstances, to preserve the amenity, landscape or environmental values of the area.

Where building envelopes are identified, which will usually be at structure planning stage but possibly also as a condition of subdivision or development, these should be included in an official Register of Building Envelopes. Building envelopes should be digitised and be made available for inspection along with the Scheme documents.

Proposals to relocate building envelopes should be able to be considered by the Shire; a request to build outside of a building envelope should only be approved if the building envelope is relocated accordingly. These proposals should be considered against the objectives for building envelopes within the Residential zone (protection of special environmental features and, in exceptional circumstances, preservation of amenity, landscape or environmental values). Where proposed relocation of building envelopes satisfies these objectives and will not cause greater adverse visual impact than the existing building envelope, the relocation should be approved, generally without the need for neighbour consultation.

Battleaxe lots

Historically, both residential and rural residential subdivision within the Shire of Mundaring has incorporated a large proportion of battleaxe lots. It is considered that these often result in inferior urban design outcomes, with adverse impacts on privacy, residential amenity and emergency access/egress. Accordingly, Local Planning Scheme No. 4 proposes a provision indicating the Shire will not support a subdivision or adopt a Structure Plan where battleaxe lots are proposed, unless any alternative subdivision layout without battleaxe lots is rendered impractical by the shape or topography of the land or other factor(s), or there is an overriding benefit in terms of reduced environmental impact or improved traffic circulation which outweighs the adverse impacts of the proposed battleaxe lot(s).

Rural pursuits on residential land

One of this Strategy's main objectives is to encourage greater localisation within the Shire of Mundaring, to lower greenhouse gas emissions by reducing transport demand and to enable Shire residents to better adapt to rising energy and food costs resulting from peak oil. One way of achieving this will be to encourage and allow more local food production. Some of this food production may be achieved on land within the Residential zone, particularly on larger unsewered lots within the hills portion of the Shire.

Accordingly, proposed Local Planning Scheme No. 4 lists Rural Pursuit as a discretionary use requiring advertising for public comment ('A') within the Residential zone. The use of Rural Pursuit can also encompass the keeping of some animals (not necessarily for food production). To guide the Shire in exercising this discretion in considering Rural Pursuits in the Residential zone, a local planning policy should be prepared. Such policy should consider and seek to balance environmental and economic sustainability issues with residential amenity and lifestyle expectations relating to larger residential lots, particularly unsewered lots coded R2.5 or R5.

Development zone

The Development zone in LPS No. 4 will provide for orderly planning of large areas of land for residential and other purposes through comprehensive structure planning which will provide the basis for future subdivision and development. The zone provides flexibility to determine land uses and residential densities at structure plan stage.

Under section 126(3) of the *Planning and Development Act 2005*, where the MRS is amended to include land in the MRS Urban zone, the local planning scheme can be concurrently amended with the agreement of the local government, if that local planning scheme has an Urban Development (or equivalent) zone. This has not been possible under the Shire's Town Planning Scheme No. 3, but as LPS No. 4 contains a Development zone, it will enable concurrent amendments under section 126(3) of the Act to take place.

Town Planning Schemes No. 6 and 7

The Shire has two guided development schemes, introduced over thirty years ago to coordinate subdivision and infrastructure provision in residential areas with a multiplicity of owners. These are:

- Town Planning Scheme No. 6, relating to land in Mahogany Creek (gazetted Oct 1976); and
- Town Planning Scheme No. 7, relating to land in Swan View (gazetted August 1978).

Subdivision within the Town Planning Scheme No. 7 area is now completed. Accordingly, Town Planning Scheme No. 7 is to be revoked by Local Planning Scheme No. 4.

Subdivision within the Town Planning Scheme No. 6 area has proceeded slowly with substantial portions of the area yet to be subdivided. The Scheme gives continuing coordination, particularly of road layouts and provision for Public Open Space, and accordingly should be maintained while subdivision gradually proceeds.

Recommendations

- Remove dual residential density codes in Local Planning Scheme No. 4, with the R5 code being the highest density code applying to land where reticulated sewer is unlikely to be available, in accordance with the Government Sewerage Policy: Perth Metropolitan Region

- Incorporate a provision in Local Planning Scheme No. 4 setting 1500 m² as the threshold below which a lot with a code higher than R20 should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space, to ensure an improved aesthetic quality of development and to ensure greater levels of visibility and surveillance
- Incorporate provisions in Local Planning Scheme No. 4 specifying a density bonus for aged or dependent persons' dwellings, reflecting but appropriately refined from those in Town Planning Scheme No. 3
- Incorporate provisions in Local Planning Scheme No. 4 relating to outbuildings based on those in Amendment No. 74 to Town Planning Scheme No. 3, once submissions on that amendment and any possible changes resulting from those submissions are considered and the amendment is approved and gazetted
- Apply a 10 m maximum building height throughout the Shire
- Incorporate provisions in Local Planning Scheme No. 4 relating to ancillary dwellings that set 60 m² as the maximum floor area, but indicate that where exceptional circumstances warrant a larger floor area, up to 80 m² may be approved and which require ancillary dwellings to be constructed in style, colours and materials that are complementary to those of the main residence on the lot, and to be located in as close proximity to the main residence on the lot as reasonably practicable
- Exclude from Local Planning Scheme No. 4 those Town Planning Scheme No. 3 criteria for grouped dwellings which act as an unnecessary constraint to development of grouped dwellings
- Revoke those Local Subdivision and Infrastructure Plans (LSIPs) operational under Town Planning Scheme No. 3 which are no longer required due to subdivision having been completed, and include those LSIPs which are to continue operation under Local Planning Scheme No. 4 in a specific schedule of continuing structure plans
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to determine the required extent of a structure plan, with the extent to be sufficient to provide adequate coordination of subdivision and/or development, having regard to various relevant matters
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to waive the requirement for a structure plan for infill subdivision where it considers that the adjacent/nearby area having subdivision potential and the number of lots that could be created are so limited that the coordination of subdivision and development by way of a Structure Plan is not required
- Generally do not require building envelopes in the Residential zone, but consider requiring building envelopes on sites where there are features of special environmental significance to be protected (including granite outcrops, Declared Rare or Priority Flora, Specially Protected or Priority Fauna or Threatened or Priority Ecological Communities) or, in exceptional circumstances, to preserve the amenity, landscape or environmental values of an area

- Include all building envelopes established in structure plans, or as conditions of subdivision or development approval, in a formal Register of Building Envelopes which is to be digitised and made available for inspection along with the Scheme documents
- Where a building envelope has been identified for a lot, require all built development to take place within the envelope
- Approve proposed relocations of building envelopes, where consistent with the objectives for building envelopes in the Residential zone and where this will not cause greater adverse visual impact than the existing building envelope(s), generally without the need for neighbour consultation
- Incorporate a provision in Local Planning Scheme No. 4 prohibiting creation of further battleaxe lots, except where any alternative subdivision layout without battleaxe lots is rendered impractical by the shape or topography of the land or other factor(s), or where battleaxe lots provide an overriding benefit in terms of reduced environmental impact or improved traffic circulation which outweighs their adverse impacts
- Develop a local planning policy to guide the Shire in considering applications for Rural Pursuits in the Residential zone, with such policy to consider and seek to balance environmental and economic sustainability issues with residential amenity and lifestyle expectations
- Continue the operation of Town Planning Scheme No. 6 for Mahogany Creek for the ongoing coordination it provides, but review this Scheme over time and decide whether it should be concluded

5.2.1 Midvale

The suburb of Midvale is split between the City of Swan and the Shire of Mundaring. Within the Shire of Mundaring, the suburb extends from Bushby Street in the west to the Midland – Northam railway in the east. The suburb is primarily light industrial or service commercial, but includes two residential areas. The first is located between Bushby Street and Roe Highway (although a small area of light industrial uses is located between Beaconsfield Avenue and Roe Highway, directly opposite the residential area and causing some potential conflict between residential and industrial traffic). The second is a small area bounded by Morrison Road, Farrall Road, Park Road and the Midland – Northam railway.

In the area between Bushby Street and Beaconsfield Avenue, lot sizes and much of the housing stock are such that good opportunity exists for redevelopment at higher density. This part of Midvale is the closest part of the Shire of Mundaring to the regional centre of Midland; it has good public transport (bus) links to Midland and the railway station and is also within reasonable walking distance of the many facilities in Midland. It has close proximity to employment areas in Midland and the Midvale light industrial area.

Currently the area is coded R20 under Town Planning Scheme No. 3 (except for one grouped dwelling development on Victoria Parade coded R30). It is proposed to increase this density to R40 under Local Planning Scheme No. 4, to capitalise on these attributes. The proposed minimum lot size threshold for subdivision or grouped dwelling development (see Section 5.2 above) will allow more integrated development and improved aesthetic outcomes.

Recommendations

- Increase residential densities in the older area of Midvale, between Bushby Street and Beaconsfield Avenue to capitalise on access to the Midland Regional Centre, public transport, employment and other facilities, and to recognise opportunities for redevelopment
- Incorporate a provision in Local Planning Scheme No. 4 setting 1500 m² as the threshold below which a lot should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space

5.2.2 Swan View

The suburb of Swan View is split between the City of Swan and the Shire of Mundaring. Despite this, the portion of Swan View within the Shire of Mundaring has the largest residential population in the Shire. The suburb extends from the Midland – Northam railway in the west, into the foothills and Darling Scarp to the boundaries of John Forrest National Park in the east. The more elevated portions of the suburb do not have reticulated sewer; that area contains several granite outcrops and extensive views both of the coastal plain and of John Forrest National Park.

The suburb has two local centres providing shopping facilities, one in Morrison Road (the Darling Ridge centre) and the other on Marlboro Road and Gladstone Avenue (Swan View shopping centre). There is also a small commercial area on Morrison Road in the City of Swan very near the Darling Ridge Centre and which effectively forms part of a single local centre.

Swan View Senior High School is located between the two local centres and Swan View Primary School is nearby on Morrison Road. The suburb has good bus services to Midland and relatively close proximity to the employment opportunities in the Midland regional centre and the Midvale light industrial area.

Parts of the suburb, generally in the south-east and east, are subject to the constraint of aircraft noise and fall within the ANEF 20 to 25 contours (see Section 4.6.6 above), which are intended to be protected in Local Planning Scheme No. 4 by way of a Special Control Area, in accordance with State Planning Policy 5.1.

As outlined in Section 5.2 above, the Shire is investigating the conclusion of Town Planning Scheme No. 7, which guided subdivision in the south-east of Swan View, generally around Brown Park, as subdivision is almost complete.

It is appropriate to increase residential densities in suitable parts of Swan View in order to capitalise on proximity to Local Centres, schools, public transport, employment and other facilities. This will also facilitate wider housing choice in a suburb with an aging population. Suitable areas have been identified where lot sizes and some existing housing stock (or lack thereof, where land is mostly or entirely vacant) are such that good opportunity exists for redevelopment, and where land is not subject to constraints relating to aircraft noise under State Planning Policy No. 5.1. Proposed changes in Local Planning Scheme No. 4 include:

- upcoding the area bounded by the railway line, Morrison Road, Weld Road and Gladstone Avenue from R12.5/20 to R40;
- upcoding a portion of land south of Gladstone Avenue, on Gladstone Avenue, Weld Road and Ray Road, from R12.5 to R40;
- upcoding land on Gladstone Avenue opposite the Swan View Senior High School from R12.5 to R30;
- upcoding a portion of land on Amherst Road, between Morrison Road and Bedale Park, from R12.5 to R40;
- upcoding some land on Tunnel and Viveash Roads from R12.5 to R20; and
- upcoding some land on Viveash Road from R2.5 to R5.

A former service station site on Balfour Road, no longer used for this purpose, is still zoned Special Purpose under Town Planning Scheme No. 3 for a shop and service station. It is proposed for this site to revert to the Residential zone under Local Planning Scheme No. 4.

A vacant site bounded by Balfour Road, the Midland – Northam railway and a portion of Reserve 32485 Buninyong Road is proposed for residential development. The site is currently zoned Residential R12.5/20 under Town Planning Scheme No. 3. Based largely on Amendment 85 to Town Planning Scheme No. 3, Residential R40 coding is proposed under LPS 4, along with a Special Design Area Special Control Area with provisions addressing noise and vibration and setbacks from power lines.

Some existing grouped dwelling developments that are zoned Local Centre in Town Planning Scheme No. 3 are proposed to be added to the Residential zone in Local Planning Scheme No. 4, with an R40 coding reflective of the existing development.

Land in Weld Road was rezoned by Amendment No. 79 to Town Planning Scheme No. 3 from Residential R12.5 to Special Purpose to accommodate a lifestyle village developed at R30 density and incorporating communal facilities. The land will be zoned Special Use in Local Planning Scheme No. 4 to reflect the Amendment.

A small portion of Swan View, in the northeast of the suburb, is rural or rural residential. The area is zoned Rural Landscape Living in Town Planning Scheme No. 3. There are several constraints to the expansion of residential use into this area:

- a poultry farm/hatchery on Pechey Road;
- areas of native vegetation;
- visual amenity of and from the adjacent John Forrest National Park;
- bushfire hazard being adjacent to John Forrest National park; and
- environmental and landscape values of Jane Brook.

Given these constraints, this Strategy does not recommend considering rezoning of any of this area to Urban in the MRS to facilitate residential development.

Recommendations

- Increase residential densities in areas of Swan View in close proximity to Local Centres and schools, where reticulated sewerage can be provided and which have good access to public transport, employment and other facilities, and with good opportunities for redevelopment, within the constraints relating to aircraft noise under State Planning Policy No. 5.1
- Include existing grouped housing developments near the Marlboro Road/Gladstone Avenue shopping centre in the Residential zone in Local Planning Scheme No. 4 rather than the Local Centre zone, to reflect their current and anticipated longer term residential use
- Incorporate a provision in Local Planning Scheme No. 4 setting 1500 m² as the threshold below which a lot should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space
- Investigate the conclusion of Town Planning Scheme No. 7
- Remove redundant Special Purpose zoning over former service station site on Balfour Road
- Maintain rural residential use in the northeast of Swan View, in the Pechey Road and Viveash Road area, to preserve the visual amenity adjacent to John Forrest National Park, protect Jane Brook and the native vegetation along Jane Brook and maintain a buffer to the existing poultry farm/hatchery on Pechey Road
- Include a Special Use zone for a lifestyle village on land on Weld Road to reflect Amendment No. 79 to Town Planning Scheme No. 3

5.2.3 Greenmount

Greenmount is located primarily between Great Eastern Highway and the former Midland–Parkerville–Chidlow rail reserve, but also includes a portion south of the Great Eastern Highway, between the highway and the former Midland–Mundaring–Mount Helena rail reserve, which also forms the Shire boundary with Koongamia in the City of Swan. The suburb extends from the Midland–Northam railway in the west, into the foothills and Darling Scarp to the boundaries of John Forrest National Park in the east. The eastern, more elevated portion of the suburb does not have reticulated sewer; much of that area has extensive views of the coastal plain.

Significant portions of the suburb, generally in the west, are subject to the constraint of aircraft noise and fall within the ANEF 20 to 25 and 25 to 30 contours (see Section 4.6.6 above), which are intended to be protected in Local Planning Scheme No. 4 by way of a Special Control Area, in accordance with State Planning Policy 5.1.

Greenmount does not have a Local Centre, although there is a small shop on Old York Road serving the eastern portion of the suburb. However, much of the suburb is within reasonable distance of shopping facilities in adjacent Swan View or Koongamia. The suburb is reasonably well serviced by public transport. A public library is located at the corner of Scott Street and Great Eastern Highway. Accordingly, it is appropriate to increase residential densities in suitable locations in Greenmount to capitalise on these attributes, where possible. However, aircraft noise and/or lack of reticulated sewerage act as strong constraints. Suitable areas that have been identified and are proposed for upcodings in Local Planning Scheme No. 4 are:

- upcoding the area bounded by Great Eastern Highway, Innamincka Road and Woolowra Road from R5/12.5 to R20; and
- upcoding land bounded by Great Eastern Highway, Scott Street and Coongan Avenue from R20 to R40.

Subject to the extension of reticulated sewerage, Residential zoned land (ie. excluding the Marloo Theatre site) bounded by Innamincka Road, Woolloomooloo Road and Marloo Road could also be upcoded from its current R5/12.5 to R20. As reticulated sewerage is not currently available and the infill sewerage program has been suspended, this area is proposed to be coded R5 in Local Planning Scheme No. 4, but subject to the extension of infill sewerage, an R20 coding should be investigated.

The street block bounded by Great Eastern Highway, Coongan Avenue and Scott Street has good access to public transport and good potential views, but is constrained by an awkward existing lot layout that hinders coordinated subdivision and also vehicular access issues (the need to minimise direct access onto Great Eastern Highway and proximity to the Great Eastern Highway/Scott Street intersection). Increasing the residential density of the street block will encourage coordinated subdivision and development, but specific Scheme provisions are also warranted. Accordingly, it is proposed to include the land in a Special Design Area (a type of Special Control Area) under Local Planning Scheme No. 4 to require coordinated development and subdivision of this area. The previous structure plan (LSIP No. 326) will be revoked and Scheme provisions will indicate matters that a new structure plan must address. To prevent development which could hinder future coordinated subdivision and development, no grouped or multiple dwellings will be permitted within the Special Design Area in the absence of an endorsed structure plan.

A small area of land on Greenmount Rise is proposed to be downcoded from R20 to R15. This is in recognition of the very steep portion of land at the rear of these lots, which should not be developed; the remaining portion of the lots could still effectively be developed at R20 density.

Recommendations

- Increase residential densities in suitable areas of Greenmount where reticulated sewerage can be provided and which have good proximity to public transport, within the constraints relating to aircraft noise under State Planning Policy No. 5.1
- Subject to the extension of infill sewerage, investigate increasing residential density, perhaps to R20, between Innamincka, Woolloomooloo and Marloo Roads
- Incorporate a provision in Local Planning Scheme No. 4 setting 1500 m² as the threshold below which a lot should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space
- Increase residential density of the street block bounded by Great Eastern Highway, Coongan Avenue and Scott Street and include it in a Special Design Area to encourage and require coordinated development and subdivision of this area, which has good access to public transport and good potential views, but which is constrained by existing lot layout and vehicular access issues

5.2.4 Helena Valley/Bellevue/Boya

These suburbs have been grouped in this sub-section because of the relatively small residential areas in Bellevue and Boya.

Helena Valley

The suburb of Helena Valley includes land on both sides of the Helena River and comprises both rural and rural residential land and three separate residential areas. These are:

- a large and currently expanding residential area south of the river, near the western end of the suburb;
- a smaller, older residential area south of the river and further east, around the intersection of Helena Valley and Ridge Hills Roads; and
- the area north of the river, bounded by Scott, Frederic and Katharine Streets and Clayton Road.

Of these three areas, reticulated sewerage is only available to the first and a very small pocket at the northern edge of the third.

Helena Valley is located in reasonable proximity to the numerous facilities of the Midland regional centre and to employment areas both in Midland and in nearby industrial areas in Midvale and Bellevue. At present there is a bus service between Midland and the main Helena Valley residential area south of the Helena River but the service is extremely poor, operating only three times a day each way on weekdays and not at all on weekends. Another route, which runs along the eastern edge of Helena Valley north of the river (along Scott Street) on its way to Darlington and Glen Forrest, runs more frequently and includes weekend services. Bus services to the main residential area of Helena Valley, south of the Helena River, need to improve and the Shire should actively lobby for such improvement.

The westernmost portion of the suburb is subject to the constraint of aircraft noise and falls within the ANEF 20 to 25 and 25 to 30 contours (see Section 4.6.6 above), which are intended to be protected in Local Planning Scheme No. 4 by way of a Special Control Area, in accordance with State Planning Policy 5.1. The ANEF 25 contour defines the boundary between the Urban and Rural zones in the MRS.

