

ATTACHMENT 1

City of Joondalup Submission on the Liveable Neighbourhoods Community Design Code

**POLICY OF THE WESTERN AUSTRALIAN
PLANNING COMMISSION FOR TESTING AND REVIEW
June 2000**

A Western Australian Government Sustainable Cities Initiative

ATTACHMENT 1

NOTE – This report is a text only copy of Liveable Neighbourhoods Community Design Code. The Liveable Neighbourhoods Community Design Code contains tables and diagrams that are not presented here.

Comments forming the submission by the City of Joondalup are generally placed beside the objective or regulation they refer to. In some circumstances they are included in a dot-line box similar to the box around this text.

Pages providing background and detail on applicant requirements are often free of comment as over all positions on these sections IS included in the report of Council. The report is forms part of the submission by the City of Joondalup.

General Document Layout Comment

Objective and Regulations are not numbered with exclusive numbering. That is there are six objectives called O1 and six regulations called R1 etc. We suggest the numbering reflect the paragraph e.g. O2.1 for Objective 1 of Element 2.

A contents section with sub heading would assist in using the document.

An index would assist the reader in using the document and is important given that some subjects are dealt with under two or more sections.

City of Joondalup

ATTACHMENT 1

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INTRODUCING LIVEABLE NEIGHBOURHOODS**INTRODUCTION**

This section is in three parts:

- Introduction to Edition 2;
- Background – towards sustainable communities; and
- Liveable Neighbourhoods structure.

Purpose

The Western Australian Planning Commission (the Commission) plays a central coordination role in the State planning process. It undertakes regional strategic and statutory planning and administers central subdivision powers under the *Town Planning and Development Act 1928*.

Liveable Neighbourhoods has been prepared to implement the objectives of the *State Planning Strategy* that aim to guide the sustainable development of Western Australia to 2029. *Liveable Neighbourhoods* operates as a development control policy, or code, to facilitate the development of sustainable communities.

Liveable Neighbourhoods addresses both strategic and operational aspects of subdivision development in a code framework

Liveable Neighbourhoods replaces issues-based policies with an integrated planning and assessment policy for the preparation of structure plans and subdivision layouts to guide the further development of Perth and the regional cities and towns.

Edition 2 of *Liveable Neighbourhoods* replaces Edition 1. The refinements and updates are based upon operational practice. Key changes include:

- simplified context and site analysis and application requirements;
- resolution of anomalies and up-dated cross-sections in E2 Movement Network. Street Layout, Design and Traffic Management Guidelines will be released soon to augment an understanding of traffic management principles under *Liveable Neighbourhoods*;
- modification of requirements for truncations;

- reconstitution of Building Access Guidelines as Detailed Area Plans in accordance with the Draft Model Text Provisions for Structure Plans.

Where *Liveable Neighbourhoods* applies

Liveable Neighbourhoods is an assessment tool for structure plans and subdivision for new urban (predominantly residential) development in the metropolitan area and country centres, where two or more lots are created on “greenfields” sites at the urban edge, or on large urban infill sites within developed areas.

Interface between *Liveable Neighbourhoods* and conventional proposals

Liveable Neighbourhoods proposals may occur in an area that is predominantly structured and built in accordance with conventional policy. In this circumstance, concerns have been raised over the interface between the two development types; particularly over the need to avoid rat-running through the more interconnected street system of a *Liveable Neighbourhoods* proposal and which way lots face when a conventional proposal backs onto the same street.

Consequently, the Commission will consider any requests to vary *Liveable Neighbourhoods* in this circumstance.

Alternative policy for testing and review

The Commission has adopted *Liveable Neighbourhoods* as an alternative to current subdivision policies. Developers are encouraged to test the *Liveable Neighbourhoods* approach through the delivery of projects. It will operate alongside existing policies under which conventional proposals will continue to be assessed.

Where a proposal is being assessed under the *Liveable Neighbourhoods* option and the Commission is satisfied that the principles of the policy are incorporated, *Liveable*

INTRODUCING LIVEABLE NEIGHBOURHOODS

Neighbourhoods will prevail where there are inconsistencies with other Commission policies.

Where the Commission is not satisfied that the principles of *Liveable Neighbourhoods* are incorporated, then provisions of current Commission policies will prevail. Conventional policies cannot be used as an alternative to *Liveable Neighbourhoods* to avoid context and site analysis requirements. However, the Ministry for Planning is prepared to assist if an applicant is having difficulty in undertaking context and site analysis.

The effectiveness of *Liveable Neighbourhoods* as a mechanism for providing better residential subdivision and structure plans was reviewed by the Commission in March 1999 after an operational period of 12 months. A further trial and review period has been adopted for review of *Liveable Neighbourhoods* until February 2001. The Commission will consider how *Liveable Neighbourhoods* may be adopted following the review.

Key differences from current policy approach

Liveable Neighbourhoods provides an innovative approach to planning and design in several respects by:

- seeking a more thorough analysis of the site and its context to inform subdivision design and graphically explain the basis of the design;
- encouraging greater use of structure plans as a planning framework;
- providing an alternative approach to design of neighbourhoods and towns that aims to achieve compact, well defined and more sustainable urban communities; and
- moving toward a performance approach to subdivision to encourage innovation in response to market needs.

Principal aims

Liveable Neighbourhoods has the following aims.

1. To provide for an urban structure of walkable neighbourhoods clustering to form towns of compatibly 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 users with disabilities.

3. To foster a sense of community and strong local identity 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; which is 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 comprehensive approach to the design of open space and urban water management.

11. To ensure cost-effective and resource-efficient development to promote affordable housing.

INTRODUCING LIVEABLE NEIGHBOURHOODS

Information

Further enquiries on *Liveable Neighbourhoods* may be directed to the regional office responsible for your area or:

Senior Urban Designer
Ministry for Planning
Tel. (08) 9264 7671

Written comments may be directed to:
Director, Urban Design and Major Places
Ministry for Planning
Albert Facey House
469 Wellington Street
Perth W.A. 6000
Fax 08 9264 7566.

Process for preparing *Liveable Neighbourhoods*

Liveable Neighbourhoods is based on the *Australian Model Code for Residential Development 1995: A National Reference Document for Residential Developments* which drew from *AMCORD Edition 2* (1990) and *AMCORD Urban* (1992), and the *Victorian Code for Residential Development* (1992), Department of Planning and Housing.

Liveable Neighbourhoods was developed with the Ministry for Planning (the Ministry) by consultants Taylor Burrell in association with Ecologically Sustainable Design Pty Ltd, through a process of rigorous testing and amending AMCORN propositions and standards to suit Western Australian conditions.

Development was overseen by a Steering Committee of key industry stakeholders comprising Anne Arnold, Chair (Western Australian Planning Commission), Steve Allerding (Office of the Minister for Planning), Tony Arias (Satterley Real Estate), Michael Glendinning (Cedar Woods Properties Pty Ltd), Ian Holloway (Housing Institute of Australia), Eric Lumsden (Shire of Swan), Emmerson Richardson (Department of Transport) and the Hon. Derrick Tomlinson (Member for East Metropolitan Region), former members the Hon. Barbara Scott MLC (Member for Metropolitan South Region) and Terry Martin (former Chair and Ministry for Planning). Wider input was provided via technically based key focus group meetings and a series of four site specific "Enquiry-by-Design" workshops. The workshops generated alternative designs based on the new principles for regional, town and neighbourhood structuring that form the basis of the *Liveable Neighbourhoods* model. The working report entitled *Results from the Jindalee Enquiry-by-Design Workshop (August 1996)* is available from the Ministry.

BACKGROUND –**TOWARDS SUSTAINABLE COMMUNITIES****Responding to changing needs**

The Western Australian community is changing. The majority of households are now one and two persons yet most new houses still have three and four bedrooms with two car garages. The lack of fit between housing stock and households may not serve our community well.

Western Australian cities face serious issues in the twenty-first century. These include the high cost of providing services and facilities to cater for continued rapid expansion, the need for greater housing affordability, concerns about safety and security, a desire for greater social, economic and environmental sustainability, the need for more locally based jobs and the ability to provide public transport more efficiently. There has been considerable community discussion on the need for planning to respond to these issues and, at the same time, improve the design of suburban development. The design and layout of a subdivision is a fundamental determinant of the urban form which:

- sets the urban character and design of an area;
 - allows or inhibits social interaction and thereby influences the likelihood of community formation;
 - forces car dependence or reduces it by encouraging the non-car modes of walking, cycling and public transport;
 - gives or denies access to facilities for all users of the urban environment; and
 - provides or prevents opportunities for locally based business and employment.
- Subdivision design will therefore crucially affect the performance of Perth and the regional centres in achieving the objectives of the *State Planning Strategy*.

Trends in neighbourhood design approaches

Neighbourhood design is changing. During the 1970s and 1980s neighbourhoods typically comprised low density housing on large lots in a curvilinear street layout with a strong street hierarchy and low levels of connectivity with culs-de-sac off local collector streets. Neighbourhoods were usually planned within cells bounded by arterial roads and were often walled. Most areas were almost exclusively residential.

Today there is greater emphasis upon social, economic and environmental aspects, with the resultant urban forms in transition. Recent neighbourhood design concepts have been given titles such as Transit Oriented Design (TOD), Traditional Neighbourhood Design (TND), Greenhouse Neighbourhoods and Urban Villages. In each case the underlying objective is to create liveable neighbourhoods that reduce dependency on private vehicles and are more energy efficient.

In response to this, the emerging planning agenda focuses on the idea of an urban structure based on walkable mixed use neighbourhoods with interconnected street patterns to facilitate movement and to disperse traffic. Daily needs may be within walking distance of most residents. With good design, more people will actively use local streets, enhancing safety. Local employment opportunities are facilitated within the town structure, providing the community with a firmer economic base and enhancing self containment of neighbourhoods and towns.

Safe, sustainable and attractive neighbourhoods are sought with a strong site responsive identity supportive of local community. This model promotes better community, employment and environmental sustainability than conventional planning practice.

APPLICATIONS UNDER LIVEABLE NEIGHBOURHOODS**LIVEABLE NEIGHBOURHOODS STRUCTURE****Element structure**

Liveable Neighbourhoods reviews and draws together currently separate policy aspects such as lot size, movement systems, public open space, school sites, and development adjacent to transit stations. The following Elements are included.

E1 Community Design**E2 Movement Network****E3 Lot Layout****E4 Public Parkland****E5 Urban Water Management****E6 Utilities****Objectives and Requirements**

Each Element has two components:

- **Objectives** which describe the principal aims of each Element; and
- **Requirements** which present a range of qualitative and quantitative responses to meeting the

Objectives. The Requirements are phrased in two ways:

- Matters that **should** be considered, where there are a range of design solutions; and
- Matters that **must** be satisfied, where a particular response is required, unless the requirement states that in particular circumstances variations or exemptions are allowed.

The Objectives of each Element are more important than any one set of Requirements through which subdivision may be carried out. At times, Objectives and Requirements may be difficult to achieve together. In these cases the Commission will assess the merits of a proposal against the Objectives and circumstances presented by the particular site.

Tables within the Elements set out standards referred to in the Requirements. Figures are provided to explain Requirements by way of example and to illustrate standards and tables.

Moving toward a performance approach

Liveable Neighbourhoods is a move toward a performance-based code. Objectives and the majority of Requirements may be satisfied in a number of ways i.e. responses may demonstrate how they “perform” to achieve the desired outcomes.

Liveable Neighbourhoods aims to balance the maintenance of acceptable standards and meeting a strategic vision with encouraging greater innovation in response to market needs. This performance-oriented approach will give greater flexibility to developers and designers.

It is recommended that applicants meet with the relevant local government and the Ministry for pre-application consultations for proposals substantially using performance-based solutions.

APPLICATION UNDER LIVEABLE NEIGHBOURHOODS**Compliance with *Liveable Neighbourhoods*****Objectives**

For structure plans and larger subdivisions, the primary measure of compliance is achieving the Objectives and Requirements of E1 Community Design. Compliance with the balance of the Element Objectives and Requirements should follow this. Smaller scale subdivisions must comply with relevant element Objectives and all mandatory Requirements.

Liveable Neighbourhoods is performance-based and there is considerable flexibility within the policy to achieve the best design for the individual circumstances of a place. The Commission will be particularly mindful of the need for flexibility in transferring from existing or committed conventionally designed structure plans and subdivisions to proposals designed under *Liveable Neighbourhoods*.

Early consultation with the Ministry for Planning and the relevant local government should clarify any issues and bring forward workable solutions.

APPLICATION AND ASSESSMENT

Location of urban subdivisions

The Commission will generally only approve subdivision for urban purposes where a proper statutory planning context is available. The Commission will be guided primarily by the zoning context and provisions of the relevant local government town planning scheme and statutory region scheme (where applicable).

Applications for subdivision

Application for the subdivision of land should be made on the Form 1A and accompanying supplement, and include (where necessary) such information as is required by *Liveable Neighbourhoods* (refer to Application Information Guide on p.13).

The Commission will forward a copy of each application to any local government, public body, or Government department whose powers or functions may be affected. The Commission in making a decision on the application will consider the objections and/or recommendations of the referral agency.

The Commission will have regard to structure plans that have been prepared and endorsed under *Liveable Neighbourhoods* when considering subdivision applications submitted within an area covered by the structure plan.

Structure Plans

Structure plans may be prepared under *Liveable Neighbourhoods*. Where a structure plan is a requirement of a town planning scheme it must be prepared in accordance with scheme provisions; otherwise, the submission of structure plans under *Liveable Neighbourhoods* should be in accordance with the requirements of the Application Information Guide.

Structure plans should be developed in consultation with affected adjoining landowners, servicing authorities and the relevant local government. The local government should ensure that adequate community consultation occurs through a participatory design process or by advertisement of a structure plan for a minimum of 28 days, including notification of adjoining landowners.

Inconsistencies

The Commission recognises that inconsistencies may arise between proposals progressed under *Liveable Neighbourhoods* and existing strategic and statutory regional or

local structure plans, the Metropolitan Region Scheme, and/or local government planning schemes.

Potential conflicts should be discussed with the relevant local government and the Ministry at the earliest possible stage. The Commission is endeavouring to review existing regional plans to ensure greater consistency with *Liveable Neighbourhoods* over time.

Structure planning is heavily reliant on regional structure plans and the Metropolitan Region Scheme. Through the process of context analysis, preliminary design proposals for structure plans may suggest adjustments to existing structure planning, committed subdivision, or to the Metropolitan Region Scheme beyond the site itself. This should enable responsive urban forms to be developed through *Liveable Neighbourhoods*. The Commission encourages early discussion with the relevant local government, Ministry and adjoining landowners to seek mutually beneficial solutions.

Relationship to R Codes

The Residential Planning Codes of Western Australia (R Codes) control residential development in terms of built form and housing density. *Liveable Neighbourhoods* applies to the broader design of urban form and subdivision layouts for predominantly residential areas. The two policies are most closely linked through Table 1 of the R Codes, which is addressed in E3 Lot Layout. Where inconsistencies arise between *Liveable Neighbourhoods* and the mandatory provisions of the R Codes, the R Codes shall prevail.

Relationship to other Commission Policy

Liveable Neighbourhoods was developed pursuant to the *State Planning Strategy* and is included in the State Planning Policy Framework (Statement of Planning Policy No. 8).

APPLICATION UNDER LIVEABLE NEIGHBOURHOODS**Regional Variations**

There are circumstances where particular Requirements may be varied to accommodate the climatic and/or settlement conditions of areas of remote Western Australia, particularly for the temperate and tropical areas. Requests for variation should be substantiated with regard to the *Livable Neighbourhoods* Application Information Guide. The Commission will publish guidelines on regional variations in due course.