The main residential area south of the Helena River, near the western end of the locality, is progressively expanding both to the west and the east. The Urban zoning in the MRS reflects, or imminently will reflect, the extent of urban areas (including those identified as Future Urban) in the 1992 Foothills Structure Plan (see section 2.2.3.2 above). Most of this land to the west of the existing residential area is still, at the time of writing, zoned Rural Landscape Living under the Shire's Town Planning Scheme No. 3, although Amendment No. 78 to that Scheme rezoned of one lot to Residential to facilitate residential subdivision.

To the east of the existing residential area, land on each side of Helena Valley Road has been rezoned to Urban by MRS Amendment 1160/41 (gazetted in 2009). That land, previously having a Rural Landscape Living zoning under the Shire's Town Planning Scheme No. 3, was subject of three gazetted Scheme Amendments:

- Amendment 80: rezoned Lots 11 and 237 Helena Valley Road to Residential R30 with an Additional Use of Park Home Park;
- Amendment 81: rezoned Lot 236 Helena Valley Road to Residential R30; and
- Amendment 82: rezoned portions Lots 212 to 214 Helena Valley Road to Residential R20 and Residential R30.

Subsequently, Amendment 86, approved for incorporation into LPS 4, but not gazetted, also applied an Additional Use of Park Home Park over portions of Lots 100 and 101 Helena Valley Road, immediately to the east although zoned Rural in the MRS.

It is appropriate to reflect Amendments 80, 81, 82 and 86 to Town Planning Scheme No. 3 in LPS 4, with the exception that Special Use zones, rather than Additional Uses, apply to the existing and proposed Park Home Park, in accordance with the decision of the Acting Minister regarding modifications to LPS 4 Scheme Text and Scheme Maps.

It is a requirement of the *Planning and Development Act 2005* that when land is zoned Urban in the MRS, zoning under a local government scheme is to be made consistent with that zoning. Accordingly, the land currently zoned Urban in the MRS is proposed to be included in a Development zone under Local Planning Scheme No. 4. The purpose of the Development zone is to provide flexibility for the consideration of various uses and residential densities by way of structure planning. After structure plans are endorsed and as or after development proceeds, the land can then be rezoned accordingly. Local Planning Scheme No. 4 proposes to reflect the provisions of Amendment No. 78 although, because Local Planning Scheme No. 4 is not employing dual residential density codes, a Special Design Area (a type of Special Control Area) is proposed to incorporate provisions relating to aircraft noise and mix of densities across the site.

Residential densities in the existing sewered residential area of Helena Valley south of the river are primarily low density (mostly R10, but ranging from R5 to R30). In the future subdivision and development of land to the west and east, it would be appropriate to achieve higher residential densities than the existing area for several reasons:

- higher residential densities will facilitate and be able to capitalise on improved public transport links to Midland and possibly additional commercial and community facilities;
- more compact residential development, when well located, reduces adverse environmental impacts and carbon footprints;

- higher residential densities allow more economically efficient use of relatively easily developed residential land that is very well-located in a metropolitan context and very scarce in the Shire of Mundaring context; and
- draft Directions 2031 indicates the need to raise the average net residential density of greenfield subdivision from 10 dwellings per hectare to 15 dwellings per hectare (it should be noted that this net density includes roads, public open space and other facilities and so possibly equates to a density coding of around R25).

Accordingly, structure planning for this area should seek to achieve a net residential density of around 15 dwellings per hectare.

Land west of Allamanda Gate (formerly Lot 206 Helena Valley Road) is traversed by the ANEF 20 contour and hence partly within the ANEF 20 to 25 contours. In view of the above comments on desirable residential densities, it is appropriate to apply a Special Design Area Special Control Area over the area, to apply a base R20 code but allowing development or subdivision in accordance with the R30 code where:

- the R30 code is delineated on an approved Structure Plan;
- more than 70% of the lot (or proposed lot) is outside of the ANEF 20 to 25 contour; and
- a high standard of dwelling design is achieved in accordance with any Detailed Area Plan or local planning policy relating to the area.

Land between the area rezoned to Urban in MRS Amendment 1160/41 and the smaller residential area to the east, around the intersection of Helena Valley and Ridge Hills Roads, is identified in the Foothills Structure Plan as Landscape Protection, effectively a rural buffer which may include rural residential subdivision and use (see section 2.2.3.2 above). However, it is now appropriate to review this position, in light of the now recognised need to promote a more compact form of urban development at the metropolitan level. Parts of this landscape buffer may be able to accommodate more development (residential or rural residential), while still retaining some buffer to protect landscape and environmental values.

Accordingly, this Strategy recommends that a separate study investigate the potential for closer subdivision, either residential or special residential (these would require amendment of the MRS) or smaller-lot rural residential for land north and south of Helena Valley Road, between the two existing areas of MRS Urban zoned land, but having strong regard for landscape protection, floodplain management and protection of watercourses traversing the area.

Lot 27 Clayton Road is a larger lot north of the river, but contains a significant heritage property. While the subject land is the largest and least constrained (by floodplain) property between Clayton Road/Katharine Street and the Helena River, the property is listed on the State Register of Heritage Places and the farmhouse's rural setting on a property abutting the Helena River is an integral part of its heritage value. In the future, this lot could be investigated for a potential change in land use, but the heritage values, rural setting and environmental conditions of the site will need to be taken into consideration in assessing any proposal affecting the property.

North of the Helena River, there is an opportunity to increase the residential density of some land on Noel Street and Frederic Street, which can be connected to reticulated sewerage, from R5 to R12.5. In the longer term, should infill sewerage be extended to the area, there may be potential to increasing residential densities throughout the area of Helena Valley north of Katharine Street and Clayton Road, subject to addressing any environmental constraints. This possibility should be investigated should infill sewerage be extended.

A portion of the adjacent former Bushmead Rifle Range land in the City of Swan was identified for potential future residential use in the City of Swan's Hazelmere Enterprise Area Draft Structure Plan. MRS Amendment 1162/41, proposing to zone a portion of the site to Urban and Urban Deferred in the MRS, has been advertised for public comment and at the time of writing is pending a final decision. For the portion of that site immediately adjacent to the Shire of Mundaring (i.e. immediately south of Helena Valley), a Bush Forever Site, the Amendment proposes Reservation for Parks and Recreation. At the time of writing, the City of Swan is also proposing an amendment to its Local Planning Scheme No. 17 to zone the proposed MRS Urban areas Special Use.

Bellevue

The suburb of Swan View is split between the City of Swan and the Shire of Mundaring, and is also split by Roe Highway and the Midland – Northam railway. The portion in the City of Swan contains both industrial and residential areas. Within the Shire of Mundaring, Bellevue comprises rural land east of Roe Highway and south of Wilkins Street, and a small residential area between Clayton Street and Katharine Street, adjacent to Koongamia in the City of Swan.

Most of the existing residential area is subject to the constraint of aircraft noise and falls within the ANEF 20 to 25 contours (see Section 4.6.6 below), which are intended to be protected in Local Planning Scheme No. 4 by way of a Special Control Area, in accordance with State Planning Policy 5.1. The lot layout and nature of the housing stock in this area are not conducive to redevelopment and hence no change to the current Residential R12.5 zoning is proposed in Local Planning Scheme No. 4.

The area south of Wilkins Street and east of Roe Highway is currently used for farming purposes. The area is mostly zoned Rural under the MRS, with some land along the Helena River and its floodplain reserved for Parks & Recreation Reserve in the MRS. An old homestead on the property, *Belle View*, is listed on the State Register of Heritage Places and in the Shire's Municipal Inventory. The Municipal Inventory recommends the highest level of protection and that any future subdivision must ensure that the homestead and stables are retained on a sufficiently large site area so as to protect the significance of the setting.

The site, possibly also including the defunct former Goodchild Oval on Wilkins Street in the City of Swan, is in relatively close proximity to the numerous facilities of the Midland regional centre and to employment areas both in Midland and in nearby industrial areas in Midvale and Bellevue. Subject to adequately addressing several relevant issues, the land may have potential for residential development to capitalise on its location. It is noted that the Outer Metropolitan Perth and Peel Sub-Regional Strategy identifies the site as an investigation area.

Access to the site would be from Wilkins Street and through a residential area of Bellevue in the adjacent City of Swan. Accordingly, residential development would be the most appropriate land use if the land is to be rezoned and developed. Consultation with the City of Swan would be required for coordinated planning and development outcomes.

It is recommended that potential rezoning from Rural to Urban under the Metropolitan Region Scheme, to facilitate use of that part of the area outside of the ANEF 25 – 30 contours for residential development be investigated. Matters to be addressed in this investigation, and any subsequent development should rezoning proceed, include:

- heritage protection;
- wetland protection;
- noise impacts from Roe Highway and industrial uses west of the highway;
- on-site investigation of potential acid sulphate soils;
- floodplain management; and
- stormwater management.

Boya

The suburb of Boya is a small residential area extending east from Scott Street to the former Midland – Mundaring – Mount Helena rail reserve. It is located in the foothills at the base of the Darling Scarp and includes some areas with steep slopes. The suburb is zoned Residential R5 and no upcoding is possible as reticulated sewerage is not available.

Recommendations

- Include land in Helena Valley already zoned Urban in the MRS but zoned Rural Landscape Living in Town Planning Scheme No. 3 in a Development zone in Local Planning Scheme No. 4, to allow for determination of residential densities and disposition of land uses through structure planning
- Reflect Amendment No. 78 to Town Planning Scheme No. 3 in Local Planning Scheme No. 4
- Reflect Amendments No. 80, 81, 82 and 86 to Town Planning Scheme No. 3 in LPS 4, with the exception that Special Use zones, rather than Additional Uses, apply to the existing and proposed Park Home Park
- In structure planning for residential development within the Development zone in Helena Valley, seek to achieve a net residential density of around 15 dwellings per hectare
- Investigate the potential for closer subdivision, either residential or special residential (which would also require amendment of the MRS) or smaller-lot rural residential for land north and south of Helena Valley Road, between the two existing areas of MRS Urban zoned land, but having strong regard for landscape protection, floodplain management and protection of watercourses traversing the area
- Incorporate land west of Allamanda Gate (formerly Lot 206 Helena Valley Road) in a Special Design Area Special Control Area to apply a base R20 code but allowing development or subdivision in accordance with the R30 code where shown in an approved structure plan, where at least 70% of the lot (or proposed lot) is outside of the ANEF 20 to 25 contours and where a high standard of dwelling design is achieved in accordance with any Detailed Area Plan or local planning policy relating to the area
- In the future, investigate Lot 27 Clayton Road for a potential change in land use, taking into account the heritage values, rural setting and environmental conditions of the site
- Increase residential density of land on Noel Street and Frederic Street, Helena Valley and with access to reticulated sewerage
- In the longer term, consider the possibility of increasing residential densities throughout the area of Helena Valley north of Clayton Road and Katharine Street, subject to the extension of infill sewerage and addressing environmental constraints

- Incorporate a provision in Local Planning Scheme No. 4 setting 1500 m² as the threshold below which a lot should not be subdivided or developed for grouped dwellings, unless all dwellings can be located so as to directly address a street or open space
- Investigate potential rezoning from Rural to Urban under the Metropolitan Region Scheme of that part of land south of Wilkins Street, east of Roe Highway and outside of the ANEF 25 – 30 contours to facilitate residential development, matters to be addressed in this investigation, and any subsequent development should rezoning proceed, to include:
 - heritage protection
 - wetland protection
 - noise impacts from Roe Highway and nearby industrial uses
 - on-site investigation of potential acid sulphate soils
 - floodplain management
 - stormwater management
- Consult with the City of Swan regarding rezoning and development of land south of Wilkins Street to ensure coordinated planning and development outcomes

5.2.5 Darlington

Darlington is located on and just east of the Darling Scarp. The locality includes some rural and rural residential land in the south, between the residential area and the Helena River. The locality extends from Great Eastern Highway in the north to the Helena River in the south, and from Greenmount National Park in the west to Newman and Nelson Roads in the east. Darlington is characterised by steep topography and some excellent views of the coastal plain and the Helena River valley.

Darlington has a small local centre, has public transport access to Midland (both along Great Eastern Highway to the north and through the village centre) and is the nearest of the Shire's villages to the coastal plain and the facilities and employment in Midland, Midvale and Bellevue. With the exception of one site developed for aged persons' dwellings in accordance with the Government Sewerage Policy, the residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

Reserve 28530 Mayhew Road in the north of Darlington is an approximately 7 ha site covered in native vegetation. The land is zoned Residential R2.5 and Residential R5 in the Shire's Town Planning Scheme No. 3. This zoning is at odds with the reserve's ecological values, its status as an A Class Reserve, and its current vesting in the Shire for the purpose of Parklands. Accordingly, it is proposed to remove this reserve from the Residential zone in Local Planning Scheme No. 4 and include it in the Local Reserve: Conservation (see section 4.4.5 above).

A road link between Bertram Street and Dalry Road could improve vehicular access and egress in a bushfire prone area and consideration of an MRS Amendment that would facilitate such a link would be warranted. Accordingly, MRS Urban zoning of Lots 89, 104 and 105 Dalry Road, Darlington may be supported subject to demonstration that it will facilitate a road link between Bertram Street and Dalry Road, that such road is both practicable and feasible, and that it is supported by the owners of all land that would be traversed by the proposed road.

Other than the abovementioned removal of land from the Residential zone and potential additional MRS Urban zoning, this Strategy recommends maintaining the current extent of Residential zoning in Darlington. Adjacent land within Darlington, zoned Rural under the MRS, is unsuitable for residential expansion for various reasons, including the desirability of retaining a rural buffer between townsites, vegetation protection, bushfire hazard, effluent disposal capacity and landscape values.

Residential zoned land along Dreghorn Road is zoned R5 (generally permitting a minimum area of 2000 m²). In light of the steep topography, rock outcrops and the desirability of improved landscape protection across the area, it is recommended that it be downcoded to R2.5. This is consistent with the lot sizes created in a recent subdivision in the area.

A Restricted Use classification is proposed in Local Planning Scheme No. 4 over Lot 12 Pine Crescent adjacent to an existing aged housing development as that lot has been identified for expansion of the adjacent facilities.

Recommendations

- Exclude Reserve 28530 Mayhew Road from the Residential zone and include it in the Local Reserve: Conservation under Local Planning Scheme No. 4 to reflect its ecological values and its status as an A Class Reserve, currently vested in the Shire for the purpose of Parklands
- Investigate and consider support for MRS Urban zoning of Lots 89, 104 and 105 Dalry Road, Darlington, subject to demonstration that it will facilitate a road link between Bertram Street and Dalry Road, that such road is both practicable and feasible, and that it is supported by the owners of all land that would be traversed by the proposed road
- Maintain the current extent of Residential zoning in Darlington, with the exception of the removal of Reserve 28530 from the Residential zone and potential additional MRS Urban zoning of Lots 89, 104 and 105 Dalry Road

- Downcode Residential zoned land along Dreghorn Road from R5 to R2.5 to reflect the steep topography, rock outcrops and desirability of improved landscape protection
- Apply a Restricted Use over Lot 12 Pine Terrace Darlington to facilitate expansion of the adjacent aged housing facilities

5.2.6 Glen Forrest

Glen Forrest is located to the east of Darlington. The locality includes some rural and rural residential land in the south and the east. The locality extends from Great Eastern Highway in the north to the Helena River in the south, and from Newman and Nelson Roads in the west to Marri, Kenmore and Moola Roads in the east.

Glen Forrest has two local centres and has public transport access to Midland (both along Great Eastern Highway to the north and through much of the residential area). The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

A few residential areas in Glen Forrest are within the Middle Helena Catchment, for which a Special Control Area is proposed in Local Planning Scheme No. 4, as recommended in the draft Middle Helena Catchment Area Land Use and Water Management Strategy (see section 4.2.3 above).

This Strategy recommends maintaining the current extent of Residential zoning in Glen Forrest. Adjacent land within Glen Forrest, zoned Rural under the MRS, is unsuitable for residential expansion for various reasons, including the desirability of retaining a rural buffer between townsites, vegetation protection, bushfire hazard, water catchment protection and landscape values.

Recommendations

- Maintain the current extent of Residential zoning in Glen Forrest

5.2.7 Mahogany Creek

Mahogany Creek is located between Glen Forrest and Mundaring. The locality includes some rural and rural residential land south of the Railway Reserves Heritage Trail. The locality extends from Great Eastern Highway in the north to the Helena River in the south, and from Marri, Kenmore and Moola Roads in the west to Craven Road and Yacopetti Place in the east.

Mahogany Creek has a small Local Centre zone, but at present no retail shop. It is also located in fairly close proximity to the services and facilities of the Mundaring Town Centre. The suburb has public transport access to Midland and Mundaring (both along Great Eastern Highway to the north and through some of the residential area). The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

As outlined in section 5.2 above, much residential subdivision potential remains within Mahogany Creek. Town Planning Scheme No. 6 gives continuing coordination to subdivision and should be maintained while subdivision gradually proceeds; however, this can be reviewed over time.

This Strategy recommends maintaining the current extent of Residential zoning in Mahogany Creek. The Railway Reserves Heritage Trail forms a logical boundary between the residential area and the rural residential land to the south. That land to the south is also not supported for residential expansion for reasons including vegetation protection, bushfire hazard and landscape values.

Recommendations

- Continue the operation of Town Planning Scheme No. 6 for Mahogany Creek for the ongoing coordination it provides, but review this Scheme over time and decide whether it should be concluded
- Maintain the current extent of Residential zoning in Mahogany Creek

5.2.8 Parkerville

Parkerville is a large locality located to the east of John Forrest National Park and the rural residential locality of Hovea, and west of Stoneville and Mundaring. The locality includes rural residential land and also the proposed Parkerville Townsite Development, which is referred to in this strategy as North Parkerville and is addressed separately in the following section 5.2.9. The residential area of Parkerville is located either side of Jane Brook and the Railway Reserves Heritage Trail. Some parts of the residential area north of Jane Brook are on steeply sloping land.

Parkerville has a small local centre, not developed to the capacity provided by zoning under Town Planning Scheme No. 3 and by the Local Commercial Strategy. Parkerville has public transport access to Midland and Mundaring, albeit the level of service is relatively poor. The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

A good opportunity for incremental expansion of Parkerville's residential area exists on land immediately to the north, generally bounded by Roland, Kilburn and Brindle Roads and Clutterbuck Creek. The area is mostly cleared and is in reasonable proximity of the Parkerville local centre, as well as the possible future facilities in the North Stoneville ("Stoneville Townsite") development. This Strategy supports rezoning this land to Urban in the MRS to facilitate residential expansion, subject to further investigation and adequate setback from and protection of Clutterbuck Creek. However, Clutterbuck Creek forms a logical northern boundary to residential development. In keeping with the established settlement pattern in the hills portion of the Shire in the form of discreet villages, a rural or rural residential buffer should be maintained between the existing Parkerville residential area and the proposed North Parkerville ("Parkerville Townsite") and North Stoneville ("Stoneville Townsite") developments.

No other extension of the residential area is supported by this Strategy. Other adjacent land within Parkerville, zoned Rural under the MRS, is generally unsuitable for residential expansion for various reasons, including the desirability of retaining a rural buffer between townsites, vegetation protection, bushfire hazard, and landscape values.

To the northwest of the existing Parkerville residential area, between Richardson and Beacon Roads, is an approximately 14 ha area zoned Residential under Town Planning Scheme No. 3 which has yet to be subdivided. Some of this land will be required for the road reserve for the realignment of Roland Road to connect to Brooking Road between Richardson and Beacon Roads. However, that alignment has not yet been determined and should take place through structure planning.

To facilitate this process, the site is proposed to be included in the Development zone under Local Planning Scheme No. 4 rather than the Residential zone, although apart from the abovementioned road reserve, it is considered likely that the use of the site will be low density residential development.

Within the existing residential area, some minor zoning changes are proposed in Local Planning Scheme No. 4, to reflect existing use or to secure appropriate opportunities for some limited additional residential development:

- including some lots in Riley Road and Carawatha Road no longer required for public purposes in the Residential Zone rather than the Local Reserve: Public Purposes;
- including those lots on Riley Road containing the former Parkerville School building, in the Local Reserve: Public Purpose rather than the Residential zone; and
- increasing the residential density of two lots on Richardson Road from R2.5 to R5.

Recommendations

- Investigate and support MRS Urban zoning over land bounded by Roland Road, Kilburn Road, Brindle Road and Clutterbuck Creek to facilitate residential expansion on primarily cleared land, subject to adequate setback from and protection of Clutterbuck Creek
- Maintain some rural residential or rural small holdings buffer between existing Parkerville residential area and the proposed North Parkerville (“Parkerville Townsite”) and North Stoneville (“Stoneville Townsite”) developments to continue development of the hills portion of the Shire in the form of discreet villages
- Include land between Richardson and Beacon Roads, zoned Urban in the MRS, in the Development zone rather than the Residential zone to facilitate structure planning, including the identification of a road reserve for the realignment of Roland Road to connect to Brooking Road
- Include lots in Riley Road and Carawatha Road no longer required for public purposes in the Residential Zone in Local Planning Scheme No. 4, rather than the Local Reserve: Public Purpose
- Include those lots on Riley Road containing the former Parkerville School building, in the Local Reserve: Public Purpose in Local Planning Scheme No. 4, rather than the Residential zone
- Increase the the residential density of two primarily cleared lots on Richardson Road from R2.5 to R5

5.2.9 North Parkerville (Parkerville Townsite Development)

The Parkerville Townsite Development (also known as North Parkerville) is a proposed residential and tourist development on land just east of John Forrest National Park and (currently) accessed by Hidden Valley Road to the north and Beacon Road to the south. At the time of writing, the proposed development would comprise residential lots of varying densities, catering for around 2000 residents, as well as tourist accommodation (in the form of chalets) and various tourist facilities including a small local commercial centre. A rural residential component on the periphery of the Townsite Development has already been substantially developed.

Town Planning Scheme No. 3

The subject land was identified for residential and tourism development in the preparation of the Shire's current Town Planning Scheme No. 3. This followed the consideration of various possible growth options for the shire as a precursor to preparing Town Planning Scheme No. 3.

Since the gazettal of Town Planning Scheme No. 3 in 1994, the proposed Townsite Development area, including the rural residential components and open space areas, has been zoned Special Purpose under the Shire of Mundaring Town Planning Scheme No. 3. The use of "Comprehensive Tourism/Residential Estate Development" is listed as a discretionary use within the zone. The Scheme specifies special conditions applying to the zone, including:

- a Local Subdivision and Infrastructure Plan (LSIP) and Technical Guidelines are to be submitted to and approved by Council as a prerequisite to subdivision;
- for any land identified for residential purposes in the LSIP, rezoning of that land to Urban under the MRS is a prerequisite to subdivision;
- the lot size of rural residential lots abutting land adjacent to the zone shall be determined by Council but be a minimum of 2 ha;
- provision shall be made for residential lots, at a density to be determined by Council, and for tourist facilities and incidental uses; and
- the provisions of the Rural Landscape Living zone apply to rural residential (referred to as "rural living") lots of 1 ha and above, while the provisions of the Residential zone apply to residential lots below 1 ha.

Metropolitan Region Scheme

Metropolitan Region Scheme (MRS) Amendment 1019/33, initiated in 1999 and advertised in 2000, proposed to rezone portions of the Parkerville Townsite Development area and the Stoneville Townsite Development area from Rural to Urban. 30 submissions on the amendment were lodged with the WAPC.

The WAPC's Report on Submissions (September 2001) considered all the issues raised in submissions. The report noted that issues such as traffic, market demand, bushfire risk, dieback management, protection of habitat for flora and fauna, erosion control and compliance with the *Aboriginal Heritage Act 1972* can be addressed in consideration and further revisions of the LSIP and in assessment of subdivision proposals.

With respect to the issue of creating discreet townsites and their compatibility with the “hills lifestyle”, the WAPC’s Report on Submissions noted significant community debate on the matter over time. The report concluded that, while it is unlikely that a consensus will be reached on the matter, it is the Commission’s view that:

“on balance the landscape qualities, natural vegetation and rural pursuits that are at the heart of the ‘Hills Lifestyle’ are better protected by providing for population growth around existing townsites and by the creation of a small number of new townsites than by accommodating growth in a general spread of ‘special rural/rural residential’ type subdivisions.”

However, with respect to the issue of sewerage and wastewater treatment, the report noted that:

“The question of sewerage and waste water solution is more vexing. There is no opportunity to connect to the Water Corporation’s reticulated sewer system and the area is outside the Water Corporation’s license area. Given the residential densities proposed in the LSIP for the area, the soil types and the environmental sensitivity, there is no opportunity to use conventional septic tank systems. The waste water treatment system proposed in the LSIP has been subject to criticism on technical, environmental and amenity grounds. The provision of basic infrastructure is fundamental to the Commission’s decision to bring land into the Urban zone of the MRS.”

On this basis, the WAPC instead recommended that the proposed urban components of the two townsites be zoned Urban Deferred. The report stated that:

“Before the Urban Deferred zone is lifted, a solution to the problem of wastewater treatment should be provided.”

The Amendment passed through Parliament and became effective in April 2003.

Accordingly, the proposed residential and commercial components of the Townsite Development are, at the time of writing, zoned Urban Deferred under the Metropolitan Region Scheme (MRS). Rural residential components, along with some proposed areas of open space, are zoned Rural under the MRS.

It should be noted that the Urban Deferred Zone “provides a strong indication that the land is physically and locationally suitable for urban purposes” (WAPC, Guidelines for the Lifting of Urban Deferment, Nov 2007), and that the zone identifies land “for the future urban uses following the extension of urban services, the progressive development of adjacent urban areas, and resolution of any environmental and planning requirements relating to development. The WAPC must be satisfied that these issues have been addressed before rezoning to Urban” (WAPC website, May 2009).

Under the MRS, land can be transferred from the Urban Deferred zone to the Urban zone by resolution of the WAPC, without requiring a further formal amendment process. There is a right of appeal to the State Administrative Tribunal against a WAPC refusal to lift Urban Deferment.

The proponents of both the Parkerville Townsite Development and the Stoneville Townsite Development have requested the lifting of Urban Deferment (ie. to rezone that land to Urban). In support of the request, several possible options for wastewater treatment and disposal to serve the needs of the Stoneville and Parkerville Townsites were developed and analysed. The WAPC requested the Shire’s comment on this proposal, and at its meeting of 23 September 2008, Council resolved that it:

1. *Advises the Western Australian Planning Commission it supports the request for the lifting of the Urban Deferred zone affecting the Stoneville townsite (Lot 69 Roland Road, Stoneville) and the Parkerville townsite (Lot 9502 Beacon Road, Parkerville).*
2. *Advises the landowners that support for the lifting of the Urban Deferred zone is on the basis that the Local Subdivision and Infrastructure Plans prepared for both townsites be reviewed prior to townsite development commencing.*
3. *Seeks written confirmation from the Water Corporation that the Shire will be involved in the decision making process to determine the final wastewater treatment solution chosen.*

In making its recommendation, the Shire noted advice from the Water Corporation, Department of Health and Department of Environment and Conservation.

On 14 July 2009, the WAPC resolved to:

1. *defer the request for the lifting of the Urban Deferment for the Parkerville townsite pending a suitable waste water solution being agreed to by the relevant decision making authorities; and*

2. *note that the issues relating to waste water are the only impediment to lifting the Urban Deferment for the Parkerville townsite.*

The proponents have appealed against the WAPC decision to the State Administrative Tribunal. At the time of writing, this appeal has not been determined.

Local Subdivision and Infrastructure Plan (LSIP) 259

History and status of LSIP

LSIP 259, for the Parkerville Townsite Development, was prepared on the basis of a population ceiling of 2500 for the entire LSIP area, including rural residential lots. The LSIP was endorsed by Council in June 1997. The WAPC conditionally supported LSIP 259 as the basis for an amendment to the MRS in August 1998. Subsequently, in April 2004, Council adopted amendments to the LSIP technical provisions regarding external road connections (see Road Connections section below). The WAPC finally endorsed the LSIP in part in October 2005 subject to:

- modification of the LSIP Technical Provisions and plan to exclude reference to the closure of Hidden Valley Road; and
- modification of the LSIP to provide a road connection from the LSIP area to Roland Road incorporating the (then) existing battleaxe leg and Boyamine Road [this connection, via Fringeleaf Drive and Boyamine Road, has since been constructed].

Importantly, the WAPC's endorsement excluded the proposed urban land. The WAPC advised that a review of the urban components of the LSIP is required to provide:

- a more legible and permeable road connection to the future Perth-Adelaide Highway across land owned by the Eastern Metropolitan Regional Council (EMRC); and
- a more legible and permeable road layout.

The WAPC also noted that the road connection to the future Perth-Adelaide Highway will need to be reviewed prior to the development of the urban land within the LSIP area.

Some minor modifications to LSIP 259, such as building envelope relocation, have been adopted by Council and endorsed by the WAPC since the initial adoption of the LSIP.

More recently, Council adopted two proposed modifications to LSIP 259 to allow for some additional rural residential lots (a total of 11 additional lots across the two modifications). However, in December 2008 the WAPC advised that it is not prepared to support modification of LSIP 259 to provide for additional Rural Landscape Living subdivision until such time as the Hills Spine Road connection through to Toodyay Road is provided.

Another modification to LSIP 259 was adopted by Council in February 2008. This modification, proposed in response to the WAPC's decision of October 2005 regarding the LSIP, sought to provide a more legible and permeable road layout. The modification primarily relates to changes to the internal road layout within the proposed urban cells, with some consequent minor changes to land use designations, such as slight changes to the shape of some Public Open Space. The modification proposes an internal road network based on a modified grid pattern, more consistent with the principles of *Liveable Neighbourhoods*. Council also required the inclusion in the LSIP technical provisions of reference to the preparation of a stormwater and drainage management plan, a construction management plan and a dieback management plan to be provided at subdivision stage. At the time of writing, the WAPC has not formally considered this modification.

LSIP proposals

LSIP 259, as most recently endorsed by Council, comprises the following land uses:

- 88 Residential R5 lots (2000 m² and above)
- 243 Residential R10 lots (average at least 1000 m²; minimum 875 m²)
- 298 Residential R12.5 lots (average at least 800 m²; minimum 700 m²)
- 8 Residential R20 group housing lots (average at least 500 m² per dwelling)
- 1 Residential R30 aged persons housing lot (average at least 300 m² per dwelling)
- Rural residential lots on the periphery of the urban cells (most now created)
- a Local Centre to provide for commercial uses
- a chalet accommodation site (for a maximum of 20 chalets)
- a tourist centre (1 ha site)
- a country club (1 ha site)
- a vineyard lot with vineyard locations specified within the lot (most of the lot to retain natural vegetation)
- a wastewater treatment plant site
- Public Open Space
- an existing aircraft beacon

Two separate urban cells are proposed, separated by Public Open Space along a watercourse that is a tributary of Jane Brook.

LSIP 259 indicates that a central principle of the plan is to minimise the loss of deep-rooted vegetation, by imposing strict clearing restrictions and maximising vegetation retention in open space. The LSIP also proposes revegetation of some lower-lying cleared areas to balance some of the clearing (though areas to be cleared will exceed cleared areas to be revegetated). An assessment of native vegetation condition across the site was conducted in preparing the LSIP and proposed urban development has been concentrated primarily in areas that are mostly cleared or contain vegetation in poor condition, with vegetation in better condition located in open space or on rural residential lots, where much of the vegetation will be retained. In addition, a vegetated buffer is proposed to be retained abutting the eastern boundary of John Forrest National Park, either in open space or by way of building envelopes and clearing controls on rural residential lots.

Public Open Space is proposed along each of two watercourses flowing generally east-west across the site, with smaller parcels of Public Open Space identified within the proposed urban cells. The level of Public Open Space proposed for the LSIP area substantially exceeds the minimum requirements for the residential and rural residential subdivision in the LSIP.

Rural residential lots are proposed to have a minimum of 2 ha on the periphery of the LSIP area, with some other lots near the urban cells having a minimum of 1 ha subject to connection to reticulated water.

Strategic firebreaks are proposed around groups of rural residential lots in the LSIP. These are now being put in place through subdivision.

Tourist accommodation is to be provided in the form of low-density chalets – a maximum of 20, located throughout a lot of over 6 ha, to be sensitive to the landscape abutting the National Park.

The Local Centre is limited to a maximum of 925 m² Nett Lettable Area of retail floorspace, excluding medical or child care facilities.

LSIP 259 incorporates technical provisions, which form legal guidelines for long-term use of the land and are enforceable through the Shire's Scheme. Technical provisions are provided for each of the various land use areas within the LSIP and include a statement of intent and specific requirements. These deal with various matters, including subdivision requirements, clearing restrictions and bushfire management.

At the northern end of the LSIP area is land which may have potential for rural residential subdivision, subject to environmental assessment and compliance with odour buffer requirements for the adjoining Eastern Metropolitan Regional Council landfill operations.

With respect to public transport, the traffic investigation prepared by Sinclair Knight Merz as an appendix to the LSIP document notes that Townsite Development did not meet (then) Transperth guidelines to introduce a new bus service. However, consistent with recommendations elsewhere in this Local Planning Strategy, it is considered that the Shire should aggressively lobby for improved public transport within the Shire, including to the Parkerville Townsite once urban development proceeds.

Road connections

Three connections to the external road network were originally proposed:

- to the future Hills Spine Road to the north (which in turn will link to Toodyay Road and the future Perth-Adelaide Highway);
- via Hidden Valley Road to Roland Road to the northeast; and
- via Beacon Road to the southeast.

Subsequently, a fourth connection was required:

- via Fringeleaf Drive and Boyamine Road to Roland Road.

It was originally proposed that the Hidden Valley Road connection would be closed once the Hills Spine Road connection is constructed, but the WAPC's partial endorsement of LSIP 259 in October 2005 required reference to this closure to be deleted from the plan and technical provisions.

Of these four connections:

- Hidden Valley Road has been constructed and provides access to Roland Road for the existing rural residential lots;
- Fringeleaf Drive has been constructed and provides access to Roland Road for the existing rural residential lots;
- Beacon Road exists but is mostly unsealed outside of the LSIP area; the road requires substantial upgrading and resolution of its alignment and delineation of a road reserve south of the LSIP area; and
- the Hills Spine Road and connections to that road and Toodyay Road are yet to be constructed.

The LSIP technical provisions specify that after a maximum number (35) of rural residential (referred to as Rural Landscape Living) lots are created, a prerequisite to any further subdivision is the construction of a road connection through to Toodyay Road. The WAPC has refused to support recent modifications to the LSIP to create additional rural residential lots on the basis of this provision. However, Council supported these modifications on the basis that the road network, which now includes two sealed access routes to Roland Road, is considered adequate to accommodate the minor increase in traffic generation. Investigation of this matter is ongoing.

The LSIP technical provisions provide that, in the event of construction of the Hills Spine Road link to Toodyay Road being problematic, a number of lots may be created subject to the construction of Beacon Road through to Brooking Road, with the number of lots permissible to be determined by the Shire based on a traffic assessment.

The technical provisions specify developer contributions required towards construction of the Hills Spine Road link to Toodyay Road.

At the time of writing, the road reserve needed to construct the portion of the Hills Spine Road linking the LSIP area and Toodyay Road (and the future Perth – Adelaide Highway) has not been secured. The road would cross land owned by the EMRC. Preliminary negotiations by the WAPC to purchase the land from the EMRC were previously undertaken but, at the time of writing, have not progressed.

Preliminary plans for a realignment of Roland Road across to Brooking Road, thus providing a bypass of the Parkerville town centre, have been prepared. These plans include an intersection with Beacon Road. Work towards finalising the alignment and road reserve for Beacon Road is ongoing.

Recommendations

- Progress the Roland Road realignment to connect to Brooking Road (including determination of final alignment and necessary land transactions) as a high priority
- Pursue the creation of a road reserve to allow construction of the Hills Spine Road link to Toodyay Road as a high priority
- Require further review of LSIP 259 for the urban cells once urban deferment is lifted, including reconsideration of wastewater treatment plant site if wastewater treatment for this development area is to take place outside of the LSIP area
- Seek to achieve at least equivalent protection of Local Natural Areas in a review of LSIP 259
- Review existing work on external road network upgrading requirements based on review of LSIP 259 and determine cost sharing contributions, developer and Shire responsibilities, and timing of required actions for external road upgrading

- Identify and progress any other land transactions required to enable required external road upgrading
- Include appropriate consultation and negotiation with the City of Swan in the review of LSIP 259 and external road network construction and upgrading requirements
- Negotiate with Public Transport Authority and, if needed, actively lobby for provision of public transport to the townsite once urban development proceeds
- Upon Urban zoning in the MRS, progress renaming of area to a separate locality distinct from Parkerville

5.2.10 Mundaring

The Mundaring Town Centre is the hub of the Shire with respect to commercial, civic and community facilities. Surrounding the town centre, the residential area of Mundaring has one of the larger populations of the Shire's suburbs and towns/villages. The residential area extends from Kintore Road in the west to Darkan Street in the east and from just north of Patrick Place and Laslett Circle to just south of Barlee Street. A rural residential area separates Mahogany Creek and Mundaring south of Great Eastern Highway and north of the highway between Coppin Road and Gill Street. It should be noted that some residential sized lots on Elizabeth and Forrest Avenues south of the Mundaring Golf Course are zoned Rural Landscape Living in Town Planning Scheme No. 3 and zoned Rural in the MRS because of their location in the Middle Helena Catchment.

Mundaring is a large locality, and in addition to the Town Centre and residential areas, Mundaring encompasses National Park and water catchment land, Mundaring Weir and rural and rural residential areas.

Residential areas in Mundaring are located in close proximity to the services and facilities of the Mundaring Town Centre. The suburb has public transport access to Midland and Mundaring, although this Strategy has identified the need to actively lobby for this service to be improved. Outside of the town centre, the residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available, nor will it be available in the future. The currently planned expansion of the capacity of the Mundaring Wastewater Treatment Plant will only cater for the Mundaring Town Centre (see section 4.6.2 above).

Residential use within the Mundaring Town Centre needs to be considered in the context of other uses and the constraints of limited effluent disposal capacity. The issue of residential use within the Mundaring Town Centre is addressed in section 4.5.3 above.

A few residential areas in Mundaring are within the Middle Helena Catchment, for which a Special Control Area is proposed in Local Planning Scheme No. 4, as recommended in the Middle Helena Catchment Area Land Use and Water Management Strategy (see section 4.2.3 above).

Some land currently zoned Residential under the Shire's Town Planning Scheme No. 3, but subject to Additional Uses that allow a range of commercial and other non-residential uses, are proposed to be incorporated into a Town Centre zone under Local Planning Scheme No. 4. The two areas in this category are:

- land bounded by Gill Street, Hartung Street, Mann Street and Great Eastern Highway; and
- land bounded by Stoneville Road, Hartung Street, Chipper Street and Great Eastern Highway.

This Strategy recommends maintaining the current extent of Residential zoning in Mundaring. Adjacent land within Mundaring, zoned Rural under the MRS, has been investigated but is generally unsuitable for residential expansion for various reasons, including the desirability of retaining a rural buffer between townsites, vegetation protection, bushfire hazard, effluent disposal capacity and landscape values.