Conditions on approvals

In determining subdivision applications under *Livable Neighbourhoods*, the Commission may impose appropriate conditions on approvals to secure the aims of *Livable Neighbourhoods* and the Objectives of the Elements.

Appeals

Section 26 of the *Town Planning and Development Act* and Sections 26 and 27 of the *Strata Titles Act 1985* create a right of appeal against a decision of the Commission. Appeals can be made to either the Minister for Planning or the Town Planning Appeal Tribunal.

INFORMATION REQUIREMENTS**Introduction**

This part sets out:

1. Requirements for Context and Site Analysis;
2. The three scales of Design Proposals under *Liveable Neighbourhoods*; and
3. Information requirements for reports to be submitted with applications for structure plans and subdivisions.

- natural and cultural assets on and around the site to be taken advantage of to build a positive sense of place and unique identity into the design; and
- design to be integrated with its immediate surrounds and provide compatible interfaces between the development site and neighbouring development.

CONTEXT AND SITE ANALYSIS**Importance of context and site analysis**

The success of an individual subdivision in achieving a distinct identity and “sense of place” is a function of how well the design relates to the specific site and its wider urban context.

Context and site analysis provides a means by which to inform a design to achieve these outcomes, facilitates the efficient provision of infrastructure through good design, and can also identify any features which will add value to a development by improving amenity.

The “value-adding” flow on from considered analysis can directly benefit developers and future residents through better quality design.

Context analysis

The purpose of context analysis is to ensure that new subdivision and development are connected to and integrated with surrounding natural and developed areas, including planned and committed development for adjacent sites.

Context analysis should identify key opportunities and constraints presented by the context of the site. New opportunities for the improvement of existing local and district planning frameworks can be identified and tested. Any likely conflicts with existing plans should be identified at an early stage, and discussed with the relevant local government or the Ministry.

Site analysis

A sufficiently detailed assessment of the site and its immediate surrounds facilitates planning and urban design decisions for subdivision. Site analysis enables:

- a cost effective and environmentally responsive design in respect of site features and constraints;

MAPPING AND INFORMATION REQUIREMENTS

For context and site analysis mapping, describe and analyse (as appropriate) the following information:

- existing and planned neighbourhood, town and regional centres, and major employment areas;
- neighbourhoods around existing and planned neighbourhood, town and regional centres, indicated by circles of 400-450 m radius centred on the neighbourhood or town centre;
- transport routes, including freeways, arterial route and neighbourhood connector alignments, public transport routes, bus stops and rail stations;
- walkable catchments - "ped sheds" - of existing and planned rail stations via circles of 800 m radius centred on the rail stations;
- surrounding subdivision (indicating fronts and backs of lots) for a reasonable and useful distance beyond the site boundary;
- existing and proposed land use distribution; and
- site characteristics, such as landform, areas of environmental significance, Environmental Protection Policy areas, bushland, wetlands, damplands, foreshore reserves.

The north point, visual bar scale, key street names and a drawing title should be standard information on all drawings.

Context and site mapping may be undertaken together or separately, and a brief written report may also be provided to explain the mapping.

APPLICATION UNDER LIVEABLE NEIGHBOURHOODS**DESIGN PROPOSALS**

The three scales of proposals envisaged under *Liveable Neighbourhoods* are:

1. district and larger sized structure plans;
2. local structure plans; and
3. subdivisions.

District and larger sized structure plans

District and larger sized structure plans should show:

- District and larger sized structure plans should show:
- neighbourhoods as represented by approximate circles of 400-450 m radius, together with town and neighbourhood centres;
- existing and proposed neighbourhood centres;
- arterial routes and neighbourhood connector streets;
- natural features such as water courses and vegetation;
- major open spaces and parkland;
- major public transport routes and facilities;
- proposed land use distribution; and
- proposed schools and community facilities.

The plans should be supported by a written report that addresses the relevant Elements of *Liveable Neighbourhoods*. An Application Information Guide follows (see p. 13) to assist applicants in preparing their reports. Other information as may be required by the local government or Commission.

A design process for a district structure plan and subsequent subdivision is included in Appendix 1.

Local structure plans

Local structure plans should show:

- walkable neighbourhoods, represented by approximate circles of 400-450 m radius around proposed neighbourhood and town centres, should be superimposed over the structure plan; existing and proposed commercial centres;
- proposed natural features to be retained;

- proposed street block layout;
- proposed street network, including street types;
- proposed transportation corridors, public transport
- network and cycle and pedestrian networks;
- proposed land uses, including distribution of medium
- and lower density residential;
- proposed schools and community facilities;
- public parkland; and
- proposed urban water management areas.

The plans should be supported by a written report that addresses the relevant Elements of *Liveable Neighbourhoods*. An Application Information Guide follows (see p.13) to assist applicants in preparing their reports. Other information as may be required by the local government or Commission.

Application for subdivision

An application for subdivision should show:

- proposed street network, including street types as set out in E2 Movement Network, and cross sections for any special streets;
- location of proposed footpaths and dual use path;
- proposed lot pattern and sizes;
- the location of any proposed Detailed Area Plans;
- location and size of proposed public open space; and
- location of proposed urban water management basins and easements.

The plans should be supported by a written report that addresses the relevant Elements of *Liveable Neighbourhoods*. An Application Information Guide follows to assist applicants in preparing their reports. Other information as may be required by the local government or the Commission.

Where information has been provided for an approved local structure plan, it is not necessary for it to be repeated for an application for subdivision, unless the structure plan is proposed to be substantially altered.

APPLICATION INFORMATION GUIDE

Written advice should be submitted with structure plans and subdivision applications to enable consideration by the Commission, local governments, and referral authorities.

Element 1: Community Design

A design rationale report should provide: an explanation of how the proposed design responds to the context and site analysis; the objectives of the design and a description of how they are proposed to be achieved; and the time frame and staging of proposed subdivision and development.

Element 2: Movement Network

A transport and traffic safety report should address the following matters:

- proposed traffic volumes and street hierarchy;
- description of *Liveable Neighbourhoods* and any special street types proposed. Dimensioned cross sections are required if any variations from the indicative/typical street and road pavement widths of Element 2 are proposed;
- traffic management including measures to control traffic speed, measures in and around proposed town centres, schools and indicative intersection designs for neighbourhood connector streets;
- public transport including bus routes, proposed bus stop locations (including calculations of walkable catchments served within 400-450 m radius), and existing/proposed rail station locations (including calculations of walkable catchments served within 800 m radius);
- provision for pedestrians and disabled; and
- bike network plan.

Element 3: Lot Layout

A design rationale report should address the following matters:

- mixture and distribution of lot sizes;
- characteristics of lots for special uses or future intensification;
- lot design for climatically responsive dwellings; and
- justification of any exceptions to the direct frontage of lots to parks, natural areas and schools.

Element 4: Public Parkland

A parkland provision and management report should address the following matters:

- location and amount of public open space proposed by the developer to be given up including the basis for any requested discount and any proposed credits;
- any landscaping plans for local and neighbourhood parks (including earthworks, grassing, tree planting, bollards, irrigation); and
- a maintenance program/commitment for two summers, if required.

Element 5: Urban Water Management

An urban water management report should address the following matters:

- an explanation of the proposed urban water management network including major and minor systems;
- maintenance of natural urban water management networks, ground water and aquifer systems;
- ground water recharge;
- run-off water quality;
- environmental values and physical characteristics of receiving domains or watercourses;
- protection of people, property and built environment from stormwater and flooding;
- developer cost contribution arrangements and ongoing management arrangements and responsibilities.

Element 6: Utilities

A services report should address the following matters:

- main/trunk services (including easements);
- common trenching (where utilised) and standard service alignments for domestic service provision; and
- cross sections through typical streets demonstrating that reserve widths can adequately accommodate essential services, street trees and other street requirements (also provided for in Element 2 Movement Network above).

COMMUNITY DESIGN - ELEMENT 1

INTRODUCTION

The need to design for communities

Approaches to urban development in the past have typically had an emphasis on land use segregation, engineering, surveying and lot yield efficiency. The primary objective today in planning any new part of a city or town is to design a framework for community that is sustainable, safe, stimulating and efficient. A broader and more integrated perspective is needed, with many design issues best addressed at the neighbourhood structure planning level.

This Element sets out the intent of Liveable Neighbourhoods with respect to how towns and neighbourhoods should be structured, the layout of street networks and block structures, the mixing of uses and facilitation of employment opportunities, the range of residential densities and other urban design issues. It seeks to provide safe, convenient and attractive neighbourhoods that meet the diverse needs of the community, are adaptable to future change and which fit into the existing and planned urban context.

Key differences from current practice

The Liveable Neighbourhoods approach calls for an urban structure based on walkable, mixed use neighbourhoods. The neighbourhood and town centres are located at junctions of arterial routes or important local streets, rather than having such roads define the edge of development. The town centre acts as a district level community focus with a compatible mix of uses which provide a range of weekly shopping needs, community facilities and local employment, whereas the neighbourhood centre caters more for the daily needs of a community. There is greater emphasis upon site responsive design, enhancing local identity, providing an interconnected network of streets with perimeter block development and frontage to streets and open spaces, a wider choice of housing type, increased residential density over time, a more significant component of other land uses to support daily needs and local employment, and higher levels of public transport provision.

Assessment of proposals

This Element is the primary tool for assessing structure plans and larger scale plans of subdivision where a structure plan has not been prepared. The Objectives and Requirements are intended to guide the structure planning of neighbourhoods before applying the more detailed provisions in E2 to E6. Context and site analysis, walkable catchment area diagrams, transport and traffic management strategies, and urban water management strategies may all be required, amongst others. A brief written rationale may also be required, explaining how the design responds to the context and site analysis. Refer to Applications under Liveable Neighbourhoods section for details.

Design for mixed use

Liveable Neighbourhoods promotes but does not cover all aspects of mixed land use planning and design. Reference to the use of key design texts is recommended for particular non-residential aspects; for example, for designing a Town Centre see Mixed Use Developments: New Designs for New Livelihoods (1996). The aim of Liveable Neighbourhoods is to design a robust neighbourhood structure that can accommodate a range of uses and which is flexible enough to adapt to change over time.

Schools

Primary schools should be provided in accordance with the Education Department of Western Australia standards, currently one site per 1,500 to 1,800 housing units. Primary school sites should be located conveniently to the catchment area they are intended to serve so as to maximise the walkable catchment area.

The trend towards larger primary schools and their large site area (some 4 ha) may interfere with walkability and a reduction in the potential catchment of the neighbourhood centre. Primary schools should generally be located near the edge of neighbourhoods to enable sharing between approximately three neighbourhoods. The Commission will consider other circumstances based on their merits; for example, temporary facilities in neighbourhood centres in the “pioneer” stages of development, or a centrally located school in an early stage of a large development.

OBJECTIVES

<p>Community Deign Objective 1 To facilitate an environmentally sustainable approach to urban development by minimising non-renewable energy use and car dependence; encouraging greater local self-containment of neighbourhoods and towns; and protecting key natural and cultural assets.</p>	<i>Supported</i>
<p>Community Deign Objective 2 To provide safe, convenient and attractive neighbourhoods and towns that meet the diverse and changing needs of the community and offer a wide choice of housing, leisure, local employment opportunity and associated community and commercial facilities.</p>	<i>Supported</i>
<p>Community Deign Objective 3 To develop a coherent urban system of compact walkable neighbourhoods which cluster to form towns with a high degree of street connectivity.</p>	<i>Supported</i>
<p>Community Deign Objective 4 To ensure a site responsive approach to urban development that supports and enhances the context in which it is located, strengthens local character and in which it is located, strengthens local character and identity, and promotes a sense of community.</p>	<i>Supported</i>
<p>Community Deign Objective 5 To provide a movement network which has a managed street network that clearly distinguishes between arterial routes and local streets, establishes good internal and external access for residents, maximises safety, encourages walking and cycling, supports public transport patronage and minimises the impact of through traffic.</p>	<i>Supported</i>
<p>Community Deign Objective 6 To provide a network of well distributed parks and recreation areas that offer a variety of safe, appropriate and attractive public open spaces.</p>	<i>Supported</i>
<p>Community Deign Objective 7 To ensure that the design of neighbourhoods takes into account environmental constraints including soil erosion, urban water management, and bushfire risk.</p>	<i>Supported</i>
<p>Community Deign Objective 8 To equitably provide public utilities in a timely, cost efficient and effective manner.</p>	<i>Supported</i>

ELEMENT 1 – COMMUNITY DESIGN

REQUIREMENTS

APPLICATION REQUIREMENTS

Community Design Requirement 1

Structure plans and subdivision applications must be accompanied by the relevant information listed in Applications under Liveable Neighbourhoods section.

Supported

NEIGHBOURHOOD AND TOWN STRUCTURE

Community Design Requirement 2

The layout of any structure plan or plan of subdivision should contribute to an urban structure of highly interconnected neighbourhoods and towns.

Supported

Community Design Requirement 3

Neighbourhood structure should have the following characteristics:

Supported

- size and shape generally defined by a five-minute walk from the neighbourhood centre to its perimeter, typically 400 m (average residential density R17.5) to 450 m (average residential densities R12.5 and R15);
- the centre acts as a community focus with a compatible mix of uses which provide for a variety of daily needs and may include community facilities and urban open spaces such as a town square;
- to assist retail exposure and accessibility, the centre is located on or at the intersection of important local streets served by public transport;
- an interconnected street network with strong links between town and neighbourhood centres that has good accessibility, route choice and detailing to make walking and cycling pleasant, efficient and safe; and
- a range of residential densities that increase toward the neighbourhood and town centres.

Community Design Requirement 4

Supported

Town structure should have the following characteristics:

- be formed by the clustering of neighbourhoods, typically with six to nine neighbourhoods needed for adequate population to sustain a town centre with public transport and a wide range of goods and services;
- the town centre is central to the cluster of neighbourhoods, well linked and within reasonable walking distance of most residents;
- major new transport routes are based on desired town and neighbourhood structure;
- for commercial viability and accessibility the town centre is located adjacent to the intersection of arterial routes and has a major public transport stop, wherever possible; and
- a range of housing types with residential densities that increase toward the centre and can, over time, support sufficient population to foster local self-containment.

INTEGRATED DEVELOPMENT

Community Design Requirement 5

Supported

The layout should connect to planned and committed development on adjacent sites.

LOCAL IDENTITY

Community Design Requirement 6

Supported

The layout should enhance local identity by responding to the site context, site characteristics, setting, landmarks and views; incorporate elements of natural and cultural significance; and establish legible street and open space networks.

STREET AND LOT LAYOUT

Community Design Requirement 7

Supported

The street network should provide a high level of internal accessibility and good external connections for local vehicle, pedestrian and bike movements, with traffic management to restrain vehicle speed, minimise the impact of through traffic and create safe conditions for all street users.

ELEMENT 1 – COMMUNITY DESIGN

Community Design Requirement 8
The layout of streets should generally provide for perimeter blocks to facilitate connectivity and a relatively continuous street frontage for safe, attractive and efficient circulation of pedestrians, cyclists and drivers.

Supported

Community Design Requirement 9
The layout of streets should enable development to front all streets, urban parks and natural areas. Where rear lanes are necessary they should be arranged to ensure adequate natural surveillance.

Supported

Community Design Requirement 10
The street network should have no more than 15% of lots fronting culs-de-sac.

Supported

ENERGY EFFICIENCY

Community Design Requirement 11
Street and lot orientation and lot dimensions should facilitate the siting and design of dwellings. These should minimise non-renewable energy use and be appropriate for the climatic conditions. These should be a predominantly east-west and north-south street layout for temperate climates.

Supported

MIX OF USES AND EMPLOYMENT

Community Design Requirement 12
Land use allocation should provide for jobs at a desirable rate of 1.4 jobs per household by including sufficient land and appropriate street and lot layout for a wide variety of business and home-based business development opportunities, arranged to minimise land use conflicts.

Supported

MIX OF LOT SIZE

Community Design Requirement 13
The lot layout should provide a mix of housing types, lot sizes and densities, with smaller residential lots and higher density housing in areas close to neighbourhood and town centres, public transport stops, and in areas with high amenity such as next to parks.

Supported

SCHOOLS

Community Design Requirement 14

The layout should provide for State education facilities in accordance with EDWA standards. Primary schools should generally be located near the edge of neighbourhoods to enable sharing between about three neighbourhoods, and secondary schools should generally be located on integrator arterial routes near public transport. The location of primary schools in the centre of neighbourhoods may be considered in other circumstances such as where subdivision substantially precedes the planned provision of permanent schools, and interim school facilities are provided through facilities such as “schools in houses” or “schools in shops” in the neighbourhood centre.

*Supported***SAFETY**

Community Design Requirement 15

The layout should enhance personal safety and perceptions of safety and minimise potential for crime, vandalism and fear by providing for streets and urban open spaces to be fronted and overlooked by housing and actively used facilities, especially on routes to and from schools, public transport stops and other routes used at night.

*Supported***BUSHFIRE HAZARD**

Community Design Requirement 16

The layout of neighbourhoods abutting areas of high bushfire hazard should ensure that streets are designed, located and connected to allow safe and efficient movement of emergency vehicles; and that lots facilitate the siting and design of houses incorporating bushfire protection measures.

Supported

ELEMENT 1 – COMMUNITY DESIGN

PUBLIC PARKLAND

Community Design Requirement 17 The layout should provide well-distributed parkland that contributes to the legibility and character of the development, provides for a range of uses and activities, is cost-effective to maintain and assists with urban water management.	<i>Supported</i>
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Community Design Requirement 18 Major linear, district or regional open spaces and drainage should be located to define the boundaries of neighbourhoods rather than dissect them.	<i>Supported</i>
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URBAN WATER MANAGEMENT

Community Design Requirement 19 Urban water management should afford protection from stormwater and maintain natural drainage networks and water quality with a site responsive approach while balancing the need for efficient and compact urban development.	<i>Supported</i>
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UTILITIES

Community Design Requirement 20 The street and lot layout should enable efficient provision of physical services.	<i>Supported</i>
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MOVEMENT

Movement General Comment

Bus Embayments

A preference between embaying to get buses out of the line of traffic and to give peds sight lines along the street verse the bus holding up or stopping traffic needs to be stated in the document.

Movement Section Review

Table 1 (p22-23 LN CDC 2000)

Councils position will be that maximum dimensions indicated in the table will be applied as standard unless convinced by substantial argument.

Minimum Lane Width

MRWA guidelines set this at 3m (3.2m if they are to be marked) while Austroads and LN CDC allow for access streets of 5.5m. Council supports a 5.5m road reserve where this standard can be applied without conflict with MRWA guidelines.

City of Joondalup

ELEMENT 2 - MOVEMENT**OBJECTIVES****STREET MOVEMENT NETWORK**

Movement Objective 1 To provide acceptable levels of safety and convenience for all street users in residential areas, whilst ensuring acceptable levels of amenity and minimising the negative impact of through traffic	<i>Supported</i>
Movement Objective 2 To provide a managed network of streets with clear physical distinctions between arterial routes and local streets based on function, legibility, convenience, traffic volume, vehicle speed. Public safety and amenity	<i>Supported</i>
Movement Objective 3 To support frontage development along streets wherever possible.	<i>Supported</i>
Movement Objective 4 To establish a movement network which provides convenient linkages to activity centres and local facilities either within or adjoining the development.	<i>Supported</i>
Movement Objective 5 To provide a movement network which is efficient, affordable, minimises travel time, supports access to public transport and contributes to limiting fossil fuel use.	<i>Supported</i>

PUBLIC TRANSPORT NETWORK

Movement Objective 6 To ensure efficient and convenient rail public transport routes and to locate railway stations within a street network that facilitates access by pedestrians, cyclists, buses and cars.	<i>Supported</i>
Movement Objective 7 To provide a comprehensive bus route network that is efficient to operate, with stops which are accessible by foot from most dwellings.	<i>Supported</i>

ELEMENT 2 - MOVEMENT

CYCLE MOVEMENT NETWORK

Movement Objective 8

To provide a safe, convenient and legible bike movement network to meet the needs of both experienced and less experienced cyclists, including on road and off road routes.

Supported

MOVEMENT FOR PEOPLE WITH DISABILITIES

Movement Objective 9

To provide a safe, convenient and legible movement network for people with disabilities, including those using wheelchairs and similar.

Supported

PEDESTRIAN MOVEMENT NETWORK

Movement Objective 10

To provide a safe, convenient and legible movement network for pedestrians, principally along the street network, to provide excellent accessibility between residents and safe and efficient access to points of attraction within and beyond the development.

Supported

Movement Objective 11

To design street networks to optimise the walkable access to centres, schools, public transport stops and stations, and other destinations.

Supported

Movement Objective 12

To design major routes as integrator arterials with extensive and frequent opportunity for pedestrians to move safely along and across them.

Supported

Movement Objective 13

To design and detail new developments to promote and support walking to daily activities.

Supported

Movement Objective 14

To provide pedestrian paths through parks for recreation purposes wherever practical.

Supported

ELEMENT 2 - MOVEMENT

STREET DESIGN

Movement Objective 15

To provide attractive streetscapes which reinforce the functions of a street and enhance the amenity of adjacent housing and developments.

*Supported within cost parameters
The objective is supported within parameters. There tends to be over investment in landscape foliage which imposes a considerable cost to Council. Attractive streetscapes need to be durable and cost effective.)*

Movement Objective 16

To provide sufficient width of road and verge to allow streets to perform their designated functions within the street network.

Supported

Movement Objective 17

To provide street geometry which is safe and appropriate to the street function.

Supported

Movement Objective 18

To accommodate on-street parking where required, including parking for people with disabilities.

Supported

Movement Objective 19

To provide a safe, distinct and pleasant environment for residents and other users.

Supported

STREET CONSTRUCTION

Movement Objective 20

To construct roads to carry vehicles at a minimum total cost to the community.

*Supported
As the regulation reads it might be seen to go against the intention of providing on street parking*

Movement Objective 21

To provide a road edge that is appropriate for the control of vehicle movements, performs any required drainage function, is structurally adequate and detailed to reflect pedestrian and cyclist 'desire lines.

Supported

Movement Objective 22

To accommodate public utility services and drainage systems.

Supported

REQUIREMENTS

APPLICATION REQUIREMENTS

Movement Requirement 1

Structure plans and subdivision applications must be accompanied by the relevant information listed in Table 1, Application Information Requirements section. A transport or traffic safety and management strategy and walkable catchment calculations may be required, as provided for in Table 1, Application Information Requirements section.

Supported

ARTERIAL ROUTES

Movement Requirement 2

Arterial routes should be more convenient for long distance traffic than the local street network, and routes should be provided in accordance with Table 1: Function and characteristics of arterial routes.

Supported

*Cross referencing revision suggested
Should also refer reader to Table 3 as R 17 does on the same issue.*

Movement Requirement 3

Street networks should be designed to optimise the use of arterials by ensuring they will operate at high volume/capacity ratios at peak times.

Supported

Movement Requirement 4

Service roads with frontage development should be provided along arterial routes wherever possible.

Supported

Service roads might not be applicable in town centres though it might still be possible to build them Could say Provided along arterial routes where ever possible with the possible exception of town centres where traffic speeds will be limited

LOCAL STREETS

Movement Requirement 5

Local streets should be provided to support short trips for local traffic moving within and between neighbourhoods. Local traffic is spread to keep volumes low. Local streets should be provided in accordance with Table 2: Function and characteristics of local streets. Variations from the indicative values of Tables 1 and 2 will only be considered provided cross sections and other supporting information are provided.

Greater level of insistence requested “should” is very open / would “shall” be better

Movement Requirement 6

Local streets should be designed to discourage traffic travelling long distances from passing through.

Greater level of insistence requested “should” is very open / would “shall” be better

ELEMENT 2 - MOVEMENT

Movement Requirement 7

Streets should be designed to enable development to front all streets, including arterials for most of their length.

Supported

Movement Requirement 8

Abutting development should be designed so vehicles entering the neighbourhood connector can do so travelling forward.

Supported

Movement Requirement 9

Wherever practical streets which facilitate frontage development should be provided along railways to provide business and home-based business opportunities.

Clarification required

Development backing on to the rail could also provide business and home based business opportunities. Is the regulation necessary.

LANE WAYS

Movement Requirement 10

Lane ways should be considered to provide access to parking for small lots where widths are narrow, medium density housing, retail/ commercial, areas, busy streets and development frontage open space in some circumstances. Typically 6 m wide, laneways can be reduced to 3 m over limited lengths where performance can be justified, such as at entrances.

Greater level of insistence requested

The requirement for laneways here and in R24 Lot layout are not very strong. This should be an imperative.

STREET NETWORK

Movement Requirement 11

The street network should facilitate walking, cycling and use of public transport for access to daily activities, and enable relatively direct local vehicle trips within and between neighbourhoods and to local activity points.

Text issue

This reads as more of an objective than a regulation

Movement Requirement 12

The street network should be site responsive, and highly interconnected. Neighbourhood permeability is provided by having streets between blocks at spacings of not more than 240m. The choice of direction and possible routes should be maximised, with streets and foot paths substantially capable of surveillance by residents.

Cross referencing issue

Reader should be referred to table 3

Movement Requirement 13

A local street should be provided parallel to arterials particularly where they pass through town centres. These streets may be widened to provide high capacity for on-street parking to serve the centre. The street should be designed to restrict vehicular speeds to an appropriate level

In this case the regulation suggests one possible solution and there may be others. Perhaps the regulation should focus on the objective.

ELEMENT 2 - MOVEMENT

and provide for the needs of other users.

SCHOOLS

Movement Requirement 14

A network of local streets focussed towards a school should be identified and detailed to provide safe and efficient pedestrian and bike access to the school.

Supported

Movement Requirement 15

The street network around schools should be designed to provide safe conditions for school buses, car collection and set down with on-site parking where practical.

Change requested

On site provision of transit services is promoted by Council and believed subject to the size of the school site. School sites should be made bigger to accommodate them – then “where practical” can be “in all cases”.

CONNECTIONS TO EXISTING AND NEW URBAN AREAS

Movement Requirement 16

Street stubs should be provided at spacings of 200m or closer to enable street connections to be made to adjacent future urban areas. The location of these connection points should consider the future overall network requirements of the district.

Text and cross referencing issue

Rather than at 200m stubs should be in accordance with Table 3

INTERSECTIONS

Movement Requirement 17

Intersections between local streets and arterial routes should be provided in accordance with Table 3 to reduce overloading on major intersections and to contribute to shortened vehicle trips. Junctions between local streets should be located to provide a safe and permeable local network. Adequate junction spacings may be achieved if spaced in accordance with Table 3.

Text and cross referencing issue

States several regulations under one regulation. Could R17 say in accordance with Table 3 and then the other point be included as Note points in Table 3.

CULS-DE-SAC

Movement Requirement 18

Maximum cul-de sac length should be 120m.

Supported

Movement Requirement 19

Culs-de-sac should be located in through street reservations with linking access for pedestrians and cyclists. The possibilities for longer-term connection for through traffic should be incorporated wherever possible.

Greater level of insistence requested

Should be too weak given the resistance developers have to providing reserves that will allow for later connections.

ELEMENT 2 - MOVEMENT

Movement Requirement 20

Cul-de-sac heads should be designed to minimum dimensions but must allow a rubbish truck to make a three-point turn. Recommended dimensions for turning areas are set out in Figure 6 of the Guidelines for the Design and Geometric Layout of Residential Roads (Western Australian Planning Commission, June 1998)

Supported

TRAFFIC SPEED

Movement Requirement 21

The local street network should be designed to normally produce the target street speeds in Table 2. This should be achieved by parked cars. Additional measures of surface obstructions or sharp bends may be introduced where warranted, in accordance with Tables 4, 5 and 6.

Where bends are introduced to control speeds to 20 km/h or less, the deflection angle in the change of alignment of a street or road is at least the angle determined from Table 5.

Where bends, slow points or intersections which allow speeds greater than 20km/h are used, the length of street between two bends or slow points is as specified in Table 6.

Change requested

Sharp bends should not be used alone to slow traffic as excessive speeds into bends are a hazard. Traffic should be slowed before bends.

PUBLIC TRANSPORT

Movement Requirement 22

Bus routes should be located on neighbourhood connectors or integrator arterials to provide highly accessible and relatively direct routes wherever practical. An efficient bus service may be achieved by:

- locating bus stops conveniently for the walkable catchment served at an average spacing of 300-400m to balance accessibility with running time;
- a locating bus stops at potential destinations including schools, neighbourhood and town centres, stations, recreational areas, industrial areas;
- locating bus stops adjacent to traffic lights and median islands on busy roads;
- ensuring bus stops will have surveillance from surrounding development; and
- ensuring traffic management devices are bus-friendly.

Generally Supported

Dot point on surveillance appears out of place. It should be placed at the end if it stays here.

Should add that bus stops after intersections have to be embayed to avoid stacking into intersection

ELEMENT 2 - MOVEMENT

Movement Requirement 23

Streets designated as bus routes should comply with requirements of the Department of Transport, and street types in Tables 1 and 2, or an alternative which is based on supporting information including cross sections.

Supported

Movement Requirement 24

Streets near railway stations or bus interchanges should be focussed towards stops to optimise the walkable catchments within 400-800m walking distance along streets, and have fronting uses which provide a high level of activity and surveillance. Walkable catchment analysis may be required for train stations, bus stops, neighbourhood and town centres.

Change Requirement

Implies a radial street network but this creates a lot pattern that would not suit regulations in the objectives of the layout section.

R24 should refer to an acceptable level of catchment (60%) as is stated in R32.

Movement Requirement 25

Where railway lines cut through or bound a proposed development, sufficient street crossings should be provided to integrate urban development on both sides. This may be achieved by:

Supported

- providing street crossings typically at 500m to 1 lane spacing and additional pedestrian crossing at about 300m (maximum) spacings;
- taking advantage of topography to provide grade separations (including low clearance underpasses within residential areas) wherever practical;
- providing controlled level crossings where the above are topographically impractical or where an over or underpass would provide a major intrusion into the urbanism, (eg. at stations or in town centres);
- locating stations where efficient street overpasses or underpasses may be provided;
- supplementing vehicle crossings with at-grade pedestrian/cycle crossing with electronic ped- gates if desired; and
- depression of lines to contain noise.

ELEMENT 2 - MOVEMENT

Movement Requirement 26

Routes, access streets and neighbourhood connector streets must have footpaths on both sides constructed to an approved construction standard, except as provided for by R27.

Supported

Editorial Recommendation

In relation to the first dot point - Paths may still be required despite lack of development on either side of the street if the street is an important link.

The fourth dot point is not a parameter but a frame for the next two dot points. It should not have a bullet point.

Road should not be use for walking where there is on street parking (peds can't evade traffic as easily)

Path may be deleted where the road is comfortable for people with disabilities - Use of the road is probably never comfortable for people with disabilities so a path is probably always going to be required.