One particular area that has been subject of several landowner requests for consideration for residential zoning and subdivision is the area between Mahogany Creek and Mundaring, north of the Railway Reserves Heritage Trail and in particular that area south of Great Eastern Highway. This Strategy does not support such rezoning on the basis that:

- the removal of a rural buffer between Mundaring and Mahogany Creek would be contrary to the recommendations of this Strategy to continue development of the hills portion of the Shire in the form of discreet villages, which are reinforced by the North Eastern Hills Settlement Pattern Plan;
- the removal of a rural buffer between Mundaring and Mahogany Creek would create an undesirable precedent for the urbanising of other rural buffers between hills towns/villages in the Shire;
- some portions of the area are identified in the Local Biodiversity Strategy as Local Natural Areas with a protection category of Protection or Retention and hence there is a strong presumption against rezoning these areas for closer subdivision and development; and
- some portions of the area are identified as having an Extreme bush fire hazard and expansion of residential development into these areas is contrary to the recommendations of this Strategy (albeit that with substantial removal of vegetation the bush fire hazard could be reduced).

Residential areas in Mundaring coded R2.5 have been investigated to determine opportunities for upcodings to R5 to better capitalise on proximity to the services and facilities in the Mundaring Town Centre. Two areas have been identified as suitable for such upcodings and have been included in Local Planning Scheme No. 4:

- land east of Coppin Road and west of Gill Street (except for Lots 39 to 41 and Lot 48 Baggins End, Lots 42 to 44 Coppin Road, Lots 31 to 36 Hobbit Glade and Lot 47 Thomas Road); and
- land bounded by Leslie Street, Stevens Street and Stoneville Road.

Other areas investigated were found unsuitable for upcoding, primarily because the existing pattern of subdivision and development (including the location of existing houses on lots) at R5 density renders further integrated subdivision difficult and impractical, but also having regard for vegetation protection issues.

Recommendations

- Include land zoned Residential in Town Planning Scheme No. 3, bounded by Gill Street, Hartung Street, Mann Street and Great Eastern Highway and bounded by Stoneville Road, Hartung Street, Chipper Street and Great Eastern Highway, in the Town Centre zone in Local Planning Scheme No. 4
- Maintain the current extent of Residential zoning in Mundaring, with the exception of the removal of those areas being included in the Town Centre zone
- Increase residential density of some land in Mundaring from R2.5 to R5, east of Coppin Road and west of Gill Street (except for Lots 39 to 41 and Lot 48 Baggins End, Lots 42 to 44 Coppin Road, Lots 31 to 36 Hobbit Glade and Lot 47 Thomas Road), and between Leslie Street, Stevens Street and Stoneville Road, as the land is primarily cleared and suitable for closer development and to better utilise existing and future services and facilities

5.2.11 Stoneville

Stoneville is located between Parkerville and Mount Helena and to the north of Mundaring. Stoneville includes both residential and rural residential land and also the proposed Stoneville Townsite Development, which is referred to in this strategy as North Stoneville and is addressed separately in the following section 5.2.12. The residential area of Stoneville is located either side of Jane Brook and the Railway Reserves Heritage Trail and extends from Hollett Road and Narla Retreat in the west to Kevin Street in the east, and from Carson Street in the north to Milligan Road in the south. Some parts of the residential area are on steeply sloping land.

Stoneville has a local centre and is also located in fairly close proximity to the services and facilities of the Mundaring Town Centre. Stoneville has public transport access to Midland and Mundaring, albeit the level of service is relatively poor. The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

Upcoding the land east of Stoneville Road between Conradi Place and Carson Street from R2.5 to R5 would allow more efficient use of land and would improve the viability of services and facilities in Stoneville. Accordingly, such upcoding is recommended.

Adjacent land within Stoneville, zoned Rural under the MRS, has been investigated for opportunities for incremental expansion of Stoneville's residential area to capitalise on existing and future services and facilities and relative proximity to Mundaring.

One area that warrants investigation for rezoning for residential expansion is Lots 86 and 1871 Richardson Road (corner Ayres Road), which is located in close proximity to the Stoneville Local Centre. This land is partly cleared and subject to retention of some vegetation in the northwest corner of the site in Public Open Space (POS), and compliance with bushfire safety requirements, may be suitable for residential subdivision. This Strategy supports rezoning this land to Urban in the MRS to facilitate residential expansion, subject to on-site investigation of effluent disposal capacity and appropriate subdivision design to retain Local Natural Areas in POS as far as practicable.

Another area warranting investigation for potential residential expansion is land to the northeast in the vicinity of Stoneville Road, Carson Street and Mulumba Place. Residential development may be appropriate on primarily cleared land that is environmentally suitable, including adequate on-site effluent disposal capacity. Residential expansion would require amendment to the MRS to rezone the land from Rural to Urban.

No other extension of Stoneville's residential area is supported by this Strategy. Other adjacent land within Stoneville, zoned Rural under the MRS, is considered unsuitable for residential expansion for various reasons, including the desirability of retaining a rural buffer between townsites, vegetation protection, bushfire hazard, topography and landscape values. In particular, rural residential zoning should be maintained over steep, well vegetated land sloping down towards Jane Brook to preserve landscape values, minimise erosion and to reflect the constraints of bushfire hazard and Local Natural Areas. Also, in keeping with the established settlement pattern in the hills portion of the Shire in the form of discreet villages, a rural or rural residential buffer should be maintained between the existing Stoneville residential area and the proposed North Stoneville ("Stoneville Townsite") development.

Recommendations

- Uprate the Residential zoned land east of Stoneville Road between Conradi Place and Carson Street from R2.5 to R5
- Investigate and support MRS Urban zoning over Lots 86 and 1871 Richardson Road (corner Ayres Road) to facilitate residential expansion on partly cleared land and capitalise on proximity to the Stoneville Local Centre, subject to adequate on-site effluent disposal capacity and retention of Local Natural Areas in POS as far as practicable
- Investigate potential incremental expansion of Residential zoning in Stoneville (which would include amendment to the MRS) to the northeast in the vicinity of Stoneville Road, Carson Street and Mulumba Place, on primarily cleared land that is suitable environmentally for residential development
- Maintain rural residential zoning over steep, well vegetated land sloping down towards Jane Brook to preserve landscape values, minimise erosion and to reflect the constraints of bushfire hazard and Local Natural Areas
- Maintain some rural residential buffer between existing Stoneville residential area and the proposed Stoneville Townsite Development (North Stoneville) to continue development of the hills portion of the Shire in the form of discreet villages

5.2.12 North Stoneville (Stoneville Townsite Development)

The Stoneville Townsite Development (also known as North Stoneville) is a proposed residential development on land east of Roland Road in Stoneville. At the time of writing, the proposed development would comprise around 1700 dwelling units, potentially catering for around 4800 residents, as well as facilities including a neighbourhood commercial centre, primary school and high school. A small number of rural residential lots on the north-eastern periphery of the Townsite Development have already been developed.

Town Planning Scheme No. 3

The subject land was identified for residential development in the preparation of the Shire's current Town Planning Scheme No. 3. This followed the consideration of various possible growth options for the shire as a precursor to preparing Town Planning Scheme No. 3.

Since the gazettal of Town Planning Scheme No. 3 in 1994, the proposed Townsite Development area, including the rural residential components and open space areas, has been zoned Special Purpose under the Shire of Mundaring Town Planning Scheme No. 3, with a prescribed use of “Comprehensive Townsite Development”. Rural Landscape Living, Residential and incidental commercial and community uses are listed as discretionary uses within the zone. The Scheme specifies special conditions applying to the zone, including:

- a Local Subdivision and Infrastructure Plan (LSIP) and Technical Guidelines are to be submitted to and approved by Council as a prerequisite to subdivision;
- for any land identified for residential purposes in the LSIP, rezoning of that land to Urban under the MRS is a prerequisite to subdivision;
- the lot size of rural residential lots abutting land adjacent to the zone shall be determined by Council but be a minimum of 2 ha;
- provision shall be made for residential lots, at a density to be determined by Council, and for a neighbourhood commercial centre, community facilities and schools; and
- the provisions of the Rural Landscape Living zone apply to rural residential (referred to as “rural living”) lots of 1 ha and above, while the provisions of the Residential zone apply to residential lots below 1 ha, and the provisions of the Local Centre zone apply to the neighbourhood commercial centre.

Metropolitan Region Scheme

Metropolitan Region Scheme (MRS) Amendment 1019/33, initiated in 1999 and advertised in 2000, proposed to rezone portions of the Stoneville Townsite Development area and the Parkerville Townsite Development area from Rural to Urban. 30 submissions on the amendment were lodged with the WAPC.

The WAPC’s Report on Submissions (September 2001) considered all issues raised in submissions. It noted that many of these would be more appropriately dealt with during subdivision design stage or by the local government as residential development proceeded. The report identified two fundamental issues raised which “appeared to be crucial matters and fundamental to the Commission’s consideration of the proposed rezoning”. These were:

- the question of the compatibility and appropriateness of the style and density of the development proposed in the LSIP within the “hills lifestyle” context; and
- the feasibility of the wastewater treatment system, its possible impact on the hydrogeology of the locality, the size of the buffer area and the impact that the 10 ha storage dam will have on the amenity of the area.

With respect to the issue of creating discreet townsites and their compatibility with the “hills lifestyle”, the WAPC’s Report on Submissions noted significant community debate on the matter over time. The report concluded that, while it is unlikely that a consensus will be reached on the matter, it is the Commission’s view that:

“on balance the landscape qualities, natural vegetation and rural pursuits that are at the heart of the ‘Hills Lifestyle’ are better protected by providing for population growth around existing townsites and by the creation of a small number of new townsites than by accommodating growth in a general spread of ‘special rural/rural residential’ type subdivisions.”

However, with respect to the issue of sewerage and wastewater treatment, the report noted that:

“The question of sewerage and waste water treatment is more vexing. There is no opportunity to connect to the Water Corporation’s reticulated sewer system and the area is outside the Water Corporation’s license area. Given the residential densities proposed in the LSIP for the area, the soil types and the environmental sensitivity, there is no opportunity to use conventional septic tank systems. The waste water treatment system proposed in the LSIP has been subject to criticism on technical, environmental and amenity grounds. The provision of basic infrastructure is fundamental to the Commission’s decision to bring land into the Urban zone of the MRS.”

On this basis, the WAPC instead recommended that the proposed urban components of the two townsites be zoned Urban Deferred. The report stated that:

“Before the Urban Deferred zone is lifted, a solution to the problem of wastewater treatment should be provided.”

The Amendment passed through Parliament and became effective in April 2003.

Accordingly, the proposed residential and commercial components of the Townsite Development are, at the time of writing, zoned Urban Deferred under the Metropolitan Region Scheme (MRS). Rural residential components, along with some proposed areas of open space, are zoned Rural under the MRS.

It should be noted that the Urban Deferred Zone “provides a strong indication that the land is physically and locationally suitable for urban purposes” (WAPC, Guidelines for the Lifting of Urban Deferment, Nov 2007), and that the zone identifies land “for the future urban uses following the extension of urban services, the progressive development of adjacent urban areas, and resolution of any environmental and planning requirements relating to development. The WAPC must be satisfied that these issues have been addressed before rezoning to Urban” (WAPC website, May 2009).

Under the MRS, land can be transferred from the Urban Deferred zone to the Urban zone by resolution of the WAPC, without requiring a further formal amendment process. There is a right of appeal to the State Administrative Tribunal against a WAPC refusal to lift Urban Deferment.

The proponents of both the Parkerville Townsite Development and the Stoneville Townsite Development have requested the lifting of Urban Deferment (ie. to rezone that land to Urban). In support of the request, several possible options for wastewater treatment and disposal to serve the needs of the Stoneville and Parkerville Townsites were developed and analysed. The WAPC requested the Shire’s comment on this proposal, and at its meeting of 23 September 2008, Council resolved that it:

1. *Advises the Western Australian Planning Commission it supports the request for the lifting of the Urban Deferred zone affecting the Stoneville townsite (Lot 69 Roland Road, Stoneville) and the Parkerville townsite (Lot 9502 Beacon Road, Parkerville).*
2. *Advises the landowners that support for the lifting of the Urban Deferred zone is on the basis that the Local Subdivision and Infrastructure Plans prepared for both townsites be reviewed prior to townsite development commencing.*
3. *Seeks written confirmation from the Water Corporation that the Shire will be involved in the decision making process to determine the final wastewater treatment solution chosen.*

In making its recommendation, the Shire noted advice from the Water Corporation, Department of Health and Department of Environment and Conservation.

On 14 July 2009, the WAPC resolved to:

1. *defer the request for the lifting of the Urban Deferment for the Stoneville townsite pending a suitable waste water solution being agreed to by the relevant decision making authorities; and*
2. *note that the issues relating to waste water are the only impediment to lifting the Urban Deferment for the Stoneville townsite.*

The proponents have appealed against the WAPC decision to the State Administrative Tribunal. At the time of writing, this appeal has not been determined.

Local Subdivision and Infrastructure Plan (LSIP) 265

History and status of LSIP

LSIP 265 for the Stoneville Townsite Development followed an earlier Outline Development Plan for the area, first submitted during 1993. LSIP 265 was first submitted in January 1997 and was adopted by Council in February 1998.

In January 1999, the WAPC resolved to note the LSIP as the basis for initiation of an amendment to the MRS to rezone the land proposed for residential subdivision from Rural to Urban, subject to:

- finalisation of infrastructure contributions, including road widenings, and their incorporation into the LSIP Technical Provisions;
- modification of the Technical Provisions to require alternative treatment units for all lots proposing to use on-site effluent disposal;
- modifications to the road design at subdivision stage to provide specific additional road connections, internal and external to the site;
- modification of the Technical Provisions to make clear that infrastructure contributions will be required from Rural Landscape Living lots at subdivision stage for future connections to water supply, excluding those lots proposed in the northeast of the LSIP area; and
- modification of the Technical Provisions to require water supply connections for 2 ha lots adjacent to the southern boundary of the site.

No further modifications have been made to LSIP 265 since January 1999.

It is reiterated that the Shire's support for lifting of urban deferment over proposed urban cells in the Stoneville Townsite Development was conditional upon review of LSIP 265.

LSIP proposals

LSIP 265, as adopted by the Shire and conditionally supported by the WAPC, comprises the following land uses:

- 302 Residential R5 lots (2000 m² and above)
- 243 Residential R10 lots (average at least 1000 m²; minimum 875 m²)

- 907 Residential R12.5 lots (average at least 800 m²; minimum 700 m²)
- 129 Residential R30 group housing dwellings (average at least 300 m² per dwelling), near the neighbourhood centre
- 75 aged persons dwellings, adjacent to the neighbourhood centre
- 53 Rural residential lots on the periphery of the urban cells (of which 15 have now been created)
- a neighbourhood commercial centre, incorporating retail and mixed uses (but not residential)
- a high school
- a primary school
- Public Open Space and community purposes associated with the high school and primary school
- a wastewater treatment plant site, storage lake and woodlot
- 159 ha of Public Open Space

Three separate urban cells are proposed, separated by Public Open Space.

Over 25% of the site has been delineated as Public Open Space in the LSIP, which substantially exceeds the minimum Public Open Space requirements for the residential and rural residential subdivision proposed. The Public Open Space includes creeklines (tributaries of Jane Brook and Susannah Brook) and a large (40 ha) area of remnant vegetation.

LSIP 265 incorporates technical provisions, which identify principal objectives for the various land use components of the LSIP and provide specific land use and subdivision controls over and above the Shire's Scheme. These deal with various matters, including subdivision and infrastructure requirements, wastewater treatment and disposal, clearing restrictions, bushfire management, dieback management and construction and upgrading of the external road network (see below).

A mix of Rural residential lots sizes are proposed, some having a minimum of 1 ha and others a minimum of 2 ha. The LSIP provides that rural residential lots will not be required to connect to reticulated water, however those rural residential lots below 2 ha will be required to connect to reticulated water within six months of it becoming available.

The neighbourhood centre (referred to in the LSIP as the Village Centre) comprises retail, mixed (non-residential) use and aged persons dwellings. The LSIP indicates a 1.5 ha site for retail use; technical guidelines in the LSIP do not set a specific retail floorspace limit. The intent of the mixed use area is to provide for a range of service commercial, medical and community uses, including provision for a fire station. LSIP technical provisions require the preparation of a precinct plan for the village centre prior to any development, and note that the disposition of uses within the village centre shown on the LSIP are indicative only and may be reviewed in a precinct plan.

LSIP 265 also requires preparation of a precinct plan over the community/education precinct prior to any development, with that precinct plan to have regard for integrate with the adjoining village centre precinct. The LSIP indicates the intent of the community/education precinct is for development of a high school, primary school, sporting and recreation facilities and other community facilities in an integrated manner, providing for joint use and development between the Shire and the Ministry of Education [now Department of Education and Training].

With respect to public transport, the traffic investigation prepared by Sinclair Knight Merz as an appendix to the LSIP document notes that Townsite Development did not meet (then) Transperth guidelines to introduce a new bus service. The LSIP notes that at this stage, no new bus routes are anticipated under current planning and policy, but that it will be necessary, as approvals proceed, to initiate detailed discussions with a view to obtaining extension of the existing service through the site. LSIP technical provisions require the proponent, in liaison with the Shire, to negotiate with the provider to seek extension of bus services to the LSIP area, with agreement on timing and threshold populations for such services to be reached prior to creation of residential lots.

Road connections

LSIP 265 proposes connections to:

- Roland Road (two connections)
- proposed Hills Spine Road – currently Cameron Road (two connections)
- Stoneville Road (two connections, albeit one solely for a 15-lot rural residential subdivision now completed),

with provision for additional connections to rural residential land to the east and south (including a connection via Brindle Road to Kilburn Road).

It should be noted that an additional connection has been provided to Cameron Road from the rural residential subdivision in the north-east of the LSIP area (Timbertop Way), and that the WAPC's January 1999 resolution was subject to the provision of another external road connection to the south.

LSIP 265 notes that full development of the Stoneville Townsite Development (along with full development of the Parkerville Townsite Development) will necessitate:

- construction of the Hills Spine Road, including widening of existing Cameron Road, with the section between Toodyay Road and Roland Road being a four-lane divided road;
- construction of a new bypass around the Parkerville town centre by diverting Roland Road to connect with Brooking Road;
- widening of Brooking Road;
- construction of a new intersection at Brooking Road and Great Eastern Highway;
- widening Roland Road north of the Hills Spine Road (to be done by the Shire [now City] of Swan);
- widening of Roland Road south of the Hills Spine Road to a 10 m seal, with a median to control turning movements required should vehicle movements exceed 9600 vehicles per day (vpd); and
- widening and upgrading of Stoneville Road south of Riley Road.

The LSIP notes that upgrading of Stoneville Road north of Riley Road will not be necessitated by the increased traffic volume generated by the development, but that sight lines on Stoneville Road at Richardson Road and Riley Road require improvement in any case [work has since been carried out by the Shire in this regard]. However, it is considered that this matter should be reviewed as part of a review of LSIP 265.

LSIP 265 technical provisions require the proponent to negotiate with the Shire to determine cost-sharing arrangements relating to the design, construction and upgrading of the external road network to provide access to the LSIP area, with agreement to be reached on the proportion to be paid by the proponent of total estimated costs of upgrading the external road network.

The technical provisions specifically require the availability of a northern external road network providing linkages to Toodyay Road as a prerequisite to creation of any residential lots.

At the time of writing, the road reserve needed to construct the portion of the Hills Spine Road linking the Parkerville Townsite Development and Toodyay Road (and the future Perth – Adelaide Highway) has not been secured. The road would cross land owned by the EMRC. Preliminary negotiations by the WAPC to purchase the land from the EMRC were previously undertaken but, at the time of writing, have not progressed.