Movement Requirement 27

Footpaths may be omitted from one side of the street only where:

Supported

- there is no development fronting that part or side of the street; or topography or vegetation precludes provision; or vehicle speeds are very low, future traffic
- volumes will be less than 1,000 vpd. and
- use of the street pavement is considered safe and comfortable for some pedestrian use and by people with disabilities; and
- walking will not be deterred by the lack of a footpath .
- In streets where future traffic volumes will be less than 300 vpd footpaths may be omitted only where:
- use of the road is considered safe and comfortable for pedestrian use, including for people with disabilities.
- The street does not connect or contain uses which generate high levels of activity.

Movement Requirement 28

Footpaths should be separated from the street pavement, usually located against the property boundary unless vehicle volumes are low and there are constraints which require footpaths to abut kerbs. Footpaths should be designed and located taking into account pedestrian amenity, sun and shade, postal deliveries and likely use patterns.

Supported

One of the factors design should take into account is location of lighting

ELEMENT 2 - MOVEMENT

Movement Requirement 29

Shared zones should be designed and detailed to enable pedestrians and vehicles to share the same pavement with a sense of equal priority. Reference to road traffic regulations is required before using shared zones.

Supported

Movement Requirement 30

Pedestrian crossings of roads should be provided at-grade wherever practical. Grade separated pedestrian crossings should only be used where topography can be used to advantage and adjacent development gives good surveillance

Supported

Movement Requirement 31

Footpaths should be 1.5m minimum width, widened to 2.0m minimum in the vicinity of schools, shops and other activity centres. Pram crossings are required at all intersections and should have a maximum grade of 1: 12.

Supported

WALKABLE NEIGHBOURHOODS

Movement Requirement 32

At least 60% of dwellings within a 400m radius from an existing or potential neighbourhood or town centre, or an existing or potential bus stop should be within 400m safe walking distance.

Change Requested

This talks about catchment around neighbourhood centres and bus stops but not schools. The walkability of the catchment for schools is not covered here or in the schools section either. This should be considered.

Movement Requirement_33

At least 60% of dwellings within an 800m radius of an existing or potential railway station are within 800m safe walking distance.

Supported

ELEMENT 2 - MOVEMENT

CYCLING ON STREETS

Movement Requirement 34

A safe, convenient and legible bike network should be provided for both experienced and less experienced cyclists. The network may comprise both on-road and off-road routes, planned in accordance with any State regional plan or local walking trail or bike plan and responding to:

- projected bike travel demand;
- expected vehicular traffic volumes and composition;
- linkages between trip attractors such as schools,
- local centres and other community facilities; and
- safety, security and convenience for users.

Supported

Movement Requirement 35

The local street network should provide a permeable network of low volume, low speed routes for cyclists, to promote on-pavement cycling to daily activities. Abutting cul-de-sac heads should have a bike path connection. Wherever practical provide a continuous local street system for cyclists parallel to arterial streets (rather than providing bike lanes or separate paths on arterials). In residential areas where projected traffic volume is less than 3,000vpd, cycling should generally be on-road, shared with cars.

Supported within parameters

(We questioned whether Bikewest would accept this – We could say)

Deletion of cycle routes on arterial will be supported where there is an alternative cycle route where this is not in conflict with Bikewest policy.

(That puts the onus on them to shape Bikewest policy)

CYCLING ON STREETS

Movement Requirement 36

On streets with projected traffic volumes of more than 3,000vpd and near schools, stations, centres or where

- long distance commuter cycling and recreational cycling is undertaken, provision should be made for marked lanes, often in association with widened parking lanes.
- On higher traffic volume roads, separate bike paths or dual t, Is may be necessary in particular cases for safety. arterial routes should at least incorporate a sealed shoulder for on-road cyclists. Where arterial routes have service roads along them, these should be designed for cyclists to ride through intersections by providing a dual use path to lead to the crossing points.

Supported

ELEMENT 2 - MOVEMENT

CYCLING ON PATHS

Movement Requirement 37

Specifically designed bike paths not within roads should be designed in accordance with approved construction standards and take into account the specific requirements of long distance commuter cycling and recreational cycling. Paths for the use of pedestrians, wheelchairs/motorised wheelchairs and cyclists should be constructed in accordance with the approved construction standard, and take into account the safety requirements of all potential users.

Supported

Movement Requirement 38

Dual use paths must be provided with facilities for the separation of pedestrians and cyclists where appropriate (eg. meeting points or junctions on high use activity areas).

Clarification requested

What are facilities for the separation of cyclist and pedestrians and is a dual use path a dual use path if they are separated.

Change of surface, cycle barriers and other cycle calming devices might be appropriate on dual use paths. Is this what is meant.

Movement Requirement 39

Dual use path width and design should cater for projected user types and volumes, and to facilitate ease of use by the disabled, aged and the very young. Grade separations can be provided where topography assists or where the road crossed is such that a direct path route is desirable.

Supported

Movement Requirement 40

Dual use pedestrian/bike paths on neighbourhood connectors or arterial routes providing major access to a school should be desirably 2.5m wide and designated as a dual use pedestrian/bike path in accordance with AustRoads Guide to Traffic Engineering Practice, Part 14: Bicycles. Figure 12 provides indicative dimensional criteria for dual use paths. Where dual use paths are provided, the inside parking/bike lane is not required.

Supported within parameters.

(We questioned whether Bikewest would accept this – We could say)

Deletion of on road cycle lane where there is a wide dual use path is supported where this in not in conflict with Bikewest policy.

FOOTPATH / DUAL USE PATH CONSTRUCTION

Movement Requirement 41

Footpaths or dual use paths must have a durable, non-skid surface with tactile paving at bus stops and traffic signals and at any other road crossing point to assist the visually impaired.

Supported

ELEMENT 2 - MOVEMENT

STREETSCAPE

Movement Requirement 42

The Design of each street should convey to the user its primary function, character and identity, and encourage appropriate driver behavior. Street design should respond to landscape features, vegetation and landforms.

Supported

Movement Requirement 43

Appropriate street trees should be provided in all streets except rear laneways for pedestrian shelter, streetscape and amenity, and traffic management

Supported

STREET RESERVES, ROAD AND CROSSOVERS

Movement Requirement 44

The street reserve and road width must be sufficient to cater for all functions that the street is expected to fulfil, including safe and efficient movement of all users, providing for parking on the majority of streets, buffering residents against traffic nuisance, providing for public utilities and landscaping. This may be satisfied by using the indicative street designs shown in Figures 2 to 7.

Supported

Movement Requirement 45

The combination of road, verge and crossover dimensions must allow unobstructed access to individual lots. Motorists must be able to enter or reverse from a lot in a single movement. The width of the crossover at the kerb should be:

- 4.5m in streets with road 5.5m or less wide; and
- 3.8m, in streets with road wider than 5.5m.

The road width must allow vehicles to proceed safely at the target speed for that type of street. Minor delays caused by vehicles parking on the road are acceptable.

Proposed addition

*(Note **) in table 3 - addresses the need for more on street parking where residential densities are high. Document should include a regulation that cross overs be shared between narrow lots to leave more area for on street parking. Verge widths and car park set backs could be determined so as to provide additional parking where on street parking will be inadequate.*

RE There cross over regulation - Engineering to check whether they are prepared to amend CofS cross over standards

Movement Requirement 46

The road width must allow vehicles to proceed safely at the target speed for that type of street. Minor delays, caused by vehicles parking on the road are acceptable.

Supported

Cross referencing issue. Should refer reader to table 4.

ELEMENT 2 - MOVEMENT

VERGES

Movement Requirement 47

Indicative verge widths should be at least as set out in Figures 2 to 7. Increases to allow space for larger scale landscaping, indented parking, future road widening, retaining walls, dual use paths or swale drains may be needed. Refer Element 6: Utilities.

Supported

TRAFFIC CALMING

Movement Requirement 48

Speed control devices should be included to achieve the target speeds in Table 7.

Any slow points including road narrowings should be designed to take into account the needs of cyclists, either by ensuring speed compatibility, adequate space for concurrent passage or by off-street diversions. AustRoads Guide To Traffic Engineering Practice Part 14 provides examples.

Supported

Cross referencing issue

Refers reader to table 7 but the required details are in table 4 and 6.

STOPPING SIGHT DISTANCES

Movement Requirement 49

Stopping and intersection sight distances must be based on the intended speeds for each street type. The minimum sight distances are set out in Table 7. For arterial routes refer to AustRoads Guide to Traffic Engineering Practice.

Supported

Movement Requirement 50

Truncations are only required on any corner lots, in site-specific circumstances where it is demonstrated that sight lines or turning radii are restricted as a result of narrow verges, topography or street reserve width, or to accommodate a roundabout, footpath or utilities. Where required, the size of the truncation must provide adequate sight distance or pavement radius and footpath, and adequate provision for the required utility services.

Supported

Proposed addition

Truncation to laneways is not necessary where a 6m lane has only a 3m carriageway that guides cars down the centre. These two options could be shown in examples.

GENERAL GEOMETRIC CRITERIA

Movement Requirement 51

Cross-falls on street pavements should generally fall between 2% and 7%, and longitudinal gradient should not exceed 15% except on access streets which may have grades up to 20%.

Supported

ELEMENT 2 - MOVEMENT**INTERSECTIONS**

Movement Requirement 52*Supported*

Kerb radii at intersections should be kept to the minimum, which satisfies the required turning templates, keeping pedestrian crossing distances to a minimum', and controlling turning vehicle speeds. Pram crossings are required at kerbs on all intersections.

At intersections, turning vehicles must be accommodated using SAA design vehicles and turning templates, to enable turns to be made in a single forward movement as follows:

- for turns between arterial routes and neighbourhood connectors or access streets the design articulated vehicle (turning path radius of at least 11m), using any part of the pavement (Figure B5 in AS2890.2, 1989);
- for turns between neighbourhood connector or access street and an access street, the design heavy rigid vehicle (turning path radius 11m), using any part of the pavement (Figure B4 in AS2890.2, 1989); and
- for turns between all streets except lane ways, the B99 design car (turning path radius 7.5m), using the correct side of the pavement only (Figure B 1 in AS 2890.1, 1986).

Movement Requirement 53*Supported*

Intersections should allow all desired movements to occur safely without undue delay. Figures 14 to 18 show typical solutions to a range of intersection types.

Movement Requirement 54*Supported*

On arterial routes and neighbourhood connectors, intersection design and management is in accordance with the guidelines set out in *AustRoads Guide to Traffic Engineering Practice Part 5, Part 6 or Part 7*.

ELEMENT 2 - MOVEMENT

Movement Requirement 55

In local streets four-way intersections controlled with Stop or Giveaway signs may be appropriate where:

- Design details indicate the presence on the intersection on all approaches Leg length on minor approach roads is less than 80m
- demand for crossing movements of the major street is low; and
- approach speeds will be low due to design details.

Appropriate methods of indicating the presence of the four-way intersection include the following:

- pavement narrowed and/or raised in the minor leg ;
- traffic islands are installed;
- deflection of the reservation in one street allows buildings to terminate the view down the streets into the intersection; or
- presence of warning signs.

Supported

Movement Requirement 56

Local street four-way intersections not meeting the requirements of R55 should be managed with small roundabouts or intersection road narrowing treatments. Splitter islands with barrier kerbs and signs are not generally required for roundabouts at intersections of local streets with local streets and neighbourhood connectors.

Supported

Movement Requirement 57

Central islands on local street roundabouts should be of the minimum practical dimensions to achieve appropriate deflection as set out in AustRoads Guide to Traffic Engineering Practice Part 6. Central islands may be fully or partly mountable to allow passage of the Design Single Unit Vehicle using all of the available pavement.

Supported

BUSHFIRE REQUIREMENTS

Movement Requirement 58

Streets abutting areas of high bush fire hazard on the long term urban edge or conservation area should be designed to the requirements of the Bush Fires Board or local bush fire agency to provide adequate access to fire and other emergency vehicles under conditions of poor visibility.

Supported

ELEMENT 2 - MOVEMENT

ROAD CONSTRUCTION

Movement Requirement 59

Road pavements must be of design strength not to be damaged by construction or building equipment

Supported

Movement Requirement 60

Paved surfaces must be of design quality and durability to ensure the safe and appropriately comfortable passage of vehicles, pedestrians and cyclists, and discharge of stormwater by ensuring that:

Supported

- flexible pavement design is based on the ARRB residential street design method (ARRB, 1989) using a 25 year design life; or
- concrete pavement design is based on the CCA guidelines (CCAA, 1984) or AustRoads Pavement Design Guidelines using a minimum 25 year life span; or
- interlocking block pavement design based on the ARRB interlocking block pavement design method (ARRB, 1985) to a minimum 20 year life span.

ELEMENT 3 – LOT LAYOUT**LOT LAYOUT****INTRODUCTION**

This Element principally outlines requirements for residential lots in a planning context where a mixture of compatible uses is encouraged.

Key differences from current practice

There is a range of requirements that differ from current residential lot layout practice. They include:

- emphasis on greater lot size variety for housing choice and affordability;
- provision of lots in appropriate locations for
- mixing of compatible uses;
- allowing a variation to the minimum lot size set out in the Residential Planning Codes (R Codes) to achieve diversity;
- lot design for climate-responsive dwellings;
- lot design facilitating development fronting major streets and public open space to support safety and surveillance;
- corner lot truncations are generally not required;
- allowing Detailed Area Plans (DAPs) to define building envelopes and access requirements for small lots, instead of requiring development approval to be obtained as a condition of subdivision approval.

Lot layouts for housing diversity and density

The present limited lot diversity in many subdivisions, resulting from use of the R Codes, may be varied under this Element to achieve greater diversity and density. The commission is guided but not constrained by Table 1 of the R Codes in respect of minimum and average lot sizes. In exercising discretion to vary lot sizes, the Commission will be guided by its policy outlined in Planning Bulletin No. 20 (February 1997). Where any provision of *Liveable Neighbourhoods* conflicts with any mandatory specification of the R Codes, the R Codes will prevail.

The Commission encourages a mixture of lot sizes distributed throughout neighbourhoods to provide housing choice. A wide range of both lot sizes and housing types is needed to cater for increasingly diverse household types. These may range from those targeted to upper-income households, including conventional larger lots with views, but also well-located

higher quality medium density housing, to those at the more affordable end, including smaller lots, duplex lots, and possibly apartments and studio units, sometimes over garages along back lanes. Medium density housing and small lot development should be made more appealing by placing it in good locations such as close to town and neighbourhood centres or overlooking parks. Smaller lots need to predominate near town and neighbourhood centres and public transport stops to achieve sufficient density to support these facilities. Sites intended for multi-dwellings or future small lot development should be identified on structure plans.

Lots for special uses and future residential and/or business intensification

Where a structure plan has been produced, areas for business, employment, home-based businesses, schools and other activities should have been identified. Lots with appropriate dimensions and characteristics need to be provided to facilitate these proposed activities. Often, mixed commercial and residential development near centres will be proposed, yet only the residential component will be built in the first phase of development. Despite this, affected lots should be carefully dimensioned, and longer term Detailed Area Plans specified to facilitate incremental redevelopment. These guidelines should provide for efficient layout and access for rear parking, together with, say, large front setbacks that would enable a business to be constructed in front later.

In some urban fringe areas, residential land may be developed on sites near proposed railway stations or town centres well in advance of these facilities. In these areas larger lots could be required to incorporate Detailed Area Plans that facilitate future intensification. For example, a house on a 700m² lot could be sited and designed to enable future subdivision and an additional dwelling to be built.

Lot design for climate responsive dwellings

Western Australia has distinct climates, ranging from tropical in Broome to temperate in Albany.

Each climatic area requires different lot layout and dwelling design responses to maximise the opportunities presented by the characteristics of the climate. While some Requirements are provided for the various climate areas, it is

ELEMENT 3 – LOT LAYOUT

stressed that local governments may wish to develop and refine these concepts in accordance with regional variations.

The use of breezes to cool dwellings is an important response to the climatic conditions in northern Western Australia and may affect lot orientation and length-to-width ratios, as well as contribute to the vernacular architecture and local identity.

In the temperate zone, design to capture winter sun and block summer sun predominates. Lot layout for solar access requires a predominantly north-south/east-west street orientation. The correctly orientated lots should have guidelines specifying appropriate building setback from the northern property boundary to enable good winter sun access to suitably located and sized windows.

Lot layout to front parks and natural areas

Streets, with lots fronting them, should edge the majority of parkland and bushland. This provides higher amenity and greater safety for both the open space users and residents. No lot should require a back fence onto a park, or conversely turn its back on the street.

Where full street frontage is impractical, or where streets on both sides of a linear park are unnecessary, lot layouts can provide development frontage through designs incorporating rear lanes or battle-axe lots, with dwellings to front the park/footpath.

Lot layout to front major streets

On major streets careful lot layout is critical to achieving appropriate vehicle access, mixed use potential, noise management, visitor parking and urban amenity. Back fences along major streets have become commonplace in more recently developed suburbs. This solution arose as an initial response to prohibit vehicles from reversing out into heavy traffic. It is now recognised that there are many economic, environmental and community safety disadvantages of the back fence response to this problem.

New solutions solve the reversing problem by designing alternative vehicle access methods. Thus it is possible to capitalise on the benefits associated with development fronting virtually all streets except freeways. Service roads, car courtyards, on-lot manoeuvres for frontwards exit, rear lanes and battle-axe lots can all provide solutions.

Lot layout and garage locations

Residential lot dimensions should suit efficient garaging and have regard for on-street parking provision.

This Element suggests the setting back of garages behind the frontage of a dwelling to avoid streetscapes being garage dominated. This streetscape issue will also be addressed when the R Codes are reviewed in due course. Other approaches to reduce the impact of garaging are to encourage the use of rear lanes where lots are narrow, and the use of single width garages. These options also increase the quantity of on-street parking as driveway crossovers are reduced.

Corner lot truncations generally not required

Corner truncations have traditionally had splayed or “truncated” corners, typically of 6 m x 6 m, to provide for sightlines to satisfy the former “give way to the right” rule. However, sightlines were rarely needed to provide adequate safety at stop signs or other slow point controlled junctions. Many poorly shaped corner lots resulted, and this has been highlighted over the past several years as lots have become reduced in size and the impact of truncations has increased.

In response to this issue, Edition 1 of *Liveable Neighbourhoods* only provided for truncations in circumstances where site-specific problems result in turning radii constraints. This approach was reviewed in the Street Layout, Design and Traffic Management Guidelines that have been prepared to support E2 Movement Network.

The review found that a balance is required to allow for ease of pedestrian movements at crossings and safety for street users as well as providing for the necessary services within the street reserve. To appropriately align and position stormwater and other services at intersections, a small truncation is generally needed. However, this should be minimal to keep vehicle speeds low because the kerb return radii also influences the swept path of vehicles and the speed at which those turns are made.

As a result, Edition 2 provides for corner truncations of 3 m x 3 m as a “default” in the local street network. Specific situations may require an increase in the default requirement (e.g. for road geometry where there is an acute angle of intersection between two streets), or decrease in the default requirement or no

ELEMENT 3 – LOT LAYOUT

provision (e.g. in a location of proposed narrow frontage lots where services can still be accommodated). These situations should normally be handled at the detailed planning and engineering design phase, following preliminary approval. Truncations may also be needed for the intersections of laneways and streets where a footpath is located close to the property boundary. In this circumstance a 2 m x 2 m truncation will be required.

Layouts to facilitate noise protection

Throughout urban areas, many major roads, some rail lines, and some industries generate high levels of noise which may be detrimental to residential amenity. In conventional development, solutions have often required large setback distances, noise mounds and high solid walls. However, these solutions have sterilised land and reduced mixed use development opportunities. It is also now recognised that the residential population is highly varied in its sensitivity to noise, with up to 10% of households not uncomfortable with relatively noisy environments.

Design solutions exist to enable lots to be provided and developed adjacent to noise-generators. These include providing a continuous “wall” of business buffer buildings, specially detailed noise-buffering home business or home workspace lots, through to dwelling layouts which locate bedrooms away from noise sources.

Detailed Area Plans (DAPs)

(Formerly Building and Access Guidelines)

Achieving better residential design outcomes requires a mechanism to enable lot design to be linked to a future building without the building plan being submitted at subdivision. This is particularly important for small lots where design co-ordination is required to ensure that buildings work both for their owner and the streetscape.

Edition 1 of *Liveable Neighbourhoods* proposed a mechanism of Building and Access Guidelines that were to be effected in the Model Scheme Text, but this approach was not proceeded with following submissions. The Draft Model Text Provisions for Structure Plans provides an alternative method to Building and Access Guidelines. It proposes that a Detailed Area Plan may be prepared for a particular lot or in a particular locality and submitted to Council for approval. Once approved, the plan is used as the basis for subdivision and development.

Development

Approval will only be required where a variation to a Detailed Area Plan is proposed. A Detailed Area Plan also provides an alternative method of satisfying clause 2.5 of the Residential Planning Codes for concurrent development with subdivision for lots less than 350m².

The Commission will utilise currently available mechanisms (such as the Detailed Site Plans in the Shire of Swan Town Planning Scheme) pending implementation of the model provisions.

Subdivision

Where design coordination is likely to be required of a subdivision but a Detailed Area Plan has not been approved, the Commission may approve an application for subdivision subject to the applicant submitting and gaining local government approval to a Detailed Area Plan prior to final subdivision approval. Future purchasers will be required to be notified.

Covenants

Where a local government has not incorporated the Draft Model Text Provisions for Structure Plans in its town planning scheme, the Commission where appropriate may alternatively require design co-ordination through restrictive covenants for a specified period executed by the owner.

ELEMENT 3 – LOT LAYOUT**OBJECTIVES**

Lot Layout Objective 1 To provide a range of residential lot sizes to suit the variety of dwelling and household types in Western Australia with area and dimensions that meet user requirements.	<i>Supported</i>
Lot Layout Objective 2 To provide lots which are orientated and dimensioned to suit energy efficient housing which can minimise energy use for heating in winter and cooling in summer or which respond to local climatic conditions.	<i>Supported</i>
Lot Layout Objective 3 To provide lots with area and dimensions that protect environmental features and take account of site constraints.	<i>Supported</i>
Lot Layout Objective 4 To arrange lots to front streets, major streets and parkland such that development enhances personal safety, traffic safety, property safety and security; and contributes to streetscape and park quality.	<i>Supported</i>
Lot Layout Objective 5 To facilitate development which uses land and infrastructure efficiently, and which encourages cost savings in housing to benefit the economy and the environment.	<i>Supported</i>
Lot Layout Objective 6 <i>To provide for smaller lots and lots capable of supporting higher density development in and around town and neighbourhood centres and public transport stops, and adjacent to higher amenity areas such as parks.</i>	<i>Supported</i>
Lot Layout Objective 7 To provide lots in appropriate locations which are suited to business development to reduce travel and provide jobs.	<i>Supported</i>
Lot Layout Objective 8 To guide building layout and access on special sites, smaller lots and mixed use development sites to enable efficient use of sites, protection of neighbours and streetscape amenity, parking optimisation, or to enable future intensification.	<i>Supported</i>
Lot Layout Objective 9 To provide lots which facilitate safe and efficient vehicle access without street frontages being dominated by garages and parked cars or creating unsafe conditions along arterial routes.	<i>Supported</i>
Lot Layout Objective 10 To provide lots which facilitate noise management.	<i>Supported</i>

ELEMENT 3 – LOT LAYOUT**REQUIREMENTS****APPLICATION REQUIREMENTS**

Lot Layout Requirement 1 Structure plans and subdivision applications must be accompanied by the relevant information listed in Applications Under Liveable Neighbourhoods section. Detailed Area Plans (DAPs) may be required.	<i>Supported</i>
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LOT SIZE AND DIVERSITY

Lot Layout Requirement 2 A variety of lot sizes and types should be provided to facilitate housing diversity and choice and meet the projected requirements of people with different housing needs.	<i>Supported</i>
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Lot Layout Requirement 3 Lots must have appropriate area and dimensions to enable efficient siting and construction of a dwelling and ancillary outbuildings, provision of private outdoor space, convenient vehicle access to a public road and adequate parking.	<i>Supported</i>
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Lot Layout Requirement 4 To facilitate lot diversity and an urban structure that is pedestrian friendly, street and lot layouts should provide for perimeter blocks that are generally in the range of 70-120 m deep by 120-240 m long.	<i>Supported</i>
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Lot Layout Requirement 5 Smaller lots and lots capable of supporting higher density should be located close to town and neighbourhood centres, public transport and adjacent to high amenity areas such as parks.	<i>Supported</i>
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Lot Layout Requirement 6 Lots intended for re-subdivision and/or development of more than one dwelling should be identified as such on a plan of subdivision. Single dwelling lots should not be further subdivided for a specified period, although a principal dwelling and ancillary dwelling may be constructed on any lot provided it meets any DAPs and mandatory R Code requirements.	<i>Supported</i>
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ELEMENT 3 – LOT LAYOUT**Lot Layout Requirement 7**

The subdivision should maximise the lot yield for the relevant R Coding unless it can be demonstrated that:

- an overall structure plan has been approved that achieves the R Code density, while specifying a lower density which must be met for this subdivision/precinct; or
- the site analysis demonstrates that the R Code density is inconsistent with satisfaction of other provisions of Liveable Neighbourhoods; or

the R Codes are indicative of a density associated with a future town centre or railway station, and the development substantially precedes these facilities. In this case, a subdivision may be approved provided that incremental intensification of the first stage development to the R Code density can occur without significant demolition

Supported

Lot Layout Requirement 8

An application for subdivision should conform to the minimum and average lot size and frontage requirements of the R Codes. The Commission may agree to vary the minimum lot size by up to 10% providing the average lot size for the specified R Code is maintained and the local government agrees. In applying this policy, the Commission will have regard to the following:

- the lots created will contribute to Objective 1 of this Element, achieving lot size variety; and either
- each lot 350m² or greater is capable of accommodating a dwelling in accord with DAPs submitted for approval in conjunction with a subdivision application; or
- each lot less than 350m² has DAPs applied in accordance with R26 of this Element.

Supported

Lot Layout Requirement 9 When an applicant demonstrates to the satisfaction of the Commission that the market may not support higher densities at the time of subdivision, it may accept a design for larger lots which is accompanied by DAPs setting out an overlay plan demonstrating how higher densities can be achieved in the future.

Supported

ELEMENT 3 – LOT LAYOUT**DEVELOPMENT NEAR CENTRES AND STATIONS**

Lot Layout Requirement 10

In areas close to town centres, railway stations and major bus stops, lot sizes should be provided which enable adequate medium density housing to be produced to support the facilities and/or public transport service. This may be achieved by:

- providing for housing density of at least 25 dwellings per hectare within 400 m of railway stations, and at least 15 dwellings per hectare from 400 m to 800 m of stations;
- ensuring housing densities of at least 15 dwellings per hectare within 400 m of major bus stops; and
- locating housing close to public transport stops for those groups in society dependent on such forms of transport.

Supported

Lot Layout Requirement 11

In areas which are being developed substantially prior to a planned nearby major urban centre or railway station, lot dimensions and development should be designed to facilitate future intensification. This should be achieved using DAPs providing for dwellings to be located to enable re-subdivision adjacent to the existing house for one or more additional dwellings. On smaller lots, dwellings should be capable of being extended in future for a separate dwelling.

Supported

Lot Layout Requirement 12

Where a town or neighbourhood centre is proposed, appropriate lots for retail, business and community purposes should be provided. These lots should enable building layouts along street frontages and efficient off-street car parking provision at the rear or side of the lot.

Supported

ELEMENT 3 – LOT LAYOUT

MIXED USE DEVELOPMENT

Lot Layout Requirement 13

Adequate lots for non-residential or mixed use development should be provided in appropriate locations to facilitate business and employment generation, taking into account:

- the need for business and home-based business to locate around town and neighbourhood centres and along arterial routes;
- opportunities for home workspace development, often backing on to or fronting across to industrial development;
- ability of uses and building forms to act as noise buffers to external noise sources such as major roads, railways or industries;
- the capacity of potential mixed use lots initially developed for housing to efficiently convert to or add a business use; and
- opportunities to allocate highly accessible strategic sites on transport routes to large scale industrial or distribution uses.

Where non-residential land uses are provided, the change of use should occur along the rear boundary line of lots, rather than the street frontage wherever possible to provide a compatible use transition.

Supported

Lot Layout Requirement 14

Where land for industrial or similar uses is proposed, the size and dimensions of lots abutting or across streets from residential lots should be appropriate and available for development that provides an effective high amenity transition

Supported

SCHOOL SITES

Lot Layout Requirement 15

Sites for government primary schools must be 4 ha in area, rectangular to square in shape (length of the site not to exceed twice the width), and bounded by streets on at least 75% of the frontage. The site must contain an area of approximately 75 x 110 m for a junior sportsfield.

Primary schools should be co-located with district open space areas to encourage shared use of facilities. Where a primary school is co-located with district public open space containing active sports facilities, the area required for the junior sportsfield need not be provided on site if an alternative sportsfield is available and it is within 100 m safe walking distance of the school. Lot sizes for schools may also be reduced where it is demonstrated to the satisfaction of the

Supported

ELEMENT 3 – LOT LAYOUT

Commission and the Education Department of Western Australia that site conditions enable the siting of school facilities and buildings in a manner that requires a lesser area of land.

In hot arid areas of W.A. public parkland should be combined with school ovals to maximise efficient use of limited water resources.

SITE AND CLIMATE RESPONSE

Lot Layout Requirement 16

Lot size and dimensions should enable dwellings to be sited to:

- protect natural or cultural features;
- acknowledge site constraints including noise, soil erosion, poor drainage, saline soils and bushfire risk;
- minimise earthworks and retaining walls on sloping sites;
- capitalise on views; and
- provide space for appropriate planting for microclimate management and energy conservation.

Supported

Lot Layout Requirement 17

Lots in temperate climates should be orientated to facilitate siting of dwellings and private open space to take advantage of winter solar access and summer sun deflection. This may be achieved by:

- maximising the number of lots which have their long axes within the range N20 o W to N30 o E, or E20 o N to E30 o S;
- varying the depth of north-south orientated lots to provide longer, narrower lots on the south side of the street and shorter, wider lots on the north side;
- dimensioning lots to protect solar access on site, taking into account likely dwelling size and siting, relationship of each lot to the street and abutting dwellings, and existing vegetation. Table 1 provides a guide to the desired setback distance of the north wall of a dwelling from the northern boundary of the lot; and
- ensuring lots with the long axis east-west are 12 m or more wide, unless they are intended for use by attached dwellings.

Supported

ELEMENT 3 – LOT LAYOUT

Lot Layout Requirement 18

Lots in hot humid and hot arid climates should be orientated to facilitate the siting of dwellings to take advantage of micro-climatic benefits, including cooling breezes, shading and canopy vegetation.

Supported

BATTLE-AXE LOTS

Lot Layout Requirement 19

Battle-axe lots must only be used where they can achieve adequate amenity for residents and neighbours, and enhance community safety, in situations including:

- outlook over parks;
- providing frontage to major streets;
- elevated views;
- providing vehicle access to sloping sites; and
- in very limited circumstances, larger lots adequate for self-containment of a dwelling and its outlook.