Preliminary plans for a realignment of Roland Road across to Brooking Road, thus providing a bypass of the Parkerville town centre, have been prepared. These plans include an intersection with Beacon Road. Work towards finalising the alignment and road reserve for Beacon Road is ongoing.

Recommendations

- Progress the Roland Road realignment to connect to Brooking Road (including determination of final alignment and necessary land transactions) as a high priority
- Pursue the creation of a road reserve to allow construction of the Hills Spine Road link to Toodyay Road as a high priority
- Require further review of LSIP 265 once urban deferment is lifted, including reconsideration of wastewater treatment plant site (including buffer and woodlot) if wastewater treatment for this development area is to take place outside of the LSIP area
- Seek to achieve at least equivalent protection of local natural areas in a review of LSIP 265
- Review existing work on external road network upgrading requirements based on review of LSIP 265 and determine cost sharing contributions, developer and Shire responsibilities, and timing of required actions for external road upgrading
- Identify and progress any other land transactions required to enable required external road upgrading
- Include appropriate consultation and negotiation with the City of Swan in the review of LSIP 265 and external road network construction and upgrading requirements
- Negotiate with the Public Transport Authority and, if needed, actively lobby for timely provision of public transport to the townsite once urban development proceeds
- Upon lifting of urban deferment, progress renaming of area to a separate locality distinct from Stoneville

5.2.13 Sawyers Valley

Sawyers Valley is located east of Mundaring and south of Mount Helena. The locality of Sawyers Valley is very large and primarily composed of water catchment and state forest land, but it includes some residential and rural residential land either side of Great Eastern Highway. Sawyers Valley has one of the smallest residential areas of the Shire's hills villages.

Sawyers Valley has a Local Centre zone along Great Eastern Highway that not only serves the locality of Sawyers Valley, but also caters to passing traffic on Great Eastern Highway. It is also located in fairly close proximity to the services and facilities of the Mundaring Town Centre. Sawyers Valley has public transport access to Mundaring and Midland, but this service is indirect and very infrequent (see section 4.6.4 below). The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

Land in and around the residential area of Sawyers Valley has been investigated to determine any opportunities to provide for intensification of residential development to capitalise on the village's services and relative proximity to Mundaring. Two opportunities have been identified.

The first is upcoding residential density of primarily cleared land on Throssell and Martell Streets from R2.5 to R5. This change has been incorporated in proposed Local Planning Scheme No. 4.

The second possible change relates to primarily cleared or farmed land, zoned Rural in the MRS, between Pearce Street and Cole Road. Rezoning of this area was identified in the Shire's Scheme Examination Issues Paper early in the review of Town Planning Scheme No. 3. A number of concerns with the proposal were raised by residents of Sawyers Valley at the time. At that point, blanket Residential R5 zoning across the area, including areas well covered with native vegetation, had been proposed.

Investigation should now identify areas of R5 and R2.5 coded land, on the primarily cleared or farmed land, subject to adequate setback from Extreme bushfire hazard area, retention of Local Natural Areas in Public Open Space and adequate on-site effluent disposal capacity. This Strategy supports rezoning this land to Urban in the MRS, subject to these matters being adequately addressed.

Lots 14595 to 14597 Sexton Street have also been identified for inclusion in the Local Reserve for Conservation, but Landcorp, acting on behalf of the State of Western Australia, has sought Residential zoning over the land to facilitate future residential subdivision. Consideration should be given to a Scheme Amendment to change the lots from Reserve for Conservation to Residential R5 to better utilise existing and future services and facilities in the townsite subject to:

- confirmation that the ecological values of the site are not consistent with its reservation for conservation purposes;
- evidence that the rezoning and development of the land will be consistent with the amenity of the locality; and
- notification of the South West Aboriginal Land and Sea Council regarding a possible change in use.

One further change to the Residential zone proposed in Local Planning Scheme No. 4 is to remove a few lots north of Great Eastern Highway, between Sawyers Road and Old Sawyers Road, from the Residential zone and include them in the Local Centre zone. This reflects their location opposite and adjacent to commercial uses and their low residential amenity abutting the highway, which may be widened in the future (see also section 4.5.4 below).

Recommendations

- Increase residential density of primarily cleared land on Throssell and Martell Streets from R2.5 to R5, to better utilise existing and future services and facilities in the townsite
- Investigate and support MRS Urban zoning over primarily cleared or farmed land between Pearce Street and Cole Road to facilitate residential expansion (R5 and R2.5), subject to adequate setback from Extreme bushfire hazard area, retention of Local Natural Areas in Public Open Space and adequate on-site effluent disposal capacity
- Consider rezoning Lots 14595 to 14597 Sexton Street from Reserve for Conservation to Residential R5 to better utilise existing and future services and facilities in the townsite subject to: confirmation that the ecological values of the site are not consistent with its reservation for conservation purposes; evidence that the rezoning and development of the land will be consistent with the amenity of the locality; and notification of the South West Aboriginal Land and Sea Council regarding a possible change in use
- Remove land north of and abutting Great Eastern Highway between Sawyers Road and Old Sawyers Road from the Residential zone and included it in the Local Centre zone in Local Planning Scheme No. 4

5.2.14 Mount Helena

Mount Helena is located between Stoneville and Chidlow and to the north of Sawyers Valley. The locality of Mount Helena includes residential, rural residential and rural land. Mount Helena is the largest village east of Mundaring. The residential area of Mount Helena is located primarily north of the Railway Reserves Heritage Trail, extending north to Albert Street, but also includes land between Alps and Johnston Streets to the south of the Railway Reserves Heritage Trail.

Mount Helena has a local centre and also a Senior High School with associated recreational facilities. Mount Helena has public transport access to Midland and Mundaring, albeit the level of service is relatively poor. The residential portion of the suburb is zoned Residential R5 and no upcoding is possible as reticulated sewerage is not available.

Adjacent land within Mount Helena, zoned Rural under the MRS, has been investigated for opportunities for incremental expansion of Mount Helena's residential area to capitalise on existing and future services and facilities.

One area that warrants investigation for residential expansion is lots on the western side of Bunning Road from Cook Street to opposite Alfred Street. At present most properties in this area are around 2 ha. The land is primarily cleared land, although there are some Local Natural Areas that warrant retention. Land on the opposite side of Bunning Road has been zoned and developed for residential use. The adjacent Lot 132 Cook Street may also be suitable for residential expansion, subject to a geotechnical report carried out in late winter demonstrating on-site effluent disposal capacity and to adequate watercourse protection. This Strategy supports rezoning this land to Urban in the MRS to facilitate residential expansion, subject to on-site investigation of effluent disposal capacity and appropriate integrated subdivision design across the site to retain Local Natural Areas in Public Open Space (POS) as far as practicable.

Another area warranting further investigation for residential expansion is land southeast of the Mount Helena local centre, being the area bounded by Johnston Street, Hummerston Street, Lion Street and Elliott Road. This area has the advantage of close proximity to the Mount Helena local centre, relative to some parts of Mount Helena's existing residential area. However, the area has constraints which will need to be addressed, and any residential expansion should exclude land which is primarily uncleared or unsuitable for effluent disposal. This Strategy supports residential development, at R5 and/or R2.5 density, over primarily cleared parts of this area that are suitable for effluent disposal, subject to:

- on-site investigation demonstrating adequate effluent disposal capacity;
- adequate protection of and setback from Charlotte Creek;
- adequate stormwater management; and
- appropriate integrated subdivision design across the site to retain Local Natural Areas in Public Open Space (POS) as far as practicable.

An MRS amendment would be required from Rural to Urban over land identified as suitable for residential in the investigations referred to above. In the interim, the existing rural residential lot sizes should be maintained in Local Planning Scheme No. 4 pending the investigation and rezoning referred to above, so as not to further fragment the land and hinder coordinated residential subdivision.

No other extension of Mount Helena's residential area is supported by this Strategy. The two proposals identified above should be sufficient to cater for incremental residential growth of Mount Helena over the life of this Strategy. Also, other adjacent land within Mount Helena, zoned Rural under the MRS, is generally unsuitable for residential expansion for various reasons, including distance from facilities in the local centre, vegetation protection, bushfire hazard, effluent disposal capacity and landscape values.

Recommendations

- Support MRS amendment to include in the Urban zone lots on the western side of Bunning Road, Mount Helena, from Cook Street to opposite Alfred Street, and Lot 132 Cook Street, to facilitate residential expansion (at R5 density) on primarily cleared land, subject to demonstration of on-site effluent disposal capacity (with respect to Lot 132, this will require a geotechnical report carried out in late winter), adequate watercourse protection, and appropriate integrated subdivision design across the site to retain Local Natural Areas in Public Open Space as far as practicable
- Investigate potential for residential expansion on land southeast of the Mount Helena local centre, being the area bounded by Johnston Street, Hummerston Street, Lion Street and Elliott Road, but excluding land which is primarily uncleared or unsuitable for effluent disposal
- Support residential development, at R5 and/or R2.5 density, over primarily cleared parts of this area that are suitable for effluent disposal, and the rezoning of such land from Rural to Urban in the MRS, subject to:
 - on-site investigation demonstrating adequate effluent disposal
 - adequate protection of, and setback from, Charlotte Creek
 - adequate stormwater management
 - appropriate integrated subdivision design across the area to retain Local Natural Areas in Public Open Space (POS) as far as practicable
- Maintain existing rural residential lot sizes in the interim pending the investigation and rezoning referred to in the above points, so as not to further fragment the land and hinder coordinated residential subdivision

5.2.15 Chidlow

Chidlow is located east of Mount Helena. The locality of Chidlow includes substantial areas of Regional Park as well as residential, rural residential and rural land. The residential area of Chidlow is located north of the Railway Reserves Heritage Trail, extending north to Stone Street, and from Reservoir Street and Rosedale Road in the west to Betty Street in the east.

Chidlow has two small local centres. The village is relatively remote from Mundaring. Chidlow has public transport access to Mundaring and Midland, but the level of service is poor. The residential portion of the suburb is zoned Residential R2.5 or Residential R5 and no upcoding beyond R5 is possible as reticulated sewerage is not available.

A very small south-western portion of the Chidlow residential area is within the Mundaring Weir Catchment, for which a Special Control Area is proposed in Local Planning Scheme No. 4 (see section 4.2.3 above).

No extension of Chidlow's residential area is supported by this Strategy. The land already zoned Residential, inclusive of a minor upcoding referred to below, should be sufficient to cater for the anticipated population growth of Chidlow over the life of this Strategy, particularly as a poultry farm which hindered subdivision of some surrounding Residential zoned land in the northern portion of Chidlow for many years has recently closed.

An opportunity has been identified to increase residential density of some land between Northcote Street and Ash Road from R2.5 to R5, where primarily cleared and suitable for closer development. This will help ensure that the existing Residential zoned land in Chidlow is sufficient to cater for the village's growth throughout the life of this Strategy, without the need to expand into adjacent land.

A minor change to the Residential zone proposed by this Strategy is the inclusion of a few lots on the eastern side of Old Northam Road between Willcox and Herbert Streets in the Local Centre zone rather than the Residential zone in Local Planning Scheme No. 4.

Recommendations

- Maintain the current extent of Residential zoning in Chidlow
- Increase residential density of some land between Northcote Street and Ash Road from R2.5 to R5, where primarily cleared and suitable for closer development, to better utilise existing and future services and facilities
- Include land on the eastern side of Old Northam Road between Willcox and Herbert Streets in the Local Centre zone rather than the Residential zone in Local Planning Scheme No. 4

5.2.16 Wooroloo

Wooroloo is a small village located northeast of Chidlow. The locality of Wooroloo also includes Regional Park, prison land and substantial areas of rural and rural residential land. It is the most isolated of the towns/villages in the Shire. Wooroloo has limited commercial facilities, some located outside of the existing Local Centre zone. Other than the nearby prisons and Linley Valley Abattoir, it is remote from employment sources. Wooroloo has public transport access to Mundaring and Midland, but the level of service is very poor. The residential portion of Wooroloo is zoned Residential R5 and no upcoding is possible as reticulated sewerage is not available.

The North Eastern Hills Settlement Pattern Plan specifies a projected population for Wooroloo of 3,900, which would represent an approximately fivefold increase compared to its current population. Given its remote location, it is not considered that such a population in Wooroloo is either likely or desirable in the life of this Strategy. On the contrary, the existing Residential zoned land in Wooroloo should be sufficient to cater for the village's growth throughout the life of this Strategy. There are adequate areas to the north and east of the town to facilitate expansion if ever required. In the long term, expansion of Wooroloo should only be considered if consistent with metropolitan planning directions and if sufficient employment, services, facilities and public transport can realistically be provided.

A few lots on Bailup Road, already used for residential purposes, are proposed to be removed from the Local centre zone and included in the Residential zone under Local Planning Scheme No. 4. This is to reflect the lower anticipated future population size than previous projections and inclusion of other land on Government Road in the Local Centre zone.

Recommendations

- Maintain the current extent of Residential zoning in Wooroloo
- In the long term, consider expansion of residential zoning in Wooroloo only if consistent with metropolitan planning directions and if sufficient employment, services, facilities and public transport can realistically be provided
- Remove land on Bailup Road from the Local Centre zone and include it in the Residential zone under Local Planning Scheme No. 4, to reflect the lower anticipated future population size for Wooroloo than previous projections and the inclusion of land on Government Road in the Local Centre zone

5.3 Rural residential and rural small holdings

General principle

The general principle for additional rural living (which encompasses rural residential and rural small holdings) subdivision potential in this Strategy, as set out in section 5.0 above, is as follows:

In order to reduce transport demand and promote a more sustainable form of rural residential development, additional rural residential subdivision potential within the Shire should be concentrated in relatively close proximity to existing towns/villages, commercial facilities, schools and employment sources.

Current situation

Under Town Planning Scheme No. 3, land identified for rural living purposes is zoned Rural Landscape Living. The Scheme specifies eleven separate objectives for the zone. Briefly summarised, these support protection of environmental and landscape values, hobby farming use on cleared land without steep slopes and closer subdivision for rural living in some areas. A subdivision code specifies the minimum lot size in hectares for particular lots (eg. a Rural Landscape Living 2 zoning allows subdivision down to 2 ha). Where further subdivision is not supported by the Scheme, no subdivision code is applied.

The Rural Landscape Living zone covers the rural land in the Shire from Bellevue and Helena Valley east to Stoneville, Mundaring and Sawyers Valley, as well as most of the rural land in Mount Helena, Chidlow and Beechina and some portions of Wooroloo. Some of this land has yet to be subdivided to its full potential under Town Planning Scheme No. 3, though much of the land still having subdivision potential is subject of endorsed Local Subdivision and Infrastructure Plans (LSIPs) indicating how subdivision may proceed.

Most of the land yet to be subdivided to its full potential is already fragmented into rural living lots and has not proceeded to subdivision due to landowners preferring to retain the landholdings intact for rural living or rural small holdings purposes.

At the time of writing several amendments to Town Planning Scheme No. 3 proposing intensification of subdivision potential under the Rural Landscape Living zone have been advertised but have yet to be finally determined. Determination of these amendments was deferred by the previous planning minister because of the lack of a strategic context in which to consider these proposals. This Strategy provides that context and it is recommended that these Amendments generally be supported and incorporated into Local Planning Scheme No. 4.

Rural Residential and Rural Small Holdings Zones

State Planning Policy 2.5 Agriculture and Rural Land Use Planning (see section 2.2.2.3 above) specifies the zones which should be used for different categories of rural land throughout the state. The four recommended zones are:

- Priority Agriculture
- General Agriculture
- Rural Small Holdings
- Rural Residential

The recommended agriculture zones are discussed in section 4.6.6 below. With respect to the Rural Small Holdings and Rural Residential zones, the State Planning Policy describes the zones as follows:

Rural Smallholdings: Land providing housing and lifestyle opportunities, including opportunities for full or part-time income generation, on lots ranging from 4 ha to 40 hectares (or more depending on local conditions). Reticulated potable water supply is not required.

Rural Residential: Land used for residential purposes in a rural setting. The emphasis is on preserving the amenity of the area and controlling land use impacts. Lot sizes range from 1 to 4 hectares and reticulated potable water supply is required.

Proposed Local Planning Scheme No.4 follows the direction of State Planning Policy 2.5 by incorporating Rural Residential and Rural Small Holdings zones. Land zoned Rural Landscape Living in Town Planning Scheme No. 3 has been included in either the Rural Residential or the Rural Small Holdings zones. Additionally, some land zoned General Rural under Town Planning Scheme No. 3 has, due to its lot size and predominant use, been included in the Rural Small Holdings zone.

The 4 ha threshold for existing or intended lot sizes has generally been used in determining which zone applies to land zoned Rural Landscape Living in Town Planning Scheme No. 3. However, lots larger than 4 ha which are almost entirely comprised of Local Natural Areas (native vegetation) have been incorporated in the Rural Residential zone rather than Rural Small Holdings zone to reflect the intended use of such lots as residential in a rural setting rather than hobby farming and potentially productive use of the land.

Local Planning Scheme No. 4, which proposes more succinct objectives for zones than is generally the case in Town Planning Scheme No. 3, specifies the following objectives for the two zones:

Rural Residential:

- to provide for residential use in a rural setting, in suitable and appropriate locations in reasonable proximity to services;

- to conserve the natural environment as far as possible for the enjoyment of residents as well as the maintenance of ecological and landscape values, particularly by the protection of native vegetation (trees and understorey) and by water-sensitive development; and
- to provide for other uses compatible with and complementary to rural living, subject to appropriate land capability and suitability and protection of residential amenity; and
- to ensure conservation of soil, watercourses and other water resources and the protection of ecological and landscape values.

Rural Small Holdings:

- to provide for rural pursuits, hobby farming, and alternative residential lifestyle purposes where part-time income from home based businesses and/or use of the land for agriculture may be derived, subject to appropriate land capability and suitability;
- to ensure use and development of land is sited, designed and managed in harmony with the natural environment and so as to protect ecological and landscape values; and
- to ensure conservation of soil, watercourses and other water resources and the protection of ecological and landscape values.

Scheme provisions

Rural Residential and Rural Small Holdings Codes

It is intended that all land zoned Rural Residential or Rural Small Holdings will have a subdivision code specifying the minimum lot size for that area in hectares (eg. Rural Residential 2 or Rural Small Holdings 10). It should not be automatically assumed that this minimum lot size can be achieved in all cases; structure planning will be required and specific site characteristics taken into account in determining subdivision potential for any particular land.

Where the intention is further subdivision of a particular area not be supported, the subdivision code will be set at a lot size such that further subdivision is not possible.

Structure Plans

Under the Shire's Town Planning Scheme No. 3 and its predecessor, Town Planning Scheme No. 1, a multitude of mostly very small-scale structure plans, referred to as Local Subdivision and Infrastructure Plans (LSIPs), have been adopted by the Shire and by the Western Australian Planning Commission. At the time of writing, over 300 such LSIPs are operational, covering both residential and rural residential subdivision.

In the majority of cases, subdivision of the areas subject to LSIPs has been completed. Individual LSIPs have often been prepared over a single property that is proposed to be subdivided and in most other cases cover only a very limited area. The limited geographical extent of LSIPs has in many cases led to fragmented development that does not lead to adequately integrated development, particularly with regard to connectivity but in some instances also with regard to infrastructure provision such as drainage.

As many LSIPs are now essentially obsolete, Local Planning Scheme No. 4 proposes to effectively revoke them by incorporating a schedule of continuing structure plans; LSIPs operational under Town Planning Scheme No. 3 will only continue to operate as structure plans under Local Planning Scheme No. 4 if included in this schedule. Where appropriate, building envelopes on those LSIPs being revoked that relate to the Rural Residential zone will be included in a Register of Building Envelopes (see below).