Supported

Lot Layout Requirement 20

Access leg widths for each lot must be a minimum of 4 m. The Commission may consider further reduction where local government and servicing authorities concur. Joint access legs may be 3 m each. Only in special cases will more than two combined access legs be permitted.

Supported

FRONTAGE TO PARKS AND NATURAL AREAS

Lot Layout Requirement 21

Lots must be orientated to front parkland and natural areas to enhance amenity while contributing to personal and property security and deterrence of crime and vandalism. Frontage to parks may be achieved by a variety of lot layout solutions

Supported

FRONTAGE TO STREETS AND ARTERIAL ROUTES

Lot Layout Requirement 22

Lots should be orientated to front streets and arterial routes to provide good streetscape amenity and surveillance, and to facilitate business and home-based business development.

Supported

Lot Layout Requirement 23

On streets with vehicle volumes greater than 3,000 vpd, lot layout must ensure that vehicle egress will not involve reversing into the street.

Supported

ELEMENT 3 – LOT LAYOUT

Appropriate egress may be achieved by a variety of lot layout solutions that still maintain frontage, including:

- using service roads to busier arterial routes;
- using battle-axe lots to provide vehicle access from side or rear streets;
- arranging lots to side onto busier streets, with vehicle access from a side street;
- providing for frontwards exit layouts for garages and driveways for some larger lots fronting neighbourhood connectors via DAPs; and
- providing shared driveways to garages at rear, arranged to require frontwards exit via DAPs.

LOT WIDTH AND GARAGE LOCATION

Lot Layout Requirement 24

Lot widths should be suited to provision of car parking, garaging and driveway access in a manner that does not result in garages or carports dominating the street frontage. This may be achieved by:

- providing rear lanes for garage access where most of the lot widths are less than 10 m;
- using DAPs on lots less than 13 m wide to require garages accessed from street frontages to be single width, setback behind dwelling fronts and accessed by a single width kerb crossover; and
- specifying car parking, access locations and building envelopes through DAPs to setback garages behind the front of a dwelling with at least 5 m from the street frontage to provide an additional tandem parking space.

Supported

NOISE-BUFFERING

Lot Layout Requirement 25

Subdivision layouts abutting external noise-sources such as arterial routes, railways, or industries should provide lots capable of accommodating:

- non-residential uses which provide a shield to residential uses behind;
- home-business uses with the workplace providing the buffer; and/or
- dwelling layouts which locate the more noise-sensitive rooms away and protected from the noise source.

Supported

ELEMENT 3 – LOT LAYOUT**DETAILED AREA PLANS (DAPS) FOR SMALL LOTS AND SPECIAL SITE CONDITIONS****Lot Layout Requirement 26**

DAPs must be prepared for all lots less than 350 m². DAPs may cover any of the matters listed in Table 2 and will be evaluated against criteria in Table 3 and the R Codes objectives (clause 1.2.1). They must include at least the following matters:

- **parking and access:**
provide two spaces per dwelling, one of which may be in tandem;
specify the vehicle access point in a manner that optimises on-street parking. Where a lane is provided, parking must be accessed from it; and
specify the garage location and size and ensure it is set back behind the frontage of the dwelling.
- **building envelope and windows:**
specify the minimum frontage setback and maximum building height, build-to-boundary locations and wall heights, and other side and rear setbacks (e.g. relating to solar access, tree protection, easements); and

specify any critical window locations and treatments (e.g. for solar access, shading, frontage outlook, or to limit overlooking or noise intrusions, or to improve surveillance).
- **private open space and fencing:**
ensure that a minimum private outdoor area of 40 m², with minimum dimension of 5 m, will be provided at the side or rear of the dwellings; and

limit front fence height to a maximum of 1 m if solid, and to 1.5 m if more than 50% transparent.
- **time limits and variations:**
a time limit for commencing construction of three years from date of final subdivision approval, and for expiry of DAPs after five years, after which normal development approval processes will apply; and

DAPs must not be varied, except with the written approval of the local government after it has consulted with abutting owners.

Generally Supported

Request further clarification as to how these will be enforced. A Scheme approach is preferred to Caveats on title. City of Joondalup has provisions in its scheme for “Development Areas” which allows for “Structure Plans” containing variations on DAPs. IS this the appropriate model for DAP’s.

The 5 year sunset clause is problematic as it may create local community tensions where lots are not developed for 5 years and then developed in a way that is out of character with other development. We would prefer to have DAP’s in the Town Planning Scheme and allow for their modification or removal through that process.

ELEMENT 3 – LOT LAYOUT

Lot Layout Requirement 27

For smaller lots, DAPs and lot dimensions should strongly encourage building to one or both side boundaries whenever practicable, and to front or rear boundaries wherever appropriate to the streetscape and site conditions.

Supported

Lot Layout Requirement 28

DAPs may be used for lots between 350m² and 450m² and should be prepared for any lots greater than 350 m² where special site conditions exist or where other siting or access matters require control, including:

Supported

- scope for future intensification of development;
- controlling vehicle access and egress;
- setting special conditions on narrow lots; and
- addressing noise-buffering requirements.

Table 2 - MATTERS FOR INCLUSION IN DAP's

Building envelope – setbacks, build to boundary areas, heights, floor levels, wall articulation, north boundary setback for solar access.

Building details – frontage orientation, privacy, street surveillance and window location/screening, style elements, roof form, colours and materials.

Parking – number of spaces, location, access, form.

Private open space – location, dimensions, qualities.

Fencing – heights, materials, detailing, retaining walls.

Services – easements, stormwater, air conditioners.

Landscaping – protection of existing streets, space for shade trees.

Noise-buffering – dwelling design and layout to protect from external noise, provision of noise-buffering walls.

Ancillary dwellings/studio dwellings, home business or home workspace – potential location and size.

Storage space – potential location and size.

Energy efficiency – window location, shading, shared boundary walls.

Siting on lot in relation to slope – retaining walls, cut and fill.

Encroachments – porches and verandahs, utilities, reciprocal rights-of-way, party walls.

Mechanisms for expiry or variations of DAPs.

TABLE 3: CRITERIA FOR EVALUATION OF DAP's

Detailed Area Plans should result in residential development that satisfies the following matters:

- day lighting; visual and acoustic privacy; occupant and community safety; solar access for amenity and energy efficiency;
- useable private recreational open space;
- high levels of amenity protection for existing abutting neighbours from overlooking, overshadowing, noise intrusion or visual bulk adjacent to principal private open space areas;
- reasonable levels of similar amenity protection for adjacent dwellings within the development consistent with anticipated future resident expectations;
- streetscape quality and neighbourhood character, including building scale and character, fencing and landscaping, location of garages behind the fronts of dwellings;
- opportunities as identified for future intensification or business development are facilitated;
- adequate on and off-street car parking, vehicle access, storage and servicing requirements; and
- protection or response to any specific site features.

Notes to indicative Precinct Plan

- 1 Driveways are to be located in the positions shown to protect the streets' terminating vista, to facilitate maneuverability in narrow streets and to optimise on-street parking capacity.
- 2 All garages set back 5 m minimum from street frontage. Double garages permitted only on lots 15 m or wider. Garages must not project forward of dwelling frontage.
- 3 Living room to face north setback area of 6 m minimum depth, with windows a minimum of 7 m long. Eaves or verandas of 1 m minimum width to shelter windows.
- 4 Verandas and porches may project up to 3 m forward of dwelling frontage setback line on south lots and up to 2m forward on north lots and east-west lots.
- 5 Fences: front fence height to be limited to a maximum of 1 m if solid and to 1.5 m if more than 50% transparent.
- 6 The areas shown as open space are minimums; and the areas shown as buildings are maximums. An area of 40m², with minimum dimension 5 m, must be provided at the side or rear of dwelling.
- 7 Wall heights: Maximum wall height for single storey on boundary is 3.3 m. Maximum wall height for double storey on and off boundaries is 6.3 m.
- 8 Overall building height maximum 9.5 m.
- 9 These DAPs apply to construction commenced within 3 years of final subdivision approval and expire within 5 years of it.
- 10 Variation of DAPs is not permitted, except with written approval from local government after it has consulted with abutting lot owners.

PUBLIC PARKLAND

INTRODUCTION

Parklands that can be used by the wide range of people living and/or working in urban areas contribute significantly to quality of life. Through careful placement in a site-responsive design, they can also contribute towards legibility, identity and a sense of place that helps build communities.

Key differences from current practice

Public open space has been derived from a quantitative calculation and it has too often been inconveniently located, inappropriately sized, or poorly surveilled.

Restraints on local government expenditure with consequent limiting effects on local government's ability to develop and maintain open space has directed open space towards large playing fields (sometimes combined with schools and other community facilities) for ease of maintenance. This has been criticised for not producing a range of public open spaces to meet the needs of all user age groups and not providing accessibility to younger users in local neighbourhoods.

Linear open space links combined with pedestrian access ways have been used to provide a separate pedestrian and bike network to roads. These networks are increasingly questioned because of the lack of surveillance and related concerns over personal safety.

A wider range of parks and other open space

Liveable Neighbourhoods seeks to provide a range of site responsive urban parkland which is surveilled, safe and conveniently located for the majority of residents. The Commission favours a balance between neighbourhood parks, readily accessible to residents, and larger playing fields to be shared between neighbourhoods.

Small local parks (up to 3,000 m²) are encouraged for local children's play and as resting places for elderly or disabled people in appropriate circumstances and where maintenance arrangements can be agreed with the local government.

Change third paragraph as it does not make it clear enough that we are not talking about foreshore reserves and other linear spaces where the cycle net work is separated (runs in the linear space) but there are still roads fronting.

Linear open spaces located behind development have been used to provide a pedestrian and cycle networks separated from the road. These have been criticised for...

*Seeks to provide a range of site responsive urban parkland which is **passively** surveilled, (surveilled is used often to mean surveillance cameras or patrols. These may be used by some Local Governments but the design should assume surveillance will not be provided in this manner but by passive surveillance etc).*

Small local parks (up to 3000 m²) are encouraged for local residents providing play, gathering and resting ~~places for elderly and disabled~~. (That is these parks should be inclusive of the full range of passive users)

Concession to reduce public open space from 10% to 8% of gross subdivisible area

ELEMENT 4 – PUBLIC PARKLAND

Since 1956, the Commission and its predecessors have required subdividers to cede 10% of the gross subdivisible area of new residential neighbourhoods free of cost to the Crown, as recreation reserves. To encourage the provision of improved urban areas without increasing development costs, and to achieve quality open space and neighbourhood amenity at the time of subdivision, the Commission will now consider a discount of 2% of the contribution. The Commission must be satisfied that the provisions of *Liveable Neighbourhoods* have been followed; local and neighbourhood parks are developed to at least a basic level of landscaping including earthworks, grassing, tree planting, irrigation and a maintenance program/commitment for two summers; and that any regional and foreshore reserves are given up in accordance with existing policy requirements.

Community facilities sites

Sites for community facilities such as community centres, meeting halls, branch libraries and kindergartens, pre-schools and daycare centres are increasingly important for community development.

The Commission may accept a reduction in the 10% proportion of public open space within a subdivision on request of a local government for a community facilities site, where equivalent area of land is made available free of cost to the local government for the specific purpose. Community facilities sites should be considered for neighbourhood and town centres to assist in forming a community focus. They may also be located with open space in particular circumstances such as where joint use of the facility and park is envisaged. Their proposed location must be explained in terms of their purpose, benefit to urban structure and accessibility to likely users.

Natural areas and cultural features

There may be opportunity for natural areas and cultural features to be incorporated into neighbourhood and district parks. The Commission will be guided by advice from the relevant local government that active and passive recreation needs of future residents will be adequately catered for before it will agree to their inclusion within the calculation of public open space.

The possible reduction from 10% open space contribution to 8% comes at a time when there is greater demand for a wider variety of play fields. This is likely to limit the area left for neighbourhood and district parks. It is therefore a concern that functional space might be lost to natural areas and cultural features.

Identified areas of significance. (Bushplan, DEP conservation areas, aboriginal sites) serving regional needs and values should be protected but not at the cost of functional space serving the local neighbourhood. Who is permitted to decide what non regional Natural Areas and Cultural Feature should be kept and who provides the study of local needs should be determined.

ELEMENT 4 – PUBLIC PARKLAND

Visual supervision of parks - promoting safety

Liveable Neighbourhoods aims to ensure that the design of subdivisions surrounding parks always results in visual supervision of parkland by residents. Perimeter streets around open space are required. Where a street is not provided, it must be demonstrated that other means have been found to ensure overlooking and surveillance from adjoining development (see Element 3 Lot Layout).

Propose that design be required to provide “passive” surveillance. Surveillance alone could mean cameras.

Local parks and neighbourhood parks should be designed to ensure passive surveillance of the entire area is possible. District parks should have passive surveillance of the perimeter but heavy landscape features should be permitted within the area of the park.

Joint parkland and drainage provision

Parkland should, where practical, be provided in conjunction with the drainage system (refer to Element 5 Urban Water Management). The Commission may grant credits toward public open space provision for urban water management facilities.

Credits for urban water management facilities should not be granted in any circumstances where this is not co located with POS. The second sentence leaves this option open.

Foreshore reserves and regional open space

The Commission may require provision of a foreshore reserve where subdivision abuts a watercourse, such as a river or creek, or a body of water such as a lake or the sea. A subdivision may also include land designated for parks and recreation under a region planning scheme. These circumstances are covered in the existing Commission Policy DC 2.3, pending the current review of that policy.

Figure 1 PUBLIC OPEN SPACE MODEL

In the notes in figure 1 local and neighbourhood parks are to be landscaped and maintained for two summers, however this is not enshrined in the requirements.

In addition

A “2 summers” standard would allow an unscrupulous developer to create a landscape that looks good but can not be sustained without extensive work.

We would look to have a landscape management plan developed and approved rather than a flat “2 summers” care program (In two summers it is possible to create water dependant plants. It is also after two years that thinning out is required..

Rather we would look to have management plans established for landscape to ensure adequate hand over processes are in place. The use of these plans could also assist the DEP to approve areas where conservation management needs careful consideration.

To achieve the 2% Public Open Space reduction,

- most dwellings should be within 400 m of a park;
- district parks should be located at the edge of neighbourhoods;
- there is at least one neighbourhood park per neighbourhood;
- local and neighbourhood parks are landscaped and maintained for two summers; and
- the Objectives of *Liveable Neighbourhoods* are met.

Local parks may be introduced to supplement park provision in neighbourhoods.

OBJECTIVES

Public Parkland Objective 1

To ensure that public open space of appropriate quality and quantity is provided to contribute towards the recreational and social needs of the community in convenient locations.

Generally Supported

Replace “convenient” with “appropriate” (convenient could mean to the developer)

Public Parkland Objective 2

To facilitate the provision of land for community facilities where appropriate, in conjunction with land ceded for public open space.

Generally Supported

Could be misunderstood to mean that Community Facilities (Libraries etc should be co-located with sports fields – this is not desirable where this would take the library out of the Town Centre.

Public Parkland Objective 3

To protect and preserve margins of wetlands, water courses and foreshores adjacent to urban development.

Supported

Proposed additional objective.

Objective 4.3 To provide public open space and landscape in a manner that is environmentally sensitive, place responsive and sustainable.

REQUIREMENTS**APPLICATION REQUIREMENTS**

Public Parkland Requirement 1

Structure plans and subdivision applications must be accompanied by the relevant information listed in Table 1, Application Information Requirements section. A parkland management strategy may be required, where a reduction in the public open space contribution is sought.

Generally Supported

A parkland management strategy ~~may be required~~, shall be provided where a reduction in the public open space contribution is sought.

We see parkland management as a core issue as new estates are tending to provide developed parks up front. The onus should be on the applicant to provide management plans rather than the Commission to have to request them on behalf of Local Government.