To ensure that future structure plans are of adequate geographical extent, proposed Local Planning Scheme No. 4 indicates that the extent of the area to be covered by a structure plan shall be determined by the Shire and must be sufficient to provide adequate coordination of subdivision and/or development, having regard to various relevant matters. Local Planning Scheme No. 4 will also allow the Shire to waive the requirement for a structure plan for limited infill subdivision where it considers that the adjacent/nearby area having subdivision potential and the number of lots that could be created are so limited that the coordination of subdivision and development by way of a Structure Plan is not required.

Proposed Local Planning Scheme No. 4 incorporates provisions based on draft Model Scheme Text structure plan provisions that were prepared by the (then) Department for Planning and Infrastructure, but not formally added to the Model Scheme Text. These provisions set out in detail the process for the preparation, advertising and determination of structure plans. Should uniform structure planning provisions be imposed statewide as part of proposed revisions to the Model Scheme Text, these provisions may be modified or replaced.

Building envelopes

Under Town Planning Scheme No. 3, building envelopes were applied to most rural residential lots, usually by way of Local Subdivision and Infrastructure Plans (LSIPs). Where subdivision has proceeded, these LSIPs are generally proposed to be revoked under Local Planning Scheme No. 4 (see above). However, the building envelopes created in those LSIPs being revoked where subdivision has proceeded will remain operative under Local Planning Scheme No. 4 by being included in an official Register of Building Envelopes. These building envelopes should be digitised and be made available for inspection along with the Scheme documents.

Building envelopes will generally be required in the Rural Residential zone. The objectives for building envelopes within the Rural Residential zone will be to:

- protect Local Natural Areas, other vegetation, watercourses, damp areas and features of special environmental significance from development;
- concentrate built development on each lot so as to preserve the amenity and landscape values of the area;
- avoid areas where ground or soil conditions may inhibit the structural integrity of buildings or cause pollution, erosion or flooding; and
- ensure effluent disposal systems are appropriately located.

Building envelopes will not generally be required within the Rural Small Holdings zone. However, where building envelopes are applied within the zone, the objectives of those building envelopes will be to:

- protect Local Natural Areas, other vegetation, watercourses, damp areas and features of special environmental significance from development;
- avoid areas where ground or soil conditions may inhibit the structural integrity of buildings or cause pollution, erosion or flooding; and
- ensure effluent disposal systems are appropriately located.

Where building envelopes are identified, which will usually be at structure planning stage but possibly also as a condition of subdivision or development, these should be included in an official Register of Building Envelopes. Building envelopes should be digitised and be made available for inspection along with the Scheme documents.

Proposals to relocate building envelopes should be able to be considered by the Shire; a request to build outside of a building envelope should only be approved if the building envelope is relocated accordingly. These proposals should be considered against the objectives for building envelopes within the relevant zone. Where proposed relocation of building envelopes satisfies these objectives and will not cause greater adverse visual impact than the existing building envelope, the relocation should be approved, generally without the need for neighbour consultation.

Battleaxe lots

Historically, rural residential subdivision within the Shire of Mundaring has incorporated a large proportion of battleaxe lots. It is considered that these often result in inferior urban design outcomes, with adverse impacts on privacy, residential amenity and emergency access/egress. The latter is of particular concern given the levels of bushfire hazard throughout much of the rural residential area of the Shire.

Accordingly, Local Planning Scheme No. 4 proposes a provision indicating the Shire will not support a subdivision or adopt a Structure Plan where battleaxe lots are proposed, unless any alternative subdivision layout without battleaxe lots is rendered impractical by the shape or topography of the land or other factor(s), or there is an overriding benefit in terms of reduced environmental impact or improved traffic circulation which outweighs the adverse impacts of the proposed battleaxe lot(s).

Outbuildings

At the time of writing, outbuildings provisions for Local Planning Scheme No. 4 have not been finalised. It is intended that provisions in Local Planning Scheme No. 4 will reflect those in Amendment No. 74 to Town Planning Scheme No. 3, once submissions on that amendment and any possible changes resulting from those submissions are considered by Council and the amendment is approved by the Minister and gazetted.

Kennels

In Town Planning Scheme No. 3, the use class of Kennels is SA (discretionary and subject to mandatory advertising for public comment) in the General Rural zone. In Local Planning Scheme No. 4, it is intended to include kennels (which fall under the use class of Animal Establishment) as an A use (discretionary and subject to mandatory advertising for public comment) in the Rural Small Holdings zone, and a D use (discretionary) in the General Agriculture zone. In both zones a provision will require the applicant to demonstrate that the proposed kennels will not generate noise resulting in non-compliance with the Environmental Protection (Noise) Regulations 1997. The same provision currently applies to kennels in the General Rural zone in Town Planning Scheme No. 3.

Specific proposals by locality

Swan View

A small portion of Swan View, in the northeast of the locality, is zoned Rural Landscape Living under Town Planning Scheme No. 3, with no further subdivision permitted. The area contains a poultry farm/hatchery on Pechey Road, Jane Brook and native vegetation alongside the brook, and abuts John Forrest National Park. Given these constraints, rural residential lot sizes should be maintained.

Bellevue

A portion of land in Bellevue is zoned Rural Landscape Living under Town Planning Scheme No. 3, with no further subdivision permitted. Section 5.2.4 above identifies that most of this land may have potential for residential subdivision, subject to further investigation and addressing a number of environmental and heritage issues. This Strategy recommends that potential rezoning from Rural to Urban under the Metropolitan Region Scheme, to facilitate use of that part of the area outside of the ANEF 25–30 contours for residential development be investigated. In the interim, to maintain the existing lot size, it is proposed that the land be zoned Rural Small Holdings 40 in Local Planning Scheme No. 4. Rural Residential zoning is proposed for two other small parcels of nearby rural land.

Helena Valley

In the locality of Helena Valley, the Rural Landscape Living zone under Town Planning Scheme No. 3 includes:

- land on both sides of Helena Valley Road, near the western end of that road, zoned Rural under the MRS and affected by the ANEF 25-30 contours
- land on both sides of Helena Valley Road, west of the existing major residential area, zoned Urban under the MRS (this land must be zoned appropriately to be consistent with the Urban zoning – see section 5.2.4 above)
- land on both sides of Helena Valley Road, east of the existing major residential area, being rezoned to Urban by Amendment 1160/41 to the MRS (this land will also need to be zoned appropriately to be consistent with the proposed Urban zoning)
- land along the Helena River, on both sides of the river, generally between Katharine Street/Clayton Road and Helena Valley Road

In all of the above areas, no further subdivision is permitted under Town Planning Scheme No. 3.

Land south of Helena Valley Road and west of Ridge Hill Road, zoned Rural in the MRS, is zoned Rural Landscape Living 2 under Town Planning Scheme No. 3. The land nearest Ridge Hill Road has been subdivided down to this potential. One large lot, Lot 2 (2670) Helena Valley Road remains unsubdivided, although it has an endorsed LSIP. Much of that lot comprises a Bush Forever site (see section 4.2.2.5).

An area of land east of Ridge Hill Road and south of Helena Valley Road is zoned Rural Landscape Living 2/4 and has been almost entirely subdivided in accordance with an endorsed LSIP.

It is proposed to address each of these separate areas in Local Planning Scheme No. 4 according to their characteristics and circumstances.

The land near the western end of that road, zoned Rural under the MRS and affected by the ANEF 25-30 contours, is proposed to be zoned Rural Residential 4. This will maintain existing lot sizes, while desirable uses for the land are further considered by way of a structure plan/study. It would be appropriate to investigate potential rezoning of this land from Rural to Urban under the MRS, to accommodate service commercial and light industry uses suitable for a mixed business precinct that are consistent with State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport and to provide development which is of a high quality design to provide an attractive entrance to Helena Valley.

Land that is zoned, or being rezoned to, Urban in the MRS will be placed in a Development zone, so that residential densities and any other uses can be determined by way of a structure planning process.

Constraints such as floodplain management, vegetation retention, heritage values and landscape values dictate that existing lot sizes on land along the Helena River should generally be maintained. The land is proposed to be zoned Rural Residential, with the exception of one larger rural property which will be zoned Rural Small Holdings. Subdivision codes will be set to generally prevent further subdivision, although a few lots that are larger than those surrounding them may be able to be subdivided into two. For the area bounded by the Helena River, Samson Street, Helena Valley Road and Scott Street, there are a few areas which may have potential for closer subdivision and this should be investigated, but having strong regard for landscape protection, floodplain management and protection of watercourses traversing the area.

Lot 27 Clayton Road is a larger lot north of the river, but contains a significant heritage property. While the subject land is the largest and least constrained (by floodplain) property between Clayton Road/Katharine Street and the Helena River, the property is listed on the State Register of Heritage Places and the farmhouse's rural setting on a property abutting the Helena River is an integral part of its heritage value. In the future, this lot could be investigated for a potential change in land use, but the heritage values, rural setting and environmental conditions of the site will need to be taken into consideration in assessing any proposal affecting the property.

On Lot 2 (2670) Helena Valley Road, it is undesirable for the Bush Forever site to be fragmented into 2 ha lots. Given that a large portion of the lot lies outside of the Bush Forever site and is primarily cleared, there is an opportunity for a cluster form of subdivision to better protect the Bush Forever site. Accordingly, it is proposed that Lot 2 be zoned Rural Residential 2 in LPS 4, with a Special Design Area Special Control Area that contains appropriate provisions to ensure protection of the Bush Forever site by way of the use of 2 ha as an average rather than minimum lot size for the overall landholding, consistent with Clause 5.9.1.4 of the Scheme.

These provisions should prevent subdivision of the Bush Forever site, and any development of the Bush Forever site other than appropriate incidental development associated with recreational or conservation use. The Special Design Area should be removed only when another appropriate mechanism has been put in place in the Scheme to protect the Bush Forever site. In addition, future planning for, and subdivision and development of, the balance portion of Lot 2 should seek to protect the two creeks and the vegetation outside of the Bush Forever site.

A Rural Residential 4 zoning is proposed over lots immediately west of Lot 2 (2670) Helena Valley Road, again pending further investigation of possible use, including the potential for residential or special residential subdivision.

Land between Lot 2 (2670) Helena Valley Road and Ridge Hill Road is proposed to be zoned Rural Residential 2, reflecting existing lot sizes and subdivision pattern and vegetation constraints which make further subdivision difficult or undesirable.

Land south of Helena Valley Road and east of Ridge Hill Road is proposed to be zoned Rural Residential 4. Local Natural Area protection and bushfire hazard make closer subdivision undesirable in this area.

Darlington

There are small areas to the south of the Darlington residential area zoned Rural Landscape Living under Town Planning Scheme No. 3. In most, no further subdivision is permitted; those areas with subdivision codes have been subdivided to their full potential.

There is some land along Victor Road, in the southwest of the locality, which has potential for closer rural residential subdivision. The land is in close proximity to facilities in Darlington and subdivision down to 1 ha will allow rural residential lots to capitalise on this proximity. Accordingly, it is intended to zone this land Rural Residential 1. Structure planning will be required to confirm subdivision layout and effluent disposal capacity for each site. Local Natural Areas should be protected and setback from adjacent bushland should comply with hazard separation requirements of *Planning for Bush Fire Protection* or any successor document.

The balance of rural residential land should be maintained at existing lot sizes to reflect the constraints of bushfire hazard, Local Natural Areas and the Middle Helena Catchment.

Glen Forrest

There is land zoned Rural Landscape Living under Town Planning Scheme No. 3 to the west, south and east of the Glen Forrest residential area. Most land with a subdivision code has been subdivided to its full potential. To the south of the residential area, most of the area has no subdivision code, meaning that subdivision is not permitted.

Much of the land currently zoned Rural Landscape Living is well vegetated and thus Local Natural Area protection and bushfire hazard are significant constraints to further subdivision. Mostly open land between Glen Forrest and Darlington is quite steep and an important rural buffer between the two residential areas. Some areas of productive agricultural use (including vineyards) exist in the valleys along tributaries of the Helena River. The Middle Helena Catchment also affects much of the rural land in the south of the Glen Forrest locality.

It is proposed to include most of the rural land in Glen Forrest in the Rural Residential zone, with a few larger agricultural properties to be zoned Rural Small Holdings. Given the various constraints outlined above, existing rural residential and rural small holdings lot sizes should be generally maintained.

Mahogany Creek

In Mahogany Creek, privately owned land south of the Railway Reserves Heritage Trail is zoned Rural Landscape Living under Town Planning Scheme No. 3. Most has a subdivision code of 1 or 1/2 (the latter meaning that subdivision down to 1 ha is dependent on being so specified in an endorsed LSIP), and most of this land has been subdivided to its full potential. For some isolated lots on Lauffer Way and Moola Road, near the Helena River and surrounded on all sides by National Park or Regional Park land, further subdivision is not permitted.

It is proposed to apply a Rural Residential 1 zoning in Local Planning Scheme No. 4 to that land having a subdivision code of 1 or 1/2 under Town Planning Scheme No. 3. It will still be necessary have regard to specific site characteristics to achieve the 1 ha minimum. The isolated land on Lauffer Way and Moola Road, is proposed to be zoned Rural Residential 8 and Rural Small Holdings 10, to reflect existing use and maintain existing lot sizes.

Hovea

The locality of Hovea encompasses John Forrest National Park, and areas of Rural Landscape Living zoned land east of the National Park. Most of this land has no subdivision potential under Town Planning Scheme No. 3. A few areas have subdivision codes (1, 1/2, 2 or 2/4); these have almost all been subdivided to their full potential.

Hovea is characterised by its prevalence of Local Natural Areas, steep topography and the Extreme bush fire hazard that applies to nearly all the locality. Vehicular access to many properties in Hovea is via culs-de-sac. Securing alternative emergency access/egress routes for these areas is critically important.

Local Planning Scheme No. 4 proposes to generally maintain existing rural residential and rural small holdings lot sizes in Hovea due to the constraints of bushfire hazard and Local Natural Area protection. It will be important to pay particular attention to Hovea in preparing a bushfire access audit and strategy (see section 5.1 above), given its Extreme bushfire hazard, numbers of culs-de-sac, steep topography and proximity to John Forrest National Park. This may include supporting subdivision which would not otherwise be supported if it provides vehicular access to address an identified access problem in a given area.

In the light of Hovea's prevalence of Local Natural Areas, steep topography and the Extreme bush fire hazard that applies to nearly all of the locality, it is unlikely that Scheme Amendments to intensify rural residential subdivision potential would be supported. Nonetheless, any consideration of upcoding Rural Residential areas in Hovea should only occur after completion of the bushfire access audit and strategy, and taking the recommendations of the bushfire strategy into account.

It is proposed to include some large properties north of Richardson Road in the Rural Small Holdings zone, coded 15 or 40, to reflect and maintain existing lot sizes. These properties are also primarily uncleared and thus Local Natural Area protection and bushfire hazard are constraints to subdivision.

Parkerville

Parkerville contains extensive areas zoned Rural Landscape Living under Town Planning Scheme No. 3, mostly with subdivision codes of 1, 2 or 2/4, although in some areas no subdivision is permitted. Much of this land comprises Local Natural Areas, although some properties are largely cleared and there are areas of old or current orchard land within the Rural Landscape Living zone. Much of the area with subdivision codes has been subdivided, but there are several properties still with subdivision potential. These include properties containing significant Local Natural Areas, where a cluster form of subdivision will be able to protect larger portions of Local Natural Areas intact (see section 4.2.2.2 above).

Those areas of Parkerville with few constraints to closer rural residential subdivision have already been subdivided or have subdivision potential under Town Planning Scheme No. 3. The remaining areas are constrained by Local Natural Areas and bushfire hazard and/or the need to maintain a rural buffer between the existing Parkerville residential area and the proposed North Parkerville ("Parkerville Townsite") development. Accordingly, it is recommended that Local Planning Scheme No. 4 generally maintain existing rural residential lot sizes or subdivision potential.

It is also proposed to include those areas within the Special Purpose zone for the proposed North Parkerville ("Parkerville Townsite") development that have been subdivided for rural residential use within the Rural Residential zone in Local Planning Scheme No. 4.

Mundaring

Mundaring contains extensive areas zoned Rural Landscape Living under Town Planning Scheme No. 3, surrounding the residential area in all directions. Outside of the Middle Helena and Mundaring Weir water catchments, this land mostly has subdivision codes (of 1, 1/2, 2 or 2/4), with these areas having been almost entirely subdivided to their full potential. Rural land within the Middle Helena and Mundaring Weir catchments is generally not permitted. As indicated in section 4.4.2.10 above, the Rural Landscape Living zone includes many lots in the Elizabeth and Forrest Avenue area south of the Mundaring Golf Course that are of a residential size (well under 1 ha).

Generally, those areas of Mundaring with few constraints to closer rural residential subdivision have already been subdivided or have subdivision potential under Town Planning Scheme No. 3. The remaining areas are constrained by Local Natural Areas, bushfire hazard and water catchments, and also in some areas by the existing subdivision pattern and effluent disposal capacity. Accordingly, it is recommended that Local Planning Scheme No. 4 generally maintain existing rural residential lot sizes or subdivision potential.

One exception to this is Lots 9, 112 and 1698 Gill Street, subject of Amendment No. 48 to Town Planning Scheme No. 3, which was advertised several years ago but at the time of writing has not been determined. This Amendment proposes to rezone land to Rural Landscape Living 1/2 (meaning that the 1 ha lot size will be achievable subject to that layout being shown in an endorsed LSIP). The subject land is well vegetated and hence has an Extreme bushfire hazard and thus the proposal is generally inconsistent with this Strategy.

However, this Amendment was prepared, adopted and advertised before the Shire conducted its bushfire hazard assessment mapping for this Strategy and before the preparation of the Local Biodiversity Strategy. Therefore it is considered onerous to retrospectively reject that proposal on the basis of Local Natural Areas and bushfire hazard, and that reflecting that Amendment in Local Planning Scheme No. 4 will not constitute a precedent because the Amendment predates the Scheme, this Strategy and the Local Biodiversity Strategy. However, it will be necessary for any subdivision of the land to adequately address the issue of bushfire hazard and it would be desirable for any subsequent subdivision to assist in providing vehicular access between Thomas Road and Gill Street.

Another area that may warrant zoning for closer subdivision is Lots Pt 1 (1650), 2 (1590), 3 (1580) and 100 (1750) Stoneville Road, Mundaring. Located adjacent to the Mundaring urban area and with good access on Stoneville Road, the land may have potential for rural residential subdivision down to a minimum of 1 ha subject to an appropriate subdivision design and access solution. Accordingly, it is recommended that Rural Residential 1 zoning may be supported over that land subject to demonstration that a possible subdivision layout over the cited lots could provide an appropriate access arrangement and comply with the requirements of the *Planning for Bushfire Protection Guidelines (2010)*.

Stoneville

Stoneville contains extensive areas zoned Rural Landscape Living under Town Planning Scheme No. 3. Nearly all of these areas have subdivision codes (of 1, 1/2, 2 or 2/4), with only a few areas where no subdivision is permitted. There are many properties that have yet to be subdivided to their full potential, though generally these areas are fragmented and mostly comprise properties which can only be subdivided into a few lots. Most, but not all, of the properties with subdivision potential are subject to an endorsed LSIP.

It is intended to generally maintain existing lot sizes or subdivision potential throughout Stoneville, given the constraints of Local Natural Areas, bushfire hazard and existing subdivision patterns. Also, it is necessary to maintain a rural buffer between the existing Stoneville residential area and the proposed North Stoneville ("Stoneville" Townsite) development, to continue development of the hills portion of the Shire in the form of discreet villages.

It is proposed to include those areas within the Special Purpose zone for the proposed North Stoneville ("Stoneville Townsite") development that have been subdivided for rural residential use within the Rural Residential zone in Local Planning Scheme No. 4.

Reserve 25199, the site of the Kath French Centre, operated by the Department for Child Protection, is currently zoned Rural Landscape Living under Town Planning Scheme No. 3, with no subdivision permitted. At the time of writing, it is proposed to include this site in a Special Use zone to reflect existing and recent use of the site. However, it is understood that some of the site may no longer be required for that purpose. If and as some or all of the site becomes surplus to requirements, consideration can be given to rezoning that land back to Rural Residential and allowing subdivision to lot sizes consistent with the adjacent area.

Sawyers Valley

Outside of the Sawyers Valley residential area, nearly all privately owned land in the locality of Sawyers Valley is zoned Rural Landscape Living under Town Planning Scheme No. 3. Most of this land has a subdivision code (of 1, 1/2, 2 or 2/4).

Except for several lots in the northwestern portion of Sawyers Valley, most Rural Landscape Living zoned land has already been subdivided to the full potential under Town Planning Scheme No. 3.

Two small areas on Throssell Street and Sexton Street have been identified where closer rural residential subdivision is appropriate to capitalise on the relatively close proximity to service and facilities in Sawyers Valley and Mundaring. These areas are primarily cleared and have adequate on-site effluent disposal capacity.

Similarly, closer rural residential subdivision may also be possible in the street block bounded by Lacey, Forrest, Stevens, Eagle and Walker Streets and Lemney Road. Rural Residential 1 zoning may be supported over that street block subject to demonstration that a possible subdivision layout over the cited lots could provide appropriate access arrangements, avoid the creation of battleaxe lots or long, narrow lots and comply with the requirements of the *Planning for Bushfire Protection Guidelines (2010)*.

Land south of Houston Street, between Lion Street and Bambrook Street, in both Sawyers Valley and Mount Helena, may be suitable for closer rural residential subdivision (by rezoning from Rural Residential 4 from Rural Residential 2), subject to demonstration of adequate on-site effluent disposal capacity, appropriate watercourse protection, and a mechanism for ensuring no adverse impact on new residences from the operations of vineyards (which may require removal of the vineyards prior to any subdivision).

Other than these areas, the constraints of Local Natural Areas, bushfire hazard, effluent disposal capacity and existing subdivision patterns warrant maintaining existing lot sizes and subdivision potential.

Some lots in the northeast of Sawyers Valley are proposed to be zoned Rural Small Holdings to reflect their existing lot size and use. Some of these lots may be considered for potential light industrial use (see section 4.5.5 above), but in the interim maintaining existing lot sizes is recommended.

Mount Helena

Mount Helena includes extensive areas zoned Rural Landscape Living under Town Planning Scheme No. 3 as well as, in the north and northeast of the locality, many larger properties zoned General Rural. Much of the land zoned Rural Landscape Living has subdivision codes (of 1, 1/2, 2 or 2/4), although there are substantial areas without a subdivision code, where no subdivision is permitted under Town Planning Scheme No. 3. No subdivision of the General Rural zoned land is permitted under Town Planning Scheme No. 3.

There has been substantial rural residential subdivision in Mount Helena, but in the west and southwest of the locality of Mount Helena, there are many properties that have yet to be subdivided to their full potential. Generally these areas are fragmented and mostly comprise properties which can only be subdivided into a few lots. Many, but not all, of the properties with subdivision potential are subject to an endorsed LSIP.

Three areas in Mount Helena are subject of Amendments to Town Planning Scheme No. 3 (Amendment No. 45, 55 and 57) which were advertised several years ago but at the time of writing have only recently been determined. Amendments No. 45 and 57 related to General Rural zoned land on Bunning and Trimble Roads in the northwest of Mount Helena, and rezoned land to General Rural 1, which allowed subdivision down to a minimum lot size of 10 ha. Amendment No. 55 rezoned Pt Lot 27 Lot 29 Bunning Road, just north of the Mount Helena residential area, from Rural Landscape Living (uncoded) to Rural Landscape Living 2/4, allowing 2 ha lots subject to that subdivision pattern being shown in an endorsed LSIP.

Some limited areas of Mount Helena have been identified where there is scope for intensification of rural residential subdivision potential in relatively close proximity to services and facilities in Mount Helena. These are areas which are primarily cleared and have adequate effluent disposal capacity. Among these areas is land on Bunning Road, Merebein Road, William Road and Neptune Street, including the area covered by Amendment No. 55. Also, the land bounded by Lion Street, Bernard Street and Elliott Road is appropriate for Rural Residential 1 zoning, given the area is primarily cleared or parkland cleared, close to the Mount Helena townsite and already contains several lots of around 1 ha. These areas have been zoned and coded appropriately in Local Planning Scheme No. 4.

Changing the zoning of Lot 28 (745) Alison Street from Rural Residential 4 to Rural Residential 2 is supported. Although only relatively small portions of the lot are cleared, the change in zoning and subsequent subdivision can facilitate improved vehicular access/egress in the area. It would also be consistent with the zoning of adjacent lots. To achieve the improved vehicular access/egress in the area, construction of Whitlam Street, Mount Helena should be a condition of subdivision of Lot 28, and provision of a subdivisional road from Whitlam Street to Bunning Road should be a condition of other subdivision within the street block.

Land within the street block bounded by Hummerston, Lion and Bernard Streets and Brazier Road is located in close proximity to the Mount Helena urban area, and will be directly opposite the urban area if land west of Lion Street is zoned Urban in the MRS as discussed in Section 5.2.14 above. Consideration should be given to Rural Residential 1 zoning over the whole street block, as opposed to just individual lots, if and when the adjacent area to the west of Lion Street is zoned Urban in the MRS.

Land south of Houston Street, between Lion Street and Bambrook Street, in both Sawyers Valley and Mount Helena, may be suitable for closer rural residential subdivision (by rezoning from Rural Residential 4 from Rural Residential 2), subject to demonstration of adequate on-site effluent disposal capacity, appropriate watercourse protection, and a mechanism for ensuring no adverse impact on new residences from the operations of vineyards (which may require removal of the vineyards prior to any subdivision).

Land in Mount Helena zoned General Rural is mostly proposed to be zoned Rural Small Holdings in Local Planning Scheme No. 4, to reflect the existing lot sizes and land use. An area of General Rural zoned land in the northwest corner of Mount Helena north of Cameron Road and west of Bunning Road, and subject of Amendments No. 45 and 57, is proposed to be zoned Rural Small Holdings 10, to allow subdivision down to a minimum lot size of 10 ha. This lot size will still allow for some productive agricultural use of the land should owners wish. The area is primarily cleared and located in close proximity both to Mount Helena and the proposed Hills Spine Route. Structure planning and subsequent subdivision of this area should provide for the continuation of the Hills Spine Route east to Bunning Road.

It is possible that some portions of this area may be suitable for rural residential subdivision, to lot sizes below 10 ha, subject to detailed environmental investigation and structure planning. This can be investigated and such rezoning and subdivision pursued where the land is environmentally capable of sustaining smaller lots, subject to vegetation protection and, where appropriate, rehabilitation.

Two areas have been identified where additional future rural residential subdivision may be appropriate. The first of these is an area of land on Alison Street and Grigg Road, north of the existing large dam, and east across to Neptune Street. The area is primarily cleared and has good proximity to the services and facilities in Mount Helena. Where there is adequate effluent disposal capacity and subject to adequate watercourse protection, rural residential subdivision and use could be supported. While this Strategy identifies this land for further investigation and potential rezoning to Rural Residential, it has not been included as such in Local Planning Scheme No. 4 at this stage. The supply of and demand for rural residential land near Mount Helena over time can help determine when and if rezoning of the land is supported.

The proximity of Lots 1940 (1395) and 2350 (1695) Neptune Street to the Mount Helena townsite warrants consideration of Rural Residential zoning, but demonstration of the ability to overcome bushfire hazard and biodiversity protection requirements is required. Consideration may be given to supporting Rural Residential zoning over those lots subject to:

- demonstration that compliance with the vehicular access requirements of the Planning for Bush Fire Protection Guidelines (2010), including (but not necessarily limited to) construction of the unmade portion of the Neptune Street road reserve and possible upgrading of Whitlam Street is practicable and feasible;
- identification of a mechanism for ensuring that the road construction will be at the proponent's cost (this may require a legal agreement);
- demonstration that subdivision of the lots can occur in such a way as to comply with all requirements of the Planning for Bush Fire Protection Guidelines, including setbacks from areas of Extreme bush fire hazard, while avoiding or minimising removal of Local Natural Areas on the lots;
- demonstration of adequate on-site effluent disposal capacity; and
- adequate watercourse protection.

Another area of potential future rural residential subdivision is land on Kingston and Bunning Roads, in the vicinity of an existing poultry farm on Bunning Road. The land currently is constrained by the buffer to the poultry farm. In the event of the closure of that poultry farm, rezoning to allow subdivision down to a minimum lot size of 2 ha could be investigated and pursued, again subject to considering the supply of and demand for rural residential land near Mount Helena.

Rural Residential 4 zoning of Lot 56 (2840) Bunning Road would provide an incentive for the closure of the poultry farm on the lot. Closure of the poultry farm and removal of associated structures should be a prerequisite to subdivision of the lot. Consideration could be given to incorporating a Special Control Area into the Scheme to enforce these requirements.

An area of currently Rural Landscape Living zoned land southeast of the Mount Helena Local Centre has been identified in section 5.2.14 as a potential future residential expansion area. This would require further investigation and rezoning from Rural to Urban under the MRS. In the interim, current rural residential lot sizes and subdivision potential should be maintained, so as not to further fragment the land and hinder coordinated residential subdivision.

Outside of the abovementioned areas, existing lot rural residential and rural small holdings sizes and subdivision potential should be maintained, to reflect the constraints of bushfire hazard, Local Natural Areas and subdivision patterns, and to retain some rural land in the locality which is large enough to be used productively.

Chidlow

The locality of Chidlow has extensive areas zoned Rural Landscape Living under Town Planning Scheme No. 3, to the west, north and east of the residential area. Many of these areas have a subdivision code, either 2 or 2/4. A very large proportion of the Rural Landscape Living zoned land has no subdivision code, and thus no further subdivision permitted, although much of this area had already been subdivided into 2 ha lots prior to the gazettal of Town Planning Scheme No. 3. Of the area with a subdivision code, a few properties still have subdivision potential, including some large properties north of the town, between Rosedale and Lilydale Roads. The rural residential areas in Chidlow include both primarily cleared former farmland and several subdivisions of land comprised almost entirely of Local Natural Areas.

There is also a small area of land zoned General Rural, west of the residential area, north of Elliott Road and south of Lake Leschenaultia.

Some mostly cleared areas have been identified as suitable for additional rural residential subdivision potential. Land between Tear Street and Thornwick Crescent, and on Ash Road, to the east of Chidlow, is suitable for subdivision down to a minimum lot size of 2 ha, and offers a location in close proximity to the village of Chidlow. A few areas to the north of the town, on Tarrup Street and Kerun Road, are similarly suitable for subdivision down to 2 ha, and such zoning represents a logical rounding off of subdivision in an area almost entirely zoned to allow 2 ha lots.

Some land northeast of the village, along Old Northam Road, has been identified as suitable for limited subdivision into larger lots. Much of this area is proposed to be zoned Rural Small Holdings to reflect existing and potential productive agricultural uses.

Given that a portion of Lot 3 (6130) Old Northam Road is cleared, subdivision may be appropriate, subject to adequately resolving issues of bushfire hazard. Accordingly, the lot is to be zoned Rural Residential 8 and included in a Special Design Area Special Control Area to apply specific controls relating to emergency access. Rural land to the north of Old Northam Road should be considered on the basis of a precinct approach.

A group of seven cleared or mostly cleared lots zoned Rural Small Holdings 20 on Thomas Street and Douglas Roads (Lots 5, 6, 7, 8 Douglas Road and Lots 1502, Pt 1502 and 1503 Thomas Street), to the south of Lake Leschenaultia Chidlow, comprises an area where rezoning to provide for closer subdivision and development may be supported, subject to:

- adequate watercourse protection;
- demonstration of adequate on-site effluent disposal capability;
- maximising the retention/protection of Local Natural Areas and consideration of identified Regional Ecological Linkages;
- compliance with the requirements of the *Planning for Bush Fire Protection Guidelines*; and

- appropriate access and egress arrangements.

An area of land between Old Northam Road and Tear Street, zoned Rural Small Holdings 20 under LPS 4, may have potential for rural residential zoning and subdivision and enhanced watercourse protection, subject to watercourse protection and revegetation within Public Open Space, demonstration of adequate on-site effluent disposal capability, and retention/protection of Local Natural Areas.

One concern with the rural residential area northwest of the village is that Rosedale Road forms the only route into and out of the area for vehicles. For improved bushfire safety, multiple escape routes are necessary. Accordingly, structure planning and subdivision, should ensure that a road link is provided between Laguna Vista and Lilydale Road, to provide an alternative escape routes. Also, an escape route to the west is desirable, particularly given the Extreme bushfire hazard in the Keenan Road area. Options should be investigated for a road link between Mount Helena and the Rosedale/Keenan Road area for bushfire emergency access. Subdivision of land which would not otherwise be supported by the Scheme may be required to secure a route for such road link.

Other than the abovementioned proposals, no other additional rural residential or rural small holdings subdivision potential is supported in Chidlow. This reflects the constraints of Local Natural Areas, bushfire hazard and effluent disposal capacity, and the desirability of allowing for ongoing agricultural production in appropriate areas.

The Lakes/Beechina

The localities of The Lakes and Beechina are located to the east and southeast of Chidlow. Beechina, located west of the Great Eastern Highway, contains both land zoned Rural Landscape Living 2 and land zoned General Rural under Town Planning Scheme No. 3. All rural land in The Lakes, located east and southeast of Great Eastern Highway, is zoned General Rural under Town Planning Scheme No. 3. Of the land zoned Rural Landscape Living 2 in Beechina, all but two lots have been subdivided to their full potential.

Much of the land zoned General Rural under Town Planning Scheme No. 3 is proposed to be zoned Rural Small Holdings, to reflect existing lot sizes and land use. An isolated lot surrounded by forested water catchment land is proposed to be zoned Rural Residential to reflect its small size and constraints on land use.

It is not considered that rural land in The Lakes and Beechina is suitable for further subdivision. Rather, existing rural residential and rural small holdings lot sizes should be generally maintained, to reflect the constraints of bushfire hazard, Local Natural Areas and existing subdivision patterns, to provide the potential for continued productive agricultural uses and in recognition of potential impacts from mineral/resource extraction in The Lakes and nearby in the adjacent Shire of Northam.

Wooroloo

Wooroloo is located northeast of Chidlow. The locality extends north to beyond the reserve for the proposed Perth-Adelaide Highway (see section 4.6.3.1 above) and east to the Shire boundary, near Wundowie. Rural land within the locality of Wooroloo is mostly zoned General Rural under Town Planning Scheme No. 3, although there are areas to the west, east and south of the village that are zoned Rural Landscape Living. The locality also includes land used for Wooroloo and Acacia Prisons; that land is reserved for Public Purposes under the MRS.

Land west of the village, between Needham and Mayo Roads, is zoned Rural Landscape Living 2; most of this land has been subdivided to its full potential. East of the village, a larger area is zoned Rural Landscape Living, with no subdivision permitted under Town Planning Scheme No. 3. This land includes a range of lot sizes, both small rural residential lots adjacent to the village and larger lots currently used as farmland. Another small area of Rural Landscape Living zoned land is located on Government Road south of the village and is also zoned Rural Landscape Living, with no subdivision permitted.

For most General Rural zoned land in Wooroloo, no subdivision is permitted under Town Planning Scheme No. 3. However, two General Rural zoned areas have a subdivision code. One is land north of Needham and Mayo Roads, zoned General Rural 1 (10 ha minimum lot size), the other is north of Rahne Road and is zoned General Rural 2 (20 ha minimum lot size). All of these areas other than a single lot north of Rahne Road have been subdivided to their full potential under the Scheme. Amendment No. 49 to Town Planning Scheme No. 3, which was recently determined, similarly rezoned land on Liberton Road, southwest of the village, to allow subdivision to create 10 ha lots.

Areas for potential rural residential subdivision, down to a minimum lot size of 2 ha, have been identified in close proximity to the village, along Needham and Mayo Roads. In some cases, this represents a logical rounding off of existing rural residential areas; in others it provides an opportunity for rural living in close proximity to the facilities in Wooroloo.

Given the existing lot sizes and land use, land south of the proposed Perth – Adelaide Highway that is currently zoned General Rural under Town Planning Scheme No. 3 is proposed to be included in the Rural Small Holdings zone under Local Planning Scheme No. 4. Some limited rural small holdings subdivision potential is provided for in some areas in relatively close proximity to the Wooroloo townsite. Amendment No. 49 has been reflected in this Rural Small Holdings 10 zoning. For consistency, land north of the proposed Perth-Adelaide Highway zoned General Rural 2 under Town Planning Scheme No. 3 will be zoned Rural Small Holdings 20 in Local Planning Scheme No. 4.

While blanket Rural Small Holdings subdivision across Loc 7769 Jason Street is not supported due to the issues of bushfire hazard and biodiversity protection, some appropriate subdivision could be beneficial in improving road connectivity in an area of largely Extreme bushfire hazard. Accordingly, rezoning to provide for limited Rural Small Holdings subdivision, concentrated in the northern portion of the property, may be supported subject to further investigation and to:

- providing, in conjunction with adjacent properties, road connections between Jason Street, Liberton Road and Forge Drive/Anvil Way; and
- identifying appropriate arrangement of lot boundaries, sizes and, possibly, zones, across the subject land in a way which complies with the requirements of the *Planning for Bush Fire Protection Guidelines (2010)*, adequately protects the watercourse on the property and maximises retention/protection of Local Natural Areas.

Other than the abovementioned proposals, no further subdivision of rural land in Wooroloo is proposed by this Strategy. This is to reflect the constraints of bushfire hazard and Local Natural Areas, but also the desirability of retaining lot sizes conducive to productive agricultural use.

Bailup

Bailup is located in the far northeast of the Shire, north of Wooroloo. The locality is rural and abuts the City of Swan (Gidgegannup) and Shires of Northam (Wundowie) and Toodyay (Morangup). Other than one Special Purpose zone, privately owned land in Bailup is zoned General Rural under Town Planning Scheme No. 3. One area, on the corner of Bailup and Burma Roads, is zoned General Rural 4, allowing subdivision down to a 40 ha minimum; this area has been fully subdivided. All other General Rural zoned land in Bailup is not permitted to be subdivided under Town Planning Scheme No. 3.

Amendment No. 42 to the Shire's Town Planning Scheme No. 3 proposed to rezone Lot 8 Burma Road to General Rural 2/4, allowing subdivision down to 20 ha if shown in an endorsed LSIP. Zoning this land Rural Small Holdings under Local Planning Scheme No. 4 is supported. However, rather than 20 ha, it is recommended that a 40 ha minimum apply, reflecting the constraints of bushfire hazard and Local Natural Areas on the site and the desirability of not setting a perceived precedent for further subdivision in the locality ahead of a limited rural strategy (see below). It is noted that the purported rationale for 20 ha subdivision in the Amendment was flawed in that emphasis was given to nearby 20 ha "lots" as justification for similar subdivision, whereas the "lots" referred to are all part of Reserve 35956, a large bushland reserve proposed to be added to the Local Reserve for Conservation under Local Planning Scheme No. 4.

The balance of rural land in Bailup is intended to be zoned General Agriculture, reflecting prevailing lot sizes and land use. It is recommended that existing rural lot sizes be maintained pending preparation of a limited rural strategy over General Agriculture zoned land, and adjacent larger Rural Small Holdings zoned lots, in Bailup and Wooroloo (see section 4.5.6 above for more detailed discussion of this area).