PARKLAND FUNCTION AND DISTRIBUTION

Public Parkland Requirement 2

Public parklands should:

- meet the needs of the community to be served, including the population density and profile of user groups;
- provide a balance between neighbourhood, district and regional open space;
- support legibility of an urban environment and the establishment of neighbourhood identity by incorporating natural and cultural features and landmarks;
- integrate, where appropriate, with other land uses such as schools and other community facilities; and
- be provided jointly wherever practical with the drainage system.

Generally Supported

Propose that the issue of balance be focused on that between local and district parks as Liveable Neighborhoods does discuss regional needs other than in allowing for Active Open space to be traded for passive ecological reserves.

- *provide a balance between **local** neighbourhood and district ~~and regional~~ open space;*

A second point making allowances for Regional Plans could be added.

- *is in accordance with any regional recreational or parkland needs plan.*

AMOUNT OF PUBLIC OPEN SPACE

Public Parkland Requirement 3

A contribution of 10% of the gross subdivisible area must be given up free of cost by the subdivider for public parkland.

Generally Supported.

The definition of Gross Subdivisible Area is outlined as part of a case Example. As it is central to the ELEMENT we suggest it be included in regulation 3 or in a separate Table for reference.

Public Parkland Requirement 4

A discount of 2% of the public open space contribution may be agreed to by the Commission where:

- Element 1 Community Design Objectives have been satisfied to achieve the desired urban structure, lot layout and parkland distribution;
- **District Parks and Open space have been levelled and treated so that they are ready to be marked out and utilised for play fields (NEW POINT)**
- any local parks have the support of the local government and both neighbourhood and any local parks are constructed in accordance with an approved landscaping and management plan to the satisfaction of the relevant local government; and
- **The management plan meets the requirements outlined in the Management Plan outline (including recording and notification of Council of watering regimes and maintenance costs).and (NEW POINT)**
- any regional open space or foreshore reserve is provided in accordance with Clauses 3.2 and 3.3 of Commission policy DC 2.3.

Generally Supported

We propose a significant change (through the inclusion of new dot points) as we would prefer that play fields (which often end up taking many years to be developed) are developed as part of the requirements for the 2% reduction. This allows local and district parks to be developed up with the Community to suit needs as defined by those moving into an area.

We do not believe that this disadvantages developers as it does not prevent them landscaping streets and bill boarding proposed park sites. It advantages Council as it is not lumbered with small parks it has had no part in planning and establishing. It also means that earth moving requirements can be considered as part of subdivision contouring and that the developer is responsible for meeting EPA requirements for the most significant expanses of introduced Parkland.

See proposed issues for inclusion in a Management Plan which could be presented in the same way the guide to DAP's is presented in the LOT LAYOUT ELEMENT. These plans are referred to in regulation R4 as a guide to construction. This should be extended to early maintenance and to hand-over processes.

CREDITS FOR PUBLIC OPEN SPACE

Public Parkland Requirement 5

Credits towards public open space under R3 or R4 will be allowed by the Commission where dual use drainage and recreation reserves have been provided as follows.

Drainage swales/detention areas up to 100% of the land area is credited where:
the swale is not subject to any permanent inundation (i.e. only inundated in a storm event of greater than 1 in 10) and does not present a safety hazard;
the area of the swale is contoured, unfenced grassed/landscaped and is created as a fully functional play/recreation area; and
the swale is constructed and landscaped to the satisfaction of the Commission upon the advice of the local government.

Artificial lakes/permanent drainage ponds up to 50% (but not to exceed 20% of the total public open space contribution) of the permanent surface water area is credited where:
the Water Corporation approves the lake/pond as part of an integrated drainage system that has a

*(Western Australian Water Authority has been split. We believe it is Water and Rivers that deals with this issue not Water Corp) May be replaced with "responsible drainage authority".
ELEMENT 5 - URBAN WATER MANAGEMENT – R8 refers to the "responsible drainage authority".*

Credits for artificial lakes etc could be granted where they are provided to enhance the quality of the development even though there is no need for them in terms of water management.

The points listed here could be located in the Urban Water Management section where they are central to the ELEMENT and referred to from R5.

This point relates the issues of local POS being

nutrient stripping function;

- the measures will contribute to protection of wetlands, watercourses and associated vegetation and comply with water sensitive design criteria;
- where applicable, the permanent water body is integrated with an overflow dry basin system which is capable of being used as public open space; and
- the lake/urban water pond/overflow basin is constructed and landscaped to the satisfaction of the commission upon the advice of the local government.

- Natural wetlands up to 50% credit (but not to exceed 20% of the total public open space contribution) for natural wetlands and fringing vegetation where such areas are not fenced for conservation or other reasons. The area of water is to be calculated on the highest known winter level

used as a bargaining chip for regionally valuable space (including Bush Plan areas) which may be contrary to the intention of LN CDC which includes the objective of access to local parks that serve a community meeting place role.

We suggest all identified significant wetland be excluded from credits and only wetlands (and other environmental features – see R 19) that the local residents (supported by Council) are prepared to bargain for be considered in the open space Credit System.

In addition:

As drainage/ artificial lakes and wetlands (and possibly other environmental areas – R 19) might all earn credits. A cap to the extent of credits should be identified. Up to 20% of the required 8% POS (in keeping with dot point) 2 might be adopted.

CASH-IN-LIEU AND TRANSFERS

Public Parkland Requirement 6

The Commission may agree to cash-in-lieu of public open space where there is already an over-provision of public parkland taking into account the overall objective of parkland provision and distribution.

Supported

Public Parkland Requirement 7

In special circumstances the Commission may require land to be transferred in fee-simple free of cost to the local government for a public purpose, including recreation where:

- the local government requests the transfer;
- the land is shown in the local town planning scheme as reserved for public recreation; and
- any subdivisional costs and cost of associated services for the land will be met by the local government; or
- the land is to be held in trust pending sale, the monies from which are to be expended, with the approval of the Commission, upon the purchase of other land in the vicinity which is considered to be more appropriately located for use as public open space and which is shown in the relevant town planning scheme as reserved for public recreation.

Supported

Third dot point should establish that the trust be held in the hands of the Local Council

PARKLAND, FRONTAGE AND SURVEILLANCE

Public Parkland Requirement 8

The location, layout and design of subdivision and development surrounding public open space should minimise potential problems relating to personal security through and surveillance, property security, vandalism and poor visual amenity in relation to the park and its boundaries.

This may be achieved by:

- bounding public open spaces with streets and ensuring adjacent lots front and overlook open spaces;
- where streets cannot be provided, battle-axe lots may front to parks and public open space; and
- providing access to parks via the local street system rather than pedestrian access ways

Public Parkland Requirement 8

Inclusion of a rating for the type of surveillance the design is concerned with i.e. poor surveillance. Surveillance is not a problem but poor surveillance is.

The location, layout and design of subdivision and development surrounding public open space should minimise potential problems relating to low personal security poor surveillance, property security, vandalism and poor visual amenity in relation to the park and its boundaries. This may be achieved by:

Public Parkland Requirement 9

Parks should include provision for lighting where appropriate in accordance with Australian Standard 1158.1 (1986).

*Supported***Figure 4**

This diagram may have been superseded by better examples where the buildings are better integrated, define the space better and are less likely to have exposed blank walls facing the space.

City of Joondalup

LOCAL PARKS

Public Parkland Requirement 10

Local parks up to 3000m² may be provided for local children's play and as resting places, designed as small intimate spaces where appropriate, with lot, street and landscape layout providing good visual supervision.

Local parks up to 3000 m² and no less than 1000 m² may be provided for local residents as gathering and resting places, designed as small intimate (appears to contradict the desire for a well used and easily surveilled space) spaces where appropriate with lot street and landscape layout allowing for providing (the parks can't actually provide this – being inanimate) good visual supervision surveillance (extends visual supervision beyond child care to passive surveillance form outside the area too)

NEIGHBOURHOOD PARKS

Public Parkland Requirement 11
Neighbourhood parks of around 3,000m² – 5,000m² or larger must be provided, each serving about 600 dwellings, a maximum 400m walk from most dwellings.

Supported

Public Parkland Requirement 12
The neighbourhood park should have streets on all sides or may have portion of its perimeter (approximately 25%) abutting development which provides adequate surveillance through frontage.

*Supported***DISTRICT PARKS/OPEN SPACE**

Public Parkland Requirement 13
District parks of around 2.5 – 4 hectares must be provided, each notionally serving three neighbourhoods, a maximum 600m and 1 km walk from most dwellings.

2.5 – 4 ha district parks would provide inadequate space for a play field and yet they would absorb a substantial quota of the 8% POS (1 play field requires 7 ha once surrounds are included)

Please see Study Sheet on Play Fields proposing a model addressing play field demand through fewer but larger district parks. It anticipated schools having a part to play in distribution of play fields.

Public Parkland Requirement 14
District parks must be provided with sufficient land area and dimension to incorporate grassed areas for informal games, organised sport, hard surfaces for games such as netball and basketball, and natural and human-made differences in elevation (which may also perform a drainage function).

Supported

Proposed wording change and ~~natural and human made~~ differences in elevation

Public Parkland Requirement 15
Schools may be located in conjunction with district parks, enabling joint use and maintenance of open space such as playing fields.

Supported

Should cross reference to Requirement R14 in Community Design.

COMMUNITY FACILITIES SITES

Public Parkland Requirement 16
On the request of the relevant local government, the Commission may agree to community facilities sites being provided as part of the overall parkland contribution.

Proposed Change

The provision of community facilities sites in parkland areas needs to be considered carefully. Local Government is increasingly becoming a facilitator of programs rather than a commissioner and owner of buildings. The preference is that key sites for Community Facilities be identified and zoned as such perhaps with a 5 year take up option by Council before the developer is entitled to seek private development of the site for a “community style” use. This would be preferable to loss of POS to a use that in the future may be privatised

Public Parkland Requirement 17
Community facilities sites should generally not exceed 2,000m² for each group of three neighbourhoods and should not exceed one fifth of the total area of parkland provided.

Community Facility sites should not be located in parkland as they are useful in adding vitality to town centres. Rather than setting a 2000 m² size limit it would be preferable to limit the Community Facility sites in District POS to functions integral to the use of those areas (sports storerooms, sheds, stands and change and toilet facilities).

Public Parkland Requirement 18
The Commission shall require any community facilities sites to be reserved for an appropriate public purpose in a town planning scheme before the land is transferred in fee simple, free of cost to the local government.

Supported

NATURAL AREAS AND CULTURAL FEATURES

Public Parkland Requirement 19
Natural areas (including bushland and wetlands) and cultural features may be included in the provision of land for neighbourhood and district parks where the relevant local government is in support. The Commission will need to be satisfied that the active and passive recreation needs of future residents will be adequately catered for before it will agree to parkland being set aside for these purposes.

This regulation is probably best included in with R5 and given the same level of development in terms of calculating POS credit and limiting total credits possible under the POS credit scheme.

FORESHORE RESERVES AND REGIONAL OPEN SPACE

Public Parkland Requirement 20
The Commission may require provision of a foreshore reserve or land which is reserved for regional open space to be ceded free of cost in accordance with existing Commission policy DC 2.3.

Supported

Public Parkland Requirement 21

The provision of areas intended for active unstructured sport (e.g. skateboarding, BMX tracks) shall ensure surveillance through passing traffic and other means and located away from nearby residents

Proposed

This new regulation is proposed to guide the development of “extreme sport” areas. The demand for these appears to be on the increase. Some Developers may considering them in new developments.

Draft Issues to be considered in Management Plans

Agreements on:

- Community consultation
- Landscaping for surveillance
- Design objectives
- Compliance with standards (extent of liability)
- watering regimes
- thinning out prior to hand over
- forwarding of maintenance costs prior to hand over
- development of maintenance manuals
- protection from invasive species
- drainage management
- separation devices between ecological and non ecological areas

City of Joondalup

URBAN WATER MANAGEMENT

INTRODUCTION

The achievement of appropriate urban water management in a well structured urban environment is one of the key challenges in *Liveable Neighbourhoods*. In many areas of Perth and in some regional centres, the well-drained higher lands have already been developed and new development is now focussing on lower, wetter land. Development of this land will often need to designate substantial areas to water management. This will require careful trade-offs to achieve efficient use of land, minimise development costs and provide good neighbourhood and town structure that is not severely dissected by environmental corridors.

The design of new urban areas needs to consider key water management issues including stormwater drainage, seasonal inundation, urban water quality and protection of natural drainage, groundwater and aquifer systems.

In the past, planning for stormwater management has been focussed on collection and channelled removal to avoid inundation and inconvenience. Dual use drainage and recreation reserves have also been provided for the conveyancing and storing of urban stormwater run-off as well as recreation purposes.

Water sensitive urban design

Liveable Neighbourhoods seeks to introduce water sensitive design approaches to provide for management of both stormwater quantity and quality, without compromising good urban structuring. Water sensitive urban design aims are to reduce the impact of rapid stormwater conveyance to streams and wetlands, remove pollutants from the stream flow to improve water quality, retain habitat, conserve water and integrate recreational opportunities through multiple use drainage systems. Element 4 Public Parkland set out the credits that may be granted toward public open space contribution from urban water management system when drainage and open space purposes are shared.

Drainage system design for water quality management should attenuate stormwater flow and optimise the interception, retention, and removal of waterborne pollutants from urban run-off prior to their discharge to receiving waters. This will protect the environmental values and physical characteristics of receiving

watercourses, watertables and aquifers from degradation by excessive flows of urban run-off and ensure the continuation, in healthy condition, of a wide diversity of wetland environments in the urban landscape.

Groundwater recharge through infiltration is suggested where the maximum groundwater level is in excess of 2 m from the natural surface.

Direct and indirect stormwater systems may be used to collect, store and apply physical treatment to stormwater run-off for immediate use and reuse.

The design of stormwater drainage systems must incorporate the methodology of the major and minor systems as provided for in the *Australian Rainfall and Run-off* (IE Aust., 1987) and cited references, together with the design standards of the relevant controlling authorities. Water sensitive urban design techniques are suggested in *A Manual for Managing Urban Stormwater Quality in Western Australia*, Waters and Rivers Commission, 1998.

Management arrangements

Good design should be employed to ensure that problems encountered with some existing urban wetlands such as weeds and algal blooms are not repeated. Further, the costs and skills required to manage new large wetland/water management areas are likely to be substantial. *Liveable Neighbourhoods* seeks to ensure that arrangements are in place for ongoing management as part of the approval process.

Balancing requirements

In some localities urban water management constraints set out in *Liveable Neighbourhoods* may result in land being unsuitable for any urban development. The Commission will take this into account when considering proposals for the zoning of land. In areas already zoned urban, solutions may require a balance between urban structuring and efficiency and urban water management, negotiated between the proponent, planning and water management authorities. In new areas, solutions are expected to optimise *Liveable Neighbourhoods* urban water management objectives.

OBJECTIVES

Urban Water Management Objective 1 To prevent flood damage to the built and natural environment, inundation of dwellings and stormwater damage to properties.	<i>Supported</i>
Urban Water Management Objective 2 To contain nuisance flows and ensure that the street system operates safely during and after storm events.	<i>Supported</i>
Urban Water Management Objective 3 To provide an urban water management system for both stormwater quantity and quality.	<i>Supported</i>
Urban Water Management Objective 4 To provide for urban water management through multiple use systems where feasible and where efficient use of urban land and structuring principles are met.	<i>Supported</i>
Urban Water Management Objective 5 To ensure that stormwater discharge does not degrade the quality of surface and underground receiving waters, including aquifers.	<i>Supported</i>
Urban Water Management Objective 6 To maximise opportunities for local on-site storage where feasible and appropriate.	<i>Supported</i>
Urban Water Management Objective 7 To avoid adverse alteration to water balance and groundwater depth.	<i>Supported</i>
Urban Water Management Objective 8 To minimise disturbance caused by draining or filling of natural streams and wetlands.	<i>Supported</i>
Urban Water Management Objective 9 To provide an urban water management system that can be economically maintained and to ensure that arrangements are in place for on-going maintenance.	<i>Supported</i>

REQUIREMENTS

APPLICATION REQUIREMENTS

Urban Water Management Requirements 1
Structure plans and subdivision applications must be accompanied by the relevant information listed in Applications Under Liveable Neighbourhoods.

An Urban Water Management Plan may be required in addition to a Public Parklands Management Plan

MAJOR SYSTEMS

Urban Water Management Requirements 2
The design of urban water management systems must use recognised and locally accepted hydrological, hydrogeological, soils, hydraulic and residential parameter data, water demand data and design methodologies. The design must be responsive to local conditions particularly where cohesive soils are encountered or cyclonic storm events occur.

Generally Supported

Proposed additional wording to allow for innovation where it can be shown to be reliable

*R2 The design of urban water management systems must use recognised and locally accepted hydrological, hydrogeological, soils, hydraulic and residential parameter data, water demand data and design methodologies **unless an alternative methodology can be properly supported**. The design must be responsive to local conditions particularly where cohesive soils are encountered or cyclonic storm events occur.*

Urban Water Management Requirements 3
The major drainage system must be designed to ensure that there are no flow paths which would increase risk to public safety and property.

Supported

Urban Water Management Requirements 4
The design of a structure plan or subdivision must have regard for both water sensitive urban design principles and planning objectives such as the efficient use of land, urban structuring principles, and the minimising of development costs.

Proposed Additional Text

*R4 The design of a structure plan or subdivision must have regard for both water sensitive urban design principles and planning objectives such as the efficient use of land, urban structuring principles, and the minimising of development and **on going maintenance** costs.*

Urban Water Management Requirements 5
Water sensitive urban design principles may include the techniques set out in A Manual for Managing Urban Stormwater Quality in Western Australia, Waters and Rivers Commission, 1998 and the following:

Supported

- floodways may take the form of a natural waterway, an augmenting parallel channel, a constructed open channel, a roadway reserve or public open space;
- streets and road reserves may act as floodways or elements of the overland flow route taken by floodwaters, however, flow depths and velocities are limited in the interests of safety, and floodwaters are

ELEMENT 5 – URBAN WATER MANAGEMENT

diverted from streets and road reserves as soon as practically possible;

- detention and retention basins may be incorporated to reduce on-flow flood peaks and provide increased flood protection for downstream areas;
- multiple use of public open space corridors and drainage areas;
- retention and enhancement of natural streams and vegetation where practicable;
- incorporation of sports grounds and other less flood sensitive land uses into the urban water corridor and the placement of detention and retention basins for amenity and function; and
- temporary stormwater basins and swales which contribute to amenity and provide recreational and play opportunities may be incorporated into district parks.

Urban Water Management Requirements 6
Permanent or semi-permanent water features may be incorporated into parks providing aesthetic and urban water management functions where landscaping incorporates stormwater and water quality management techniques, and contributes to the amenity and recreational opportunities of the park.

Supported
Should cross reference to requirement outlining calculation of credits for POS, i.e. PUBLIC PARKLAND -

Urban Water Management Requirements 7
Streets adjacent to public open spaces and in other locations may be designed as temporary floodways provided that vehicular access is possible at slow speeds during major storm events, and that waterflow depths and velocities do not create hazards for motorists.

Supported

Urban Water Management Requirements 8
The drainage system must be designed to ensure that flows downstream of the site are restricted to pre-development levels unless increased flows are approved by the responsible drainage authority.

Supported

Urban Water Management Requirements 9
The natural alignment of watercourses should be retained, except where feasible adjustments can be made to improve the urban structure without compromising the natural environment.

Generally supported

*R9 The natural alignment of watercourses should be retained, except where feasible adjustments can be made to improve the urban structure without compromising the **ongoing sustainability** of the natural environment.*

Allows for careful modification

Urban Water Management Requirements 10
The drainage system should be designed to return stormwater to the groundwater system, watercourse or lake that is as close as possible to where it first enters the system.

Supported

Urban Water Management Requirements 11
Floodways should only be developed where there is a low risk of property damage, including consideration of downstream and upstream impacts.

Supported

MINOR SYSTEMS

Urban Water Management Requirements 12
The minor storm drainage system must have the capacity to control stormwater flows under normal operating conditions for the relevant design storm without blockage and to the satisfaction of the local authority.

Supported

Urban Water Management Requirements 13
The minor system design must minimise undesirable ponding for a prolonged period resulting from the relevant design storm to the satisfaction of the local authority.

Supported

Urban Water Management Requirements 14
The minor system design must allow for the safe passage of vehicles, at reduced speed, on streets which have been affected by run-off from the relevant design storm to the satisfaction of the local authority.

Generally Supported
The above requirements are to the satisfaction of the Local Authority. Is there a manual or guide that can be referred to.

Urban Water Management Requirements 15
Urban water pits should be provided, where appropriate, to facilitate local infiltration into the groundwater aquifer.

Supported

Urban Water Management Requirements 16
Adequate provision must be made for measures during construction to ensure that the land form is stabilised and erosion is controlled.

Supported

PUBLIC OPEN SPACE CREDITS

Urban Water Management Requirements 17
Credits for public open space may be allowed by the Commission where dual use drainage and recreation reserves have been provided. See Element 4 Public Parkland for details.

Generally Supported
Part two of R5 Element 4 – PUBLIC PARKLAND (Artificial Lakes) should be located here as it details approaches to urban water management that should be followed regardless of whether a 2% reduction is applied for. R5 could contain a cross reference to those details in this section.

UTILITIES

INTRODUCTION

This Element covers contemporary subdivision servicing requirements and emphasises the need to predetermine, through design, the most appropriate way in which the often competing needs for space can be met. Reductions in road widths are encouraged under *Liveable Neighbourhoods*, providing that the essential requirements of the road pavement width, street trees, parking, footpaths, bike lanes and services can all be met. Therefore, reductions may best be achieved through the design process and by the use of techniques such as common or shared trenching, the use where appropriate of rear lanes for almost all services, and careful placement of trunk services.

The common trenching and utility alignments included in this part reflect the *Utility Providers Code of Practice* released by the Public Utility Services Committee in October 1997. Developers choosing to use common trenching are advised to discuss the matter with the relevant servicing agencies in the first instance. *Liveable Neighbourhoods* does not support the reduction of tree planting space within street reserves to make way for servicing, street widening requirements or future servicing upgrades. Street reservations should, therefore, be designed for all contingencies.

OBJECTIVES

Utilities Objective 1 To ensure that residential areas are adequately serviced with sewerage, water, fire fighting, electricity, gas, street lighting and communication services in a timely, cost effective, coordinated and efficient manner that supports sustainable development practices.	<i>Supported</i>
Utilities Objective 2 To maximise the opportunities for shared (common) trenching and reduce constraints on footpaths, street trees and landscaping within street reserves.	<i>Supported</i>
Utilities Objective 3 To provide a sewerage system which is adequate for the maintenance of public health and the disposal of effluent in an environmentally appropriate manner.	<i>Supported</i>
Utilities Objective 4 To provide an adequate, reliable, safe, efficient and potable supply of water.	<i>Supported</i>
Utilities Objective 5 To provide public lighting to ensure safety of pedestrians, cyclists and vehicles.	<i>Supported</i>
Utilities Objective 6 To locate utilities such that all streets, except rear laneways, can have street trees.	<i>Supported</i>

REQUIREMENTS**APPLICATION REQUIREMENTS**

Utilities Requirements 1

Structure plans and subdivision applications must be accompanied by the relevant information listed in Applications Under Liveable Neighbourhoods.

*Supported***LIFE-CYCLE IMPACTS**

Utilities Requirements 2

The design and provision of public utilities, including sewerage, water, electricity, gas, street lighting and communication services should be cost effective over their life-cycle and incorporate provisions to minimise adverse environmental impact in the short and long term.

Supported

Utilities Requirements 3

The selection of materials and technologies used in the construction of service networks should be determined by suitability, durability, ease of maintenance and cost effectiveness, considering whole of life-cycle costing, and achieving energy savings and reduction in greenhouse gas emissions over the life-cycle of infrastructures.

*Supported***Figure 1: Utility providers' common trenching alignment.**

Source: Adapted from Utility Providers Code of Practice for W.A., October 1997

NOTES

1. Opportunities exist to vary this portion of the verge, provided this is supported by utility providers, to accommodate servicing requirements for lower order roads which are unlikely to have trunk services.
2. Electricity to pass under Gas and Water at reticulation crossings.
3. Gas to pass above Water at reticulation crossings.
4. Where Electricity or Gas installations adjoin or cross Water reticulation a minimum clearance of 100 mm is required.
5. Cover, bedding and backfill requirements for Water reticulation to be in accordance with drawing BD62-1-1.
6. All reticulation to be laid within +/- 100 mm of the indicated centre line and secured against movement with initial backfill.
7. Mirror image would apply for servicing to be located on the opposite side of the road.

COMMON TRENCHING

Utilities Requirements 4
Compatible public utility services should be co-located in common trenches in order to minimise the land required and the cost of installing underground services. This can be achieved by designing in accordance with the common trenching alignment and provisions allocated by the Public Utilities Services Committee Utility Providers Code of Practice, refer Figure 1.

Supported

Utilities Requirements 5
Where common trenching is not employed, services must be provided in accordance with standard service alignments approved by the relevant servicing authorities. Refer Figure 2 – Utility providers’ standard services alignment

Supported

SERVICE LOCATIONS

Utilities Requirements 6
Wherever possible, services should be placed underground to reduce the amount of overhead cabling.

Supported

Utilities Requirements 7
Rear lanes should be used, where appropriate, for the provision of services to individual lots and the placement of trunk services.

Supported

Utilities Requirements 8
Road verges must be of sufficient width to contain all the anticipated services, including provision for street lighting, adequate space for street trees, landscaping and footpaths.

Supported

SERVICE PROVISION

Utilities Requirements 9
Transportation, treatment and disposal of sewage wastes must be to the satisfaction of the relevant servicing authority or local government (as appropriate), and the relevant State health and environmental regulators.

Supported

Utilities Requirements 10
Development must only occur within locations where there is an adequate water supply for domestic use and fire fighting purposes.

Supported

Utilities Requirements 11
Water supply and sewerage networks should be accessible, easy to maintain and cost effective based on life-cycle costs.

Supported

Utilities Requirements 12

Public lighting should be provided to streets, footpaths, public telephones, public transport stops and any public spaces likely to be well used at night to assist in providing safe passage for pedestrians, cyclists and vehicles

Supported

Utilities Requirements 13

Street lighting should be generally in accordance with Australian Standard 1158.1.

*Supported***Figure 2: Utility providers' standard services alignment.**

NOTES

1. Opportunities exist to vary this portion of the verge, provided this is supported by utility providers, to accommodate servicing requirements for lower order roads which are unlikely to have trunk services.
2. All measurements relate to the distances from the boundary line on each side of the road reserve unless otherwise specified.
3. Manholes may extend into this area.
4. Traffic light installations cables for synchronising systems to be located in verge by arrangement.
5. Western Power and Telecommunication distribution cables to be laid in locations shown in new developments. Under established footpaths some variations may be necessary.
6. In general, no underground service shall exceed a nominal 300mm diameter in the 0-3 metre alignment. Larger services may be located within this alignment only after negotiation with all utility providers.
7. Local authority reticulation or rising irrigation mains to be located beyond the 3 metre alignment by arrangement.
8. The planting of street trees should be of a type and variety to have a minimal interference to services.
9. Services may, in special circumstances, be located beneath the carriageway where verge space is insufficient. Approval must be sought from all utility providers.
10. In established localities where over head mains have been undergrounded, power cables may exist in this area.
11. Mirror image would apply for servicing located on the opposite side of the road.

APPENDIX 1- DESIGN STAGES OUTLINE

The value of design assistance and review techniques, such as those contained in this section are reviewed in the Council Report

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APPENDIX 2 - PED SHED ANALYSIS

The value of design assistance and review techniques, such as those contained in this section are reviewed in the Council Report

Glossary

Mixed use means the compatible mixing of a range of appropriate uses, integrated in close proximity to each other to improve the efficiency and amenity of neighbourhoods, reduce travel demand, increase walkability, and make more efficient use of available space and buildings.

Neighbourhood connector means a local street that provides the lower order sub-arterial network, servicing and linking neighbourhoods and towns. They spread local traffic loads; act as a bus route; have a predominantly residential frontage; have frequent connection points to local streets; and are typically traffic calmed to limit noise and facilitate pedestrian use.

Net subdivisible area means the gross subdivisible area less the area to be provided for public open space.

Objectives or Element Objectives mean the statements of desired outcomes to be achieved in the completed development.

Outline Development Plan - refer to structure plan.

Pedshed - refer to walkable catchment.

Primary distributor means those arterial routes that are highly connective, with service roads wherever possible, limited intersections. They are often signal controlled. Indicative maximum traffic capacity is 35,000 vpd for four lanes and 50,000 vpd for six lanes.

Private open space means an area of land which is suitable for private outdoor living activities.

Public open space means land used or intended for use for recreational purposes by the public and includes parks, public gardens, foreshore reserves, playgrounds, and sportsfields.

Requirements means the criteria to be used in the preparation, submission and assessment of structure plans and subdivision proposals for measuring the performance of such proposals against Element Objectives.

Road means the area of a street reserve which is provided for the movement or parking of vehicles and bikes.

Setback means the minimum distance which a wall face or window is required to be from a property boundary or another window to a habitable room. It is measured as the horizontal distance between the proposed wall or window and the boundary or other window.

Shared Zone is, where pedestrians, cyclists and vehicular traffic have equal rights to access.

Slow points means sections of a street which have geometric features which limit the travel speed of vehicles. These include bends, constrictions to road widths, surface obstructions etc, and include junctions or intersections which are designed to slow traffic.

Street alignment means the horizontal shape of the street reserve boundary.

Street leg length means the distance between intersections or junctions, or points and locations where vehicles must slow down, usually to a maximum of 20 km/h.

Street network means a system of connected streets where multiple routes are available for a given trip.

Street reserve means the land set-aside for a street and verge and usually vested in a public authority.

Streetscape means the visible components within a street between the facing buildings, including the form of the buildings, garages, setbacks, fencing, landscaping, driveway and street surfaces, utility services and street furniture such as lighting, signs, barriers and bus shelters.

Structure plan means a plan showing in outline the overall development intentions for an area, including land use, major transport and utility networks, drainage/urban water management, open space systems and indicative built form. Also known as an Outline Development Plan.

Subdivision means the division of a cadastral parcel of land into two or more lots which can be disposed of separately.

Sustainable development means being able to meet the needs of the present without compromising the ability of future generations to meet their needs.

Target speed is the intended maximum vehicular speed in the subject section of street, and is used to determine the combination of road geometry and spacing and form of slow points.

Verge means that part of the street reserve between the road and the boundary of adjacent lots (or other limit to street reserve). It may accommodate public utilities, footpaths, stormwater flows, street lighting poles, street trees and other landscaping.

Walkable catchment means the actual area served within a 400 m (5-minute) or 800 m (10-minute) walking distance along the street system from a public transport stop, town or neighbourhood centre.

Walkable neighbourhood means the area defined by a 400 m or 5-minute walk from the neighbourhood centre having an interconnected and safe walkable street network where shops, schools, public transport, community facilities and other buildings front the street