The Department of Mines and Petroleum has advised that a significant clay resource exists on Reserve 35956, on Burma Road in Bailup and expressed an objection to a zoning that confers subdivision potential on land within 500 m of that clay resource on that Reserve (Figure 44). It is appropriate to recognise this 500 m buffer, and to avoid permitting any new dwellings or other sensitive land uses within it.

Recommendations

- Generally support those amendments to Town Planning Scheme No. 3 proposing intensification of subdivision potential for rural living that have been advertised for public comment but not yet determined and incorporate these into Local Planning Scheme No. 4
- Incorporate Rural Residential and Rural Small Holdings zones into Local Planning Scheme No. 4, consistent with the direction of State Planning Policy 2.5 Agriculture and Rural Land Use Planning
- Generally use the 4 ha threshold specified in State Planning Policy 2.5 for existing or intended lot sizes to determine whether individual areas are zoned Rural Residential or Rural Small Holdings, but include lots larger than 4 ha which are comprised almost entirely of Local Natural Areas in the Rural Residential zone rather than Rural Small Holdings zone to reflect the intended use of such lots as residential in a rural conservation setting rather than hobby farming and potentially productive use of the land
- Apply a subdivision code to all land zoned Rural Residential or Rural Small Holdings specifying the minimum lot size for that area in hectares, with this code to be set so that further subdivision is not possible where this is the intent of the Scheme for a particular area

- Generally require building envelopes in the Rural Residential zone
- Generally do not require building envelopes in the Rural Small Holdings zone
- Include those building envelopes created in those LSIPs being revoked where subdivision has proceeded in an official Register of Building Envelopes so that those building envelopes will remain operative under Local Planning Scheme No. 4
- Include all building envelopes established in structure plans, or as conditions of subdivision or development approval, in a formal Register of Building Envelopes which is to be digitised and made available for inspection along with the Scheme documents
- Where a building envelope has been identified for a lot, require all built development to take place within the envelope
- Approve proposed relocations of building envelopes, where consistent with the objectives for building envelopes in the Residential zone and where this will not cause greater adverse visual impact than the existing building envelope(s), generally without the need for neighbour consultation
- Revoke those Local Subdivision and Infrastructure Plans (LSIPs) operational under Town Planning Scheme No. 3 which are no longer required due to subdivision having been completed, and include those LSIPs which are to continue operation under Local Planning Scheme No. 4 in a specific schedule of continuing structure plans
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to determine the required extent of a structure plan, with the extent to be sufficient to provide adequate coordination of subdivision and/or development, having regard to various relevant matters
- Incorporate a provision in Local Planning Scheme No. 4 allowing the Shire to waive the requirement for a structure plan for infill subdivision where it considers that the adjacent/nearby area having subdivision potential and the number of lots that could be created are so limited that the coordination of subdivision and development by way of a Structure Plan is not required
- Incorporate a provision in Local Planning Scheme No. 4 prohibiting creation of further battleaxe lots, except where any alternative subdivision layout without battleaxe lots is rendered impractical by the shape or topography of the land or other factor(s), or where battleaxe lots provide an overriding benefit in terms of reduced environmental impact or improved traffic circulation which outweighs their adverse impacts
- Incorporate provisions in Local Planning Scheme No. 4 relating to outbuildings based on those in Amendment No. 74 to Town Planning Scheme No. 3, once submissions on that amendment and any possible changes resulting from those submissions are considered and the amendment is approved and gazetted
- Include Animal Establishment as an A use (discretionary and subject to mandatory advertising for public comment) in the Rural Small Holdings zone

- For any proposed kennels (which fall within the use class of Animal Establishment) within the Rural Small Holdings zone, require the applicant to demonstrate that the proposed kennels will not generate noise resulting in non-compliance with the Environmental Protection (Noise) Regulations 1997

Recommendations relating to specific localities:

- Maintain rural residential lot sizes in Swan View to reflect the constraints of Local Natural Areas, Jane Brook, a poultry farm/hatchery on Pechey Road and bushfire hazard from the adjacent John Forrest National Park
- Include land south of Wilkins Street, Bellevue in the Rural Small Holdings zone, with a Rural Small Holdings code of 40, to maintain the existing lot size, pending investigation of possible residential use of that portion outside of the ANEF 25-30 contours for residential use and rezoning
- Investigate potential rezoning of land north and south of Helena Valley Road and within the ANEF 25 contour from Rural to Urban under the MRS, to accommodate service commercial and light industry uses suitable for a mixed business precinct that are consistent with State Planning Policy 5.1 Land Use Planning in the Vicinity of Perth Airport and to provide development which is of a high quality design to provide an attractive entrance to Helena Valley
- In the future, investigate Lot 27 Clayton Road for a potential change in land use, taking into account the heritage values, rural setting and environmental conditions of the site
- Investigate the potential for closer subdivision, either residential or special residential (which would also require amendment of the MRS) or smaller-lot rural residential for land north and south of Helena Valley Road, between the two existing areas of MRS Urban zoned land, but having strong regard for landscape protection, floodplain management and protection of watercourses traversing the area
- Ensure those parts of the two Bush Forever sites in Helena Valley that fall on privately owned land are protected from inappropriate subdivision and development that would disturb or adversely impact on their ecological values
- Zone Lot 2 (2670) Helena Valley Road Rural Residential 2 in LPS 4, with a Special Design Area Special Control Area that contains appropriate provisions to ensure protection of the Bush Forever site by way of the use of 2 ha as an average rather than minimum lot size for the overall landholding, consistent with Clause 5.9.1.4 of the Scheme. These provisions should prevent subdivision of the Bush Forever site, and any development of the Bush Forever site other than appropriate incidental development associated with recreational or conservation use. The Special Design Area should be removed only when another appropriate mechanism has been put in place in the Scheme to protect the Bush Forever site
- In future planning for, and subdivision and development of, the balance portion of Lot 2 (2670) Helena Valley Road, seek to protect the two creeks and the vegetation outside of the Bush Forever site

- Other than the area referred to in the above recommendations, generally maintain existing rural residential and rural small holdings lot sizes in Helena Valley to reflect the constraints of floodplain management, Local Natural Areas, bushfire hazard and landscape values
- Support subdivision of rural residential land on Victor Road east of the (unconstructed) Hudman Road reserve down to 1 ha to capitalise on proximity to facilities in Darlington
- Other than the area referred to in the above recommendation, generally maintain existing rural residential and rural small holdings lot sizes in Darlington to reflect the constraints of bushfire hazard, Local Natural Areas and the Middle Helena Catchment
- Generally maintain existing rural residential and rural small holdings lot sizes in Glen Forrest to reflect the constraints of bushfire hazard, Local Natural Areas, the Middle Helena Catchment and landscape values, and to maintain a rural buffer between townsites
- Generally maintain existing rural residential and rural small holdings lot sizes or subdivision potential throughout Mahogany Creek
- Maintain current larger lot sizes north of Richardson Road, Hovea to reflect the constraints of bushfire hazard and Local Natural Areas and include in Rural Small Holdings zone
- Generally maintain rural residential lot sizes throughout Hovea to reflect the constraints of bushfire hazard and Local Natural Areas
- Only consider any upcoding of Rural Residential areas in Hovea (although noting upcoding is generally unlikely to be supported given Hovea's prevalence of Local Natural Areas, steep topography and the Extreme bush fire hazard that applies to nearly all of the locality) after completion of the bushfire access audit and strategy, and taking the recommendations of the bushfire strategy into account
- Pay particular attention to Hovea in preparing a bushfire access audit and strategy given its Extreme bushfire hazard, culs-de-sac, steep topography and proximity to John Forrest National Park
- Generally maintain existing rural residential lot sizes or subdivision potential throughout Parkerville to reflect the constraints of bushfire hazard and Local Natural Areas
- Maintain some rural residential or rural small holdings buffer between the existing Parkerville residential area and the proposed Parkerville Townsite Development (North Parkerville) and Stoneville Townsite Development (North Stoneville) to continue development of the hills portion of the Shire in the form of discreet villages
- Include those areas within the Special Purpose zone for the proposed North Parkerville ("Parkerville Townsite") development under Town Planning Scheme No. 3 that have been subdivided for rural residential use within the Rural Residential zone in Local Planning Scheme No. 4
- Reflect Amendment No. 48 to Town Planning Scheme No. 3 in Local Planning Scheme No. 4, but noting that adequate measures will be required to address bushfire hazard and, if possible, provide vehicular access between Thomas Road and Gill Street

- Support Rural Residential 1 zoning over Lots Pt 1 (1650), 2 (1590), 3 (1580) and 100 (1750) Stoneville Road, Mundaring, subject to demonstration that a possible subdivision layout over the cited lots could provide an appropriate access arrangement and comply with the requirements of the *Planning for Bushfire Protection Guidelines (2010)*
- Generally maintain existing rural residential and rural small holdings lot sizes or subdivision potential throughout Mundaring to reflect the constraints of bushfire hazard, Local Natural Areas, and water catchments
- Generally maintain existing rural residential lot sizes or subdivision potential throughout Stoneville to reflect the constraints of bushfire hazard, Local Natural Areas and existing subdivision patterns
- Maintain some rural residential buffer between the existing Stoneville residential area and the proposed Stoneville Townsite Development (North Stoneville) to continue development of the hills portion of the Shire in the form of discreet villages
- Include Reserve 25199 Woodlands Road, Stoneville in the Special Use zone and allow Residential Building, Educational Establishment, Office and uses incidental to these, to reflect existing and recent use of the site
- Include those areas within the Special Purpose zone for the proposed North Stoneville ("Stoneville Townsite") development under Town Planning Scheme No. 3 that have been subdivided for rural residential use within the Rural Residential zone in Local Planning Scheme No. 4
- Allow for increased rural residential subdivision potential in limited identified areas in Sawyers Valley which are primarily cleared and have adequate effluent disposal capacity, on Throssell and Sexton Streets, to facilitate further rural residential development in close proximity to the services and facilities in Sawyers Valley and Mundaring
- Support Rural Residential 1 zoning may be supported over in the street block bounded by Lacey, Forrest, Stevens, Eagle and Walker Streets and Lemney Road, subject to demonstration that a possible subdivision layout over the cited lots could provide appropriate access arrangements, avoid the creation of battleaxe lots or long, narrow lots and comply with the requirements of the *Planning for Bushfire Protection Guidelines (2010)*
- Support rezoning from Rural Residential 4 from Rural Residential 2 of land south of Houston Street, between Lion Street and Bambrook Street, in both Sawyers Valley and Mount Helena, subject to demonstration of adequate on-site effluent disposal capacity, appropriate watercourse protection, and a mechanism for ensuring no adverse impact on new residences from the operations of vineyards (which may require removal of the vineyards prior to any subdivision)
- Other than the areas referred to in the above recommendations, maintain existing rural residential and rural small holdings lot sizes and subdivision potential in Sawyers Valley to reflect the constraints of bushfire hazard and Local Natural Areas
- Reflect Amendments No. 45, 55 and 57 to Town Planning Scheme No. 3 in Local Planning Scheme No. 4

- Allow for increased rural residential subdivision potential in limited identified areas of Mount Helena which are primarily cleared and have adequate effluent disposal capacity, on Bunning Road, Merebein Road, William Road and Neptune Street, and the land bounded by Lion Street, Bernard Street and Elliott Road, to facilitate further rural residential development in close proximity to the services and facilities in Mount Helena
- Change the zoning of Lot 28 (745) Alison Street from Rural Residential 4 to Rural Residential 2, require construction of Whitlam Street, Mount Helena as a condition of subdivision of Lot 28, and require provision of a subdivisional road from Whitlam Street to Bunning Road as a condition of other subdivision within the street block
- Consider supporting Rural Residential 1 zoning of the land bounded by Hummerston, Lion and Bernard Streets and Brazier Road, if and when the adjacent area to the west of Lion Street is zoned Urban in the MRS and on the basis of Rural Residential 1 zoning applying to the whole street block rather than just individual lots
- Include land north of Cameron Road and west of Bunning Road in Mount Helena in the Rural Small Holdings zone, with a minimum allowed lot size of 10 ha
- Provide for continuation of the Hills Spine Route east to Bunning Road in the structure planning and subdivision of land north of Cameron Road and west of Bunning Road, Mount Helena, referred to in the above point
- Subject to detailed environmental investigation and structure planning, consider possibility of a portion of the land north of Cameron Road and west of Bunning Road, Mount Helena being zoned Rural Residential and allowing lot sizes smaller than 10 ha, where land is environmentally capable of sustaining smaller lots, subject to vegetation protection and, where appropriate, rehabilitation
- Investigate the potential of land on Alison Street and Grigg Road, Mount Helena, north of the existing large dam, and across to Neptune Street, for rural residential subdivision and development, subject to adequate watercourse protection, to facilitate further rural residential development in close proximity to the services and facilities in Mount Helena on primarily cleared land with adequate effluent disposal capacity
- Pursue amendment to Local Planning Scheme No. 4 to rezone any land identified as suitable for rural residential subdivision in the investigations referred to in the above point, subject to demonstration of sufficient demand for further rural residential subdivision in the locality

- Consider supporting Rural Residential zoning over Lots 1940 (1395) and 2350 (1695) Neptune Street subject to demonstration that compliance with the vehicular access requirements of the *Planning for Bush Fire Protection Guidelines (2010)*, including (but not necessarily limited to) construction of the unmade portion of the Neptune Street road reserve and possible upgrading of Whitlam Street is practicable and feasible; identification of a mechanism for ensuring that the road construction will be at the proponent's cost (this may require a legal agreement); demonstration that subdivision of the lots can occur in such a way as to comply with all requirements of the *Planning for Bush Fire Protection Guidelines*, including setbacks from areas of Extreme bush fire hazard, while avoiding or minimising removal of Local Natural Areas on the lots; demonstration of adequate on-site effluent disposal capacity; and adequate watercourse protection
- Zone Lot 56 (2840) Bunning Road Rural Residential 4 to provide an incentive for the closure of the poultry farm on the lot, and require closure of the poultry farm and removal of associated structures as a prerequisite to subdivision of the lot, and consider incorporating a Special Control Area into the Scheme to enforce these requirements
- Review and possibly increase rural residential subdivision potential on Bunning Road and Kingston Road, Mount Helena on land currently constrained by the buffer to the existing poultry farm on Bunning Road, in the event of the closure of that poultry farm, subject to demonstration of sufficient demand for further rural residential subdivision in the locality
- Other than the areas referred to in the above recommendations, maintain existing lot rural residential and rural small holdings sizes and subdivision potential in Mount Helena to reflect the constraints of bushfire hazard, Local Natural Areas and subdivision patterns, and to retain some rural land in the locality which is large enough to be used productively
- Allow for increased rural residential subdivision potential, down to a minimum lot size of 2 ha, on land east of Chidlow which is primarily cleared and has adequate effluent disposal capacity, between Tear Street and Thornwick Crescent, and on Ash Road, to facilitate further rural residential development in close proximity to the services and facilities in Chidlow
- Allow for increased rural residential subdivision potential in limited identified areas north of Chidlow, on Tarrup Street and Kerun Road, which are primarily cleared and have adequate effluent disposal capacity, to facilitate coordinated rural residential development in relatively close proximity to the facilities and services in Chidlow
- Allow for limited additional rural residential and rural small holdings subdivision potential to northeast of Chidlow along Old Northam Road, reflecting the constraints of bushfire hazard and Local Natural Areas and allowing for ongoing agricultural production where appropriate
- Change Lot 3 (6130) Old Northam Road, Chidlow from Rural Small Holdings 20 to Rural Residential 8 and incorporate the lot in a Special Design Area Special Control Area to apply specific controls relating to emergency access, and consider the rural land to the north of Old Northam Road on the basis of a precinct approach

- Support rezoning of Lots 5, 6, 7, 8 Douglas Road and Lots 1502, Pt 1502 and 1503 Thomas Street, to the south of Lake Leschenaultia to provide for closer subdivision and development, subject to adequate watercourse protection, demonstration of adequate on-site effluent disposal capability, maximising the retention/protection of Local Natural Areas and consideration of identified Regional Ecological Linkages, compliance with the requirements of the *Planning for Bush Fire Protection Guidelines*, and appropriate access and egress arrangements
- Investigate potential Rural Residential zoning of an area of land between Old Northam Road and Tear Street, zoned Rural Small Holdings 20, subject to watercourse protection and revegetation within Public Open Space, demonstration of adequate on-site effluent disposal capability, and retention/protection of Local Natural Areas
- Other than the changes referred to in these recommendations, maintain existing lot rural residential and rural small holdings sizes and subdivision potential in Chidlow to reflect the constraints of bushfire hazard and Local Natural Areas
- In structure planning and subdivision, ensure a road link between Laguna Vista and Lilydale Road, Chidlow, to provide for alternative escape routes in the case of bushfire
- Investigate options for a road link between Mount Helena and the rural residential area northwest of Chidlow (Rosedale/Keenan Road area) for bushfire emergency access and pursue the selected option
- Generally maintain existing rural residential and rural small holdings lot sizes and subdivision potential in The Lakes and Beechina to reflect the constraints of bushfire hazard, Local Natural Areas and existing subdivision patterns, to provide for continued rural uses and in recognition of potential impacts from mineral/resource extraction in The Lakes and nearby in the adjacent Shire of Northam
- Allow for increased rural residential subdivision potential in limited identified areas of Wooroloo which are primarily cleared and have adequate effluent disposal capacity, allowing a minimum lot size of 2 ha, on Needham Road and Bailup Road, to facilitate rural residential development in close proximity to Wooroloo
- Include land north and northeast of Wooroloo, south of the proposed Perth – Adelaide Highway, and south of Wooroloo in the Rural Small Holdings zone to facilitate limited subdivision for rural small holdings use in relatively close proximity to Wooroloo
- Reflect Amendment No. 49 to Town Planning Scheme No. 3 by inclusion of Lot 3 Liberton Road, Wooroloo in the Rural Small Holdings zone, allowing a minimum lot size of 10 ha

- Investigate and potentially support rezoning of Loc 7769 Jason Street to provide for limited Rural Small Holdings subdivision, concentrated in the northern portion of the property, subject to providing, in conjunction with adjacent properties, road connections between Jason Street, Liberton Road and Forge Drive/Anvil Way, and identifying appropriate arrangement of lot boundaries, sizes and, possibly, zones, across the subject land in a way which complies with the requirements of the *Planning for Bush Fire Protection Guidelines (2010)*, adequately protects the watercourse on the property and maximises retention/protection of Local Natural Areas
- Other than the changes referred to in these recommendations, maintain existing lot rural residential and rural small holdings sizes and subdivision potential in Wooroloo to reflect the constraints of bushfire hazard and Local Natural Areas and the desirability of retaining lot sizes conducive to productive agricultural use
- Include Lot 8 Burma Road, Bailup in the Rural Small Holdings zone, with a minimum lot size of 40 ha, based partly on Amendment No. 42 to Town Planning Scheme No. 3, but also reflecting the constraints of bushfire hazard and Local Natural Areas and the desirability of not setting a perceived precedent for further closer subdivision in the locality ahead of a limited rural strategy
- Other than the change referred to in the above recommendation, maintain existing rural lot sizes in Bailup pending preparation of a limited rural strategy by including land in a General Agriculture zone, within which further subdivision will not be supported
- Avoid locating any new dwellings or other sensitive land uses within 500 m of the identified clay resource on Reserve 35956, Burma Road, Bailup

ADVERTISING

The Shire of Mundaring Local Planning Strategy certified for advertising on 14 September 2010.

Signed for and on behalf of the Western Australian Planning Commission.

*an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)*

Date _____

ADOPTED

The Shire of Mundaring hereby adopts the Local Planning Strategy, at the meeting of the Council held on the 31st day of July 2012.

SHIRE PRESIDENT

CHIEF EXECUTIVE OFFICER

ENDORSEMENT

Endorsed by the Western Australian Planning Commission on

*an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)*

Date _____