WESTERN AUSTRALIAN PLANNING COMMISSION

TAYLOR BURRELL BARNETT
Town Planning and Design

Liveable Neighbourhoods Review

ACNU Conference, Sydney

August 2005

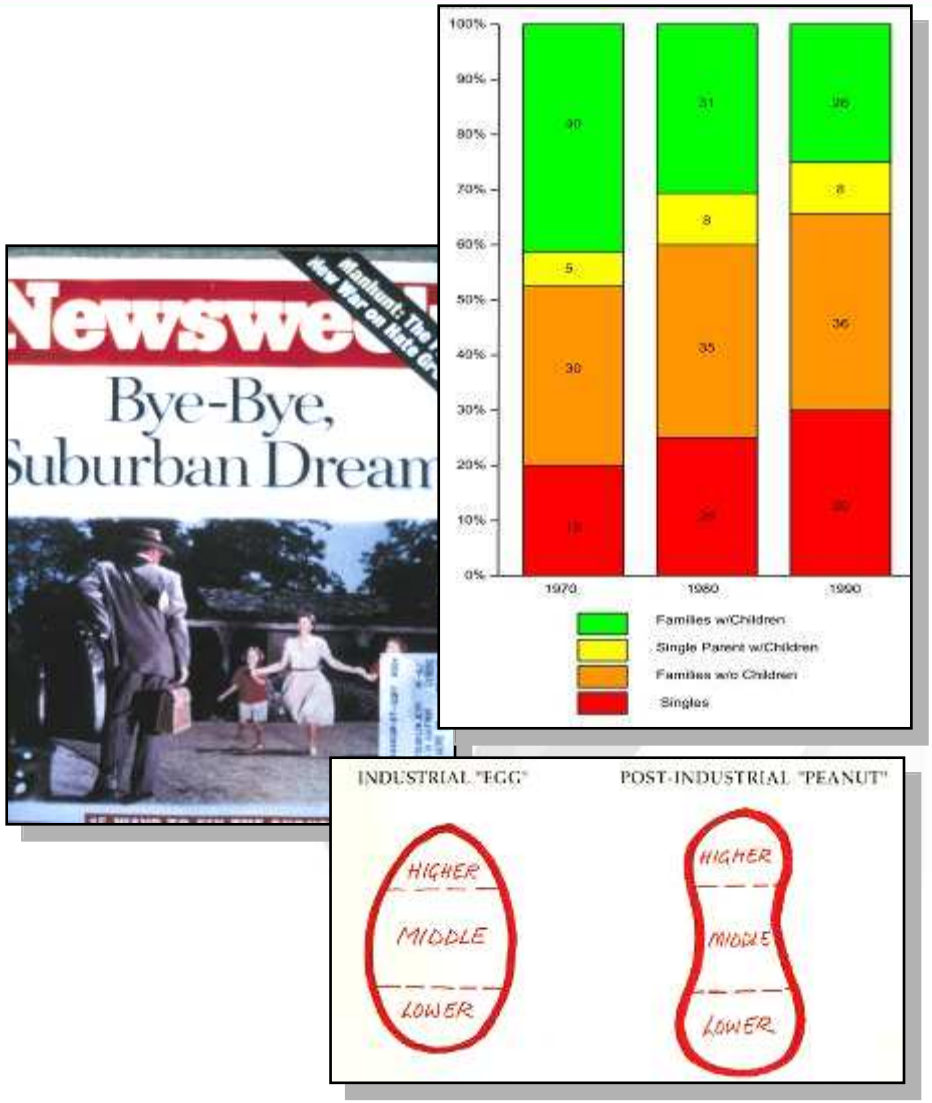
Bill Burrell
Taylor Burrell Barnett Town Planning & Urban Design



WESTERN AUSTRALIAN PLANNING COMMISSION

Why was LN developed?

- Operational policies not delivering strategic objectives
- Emphasis on sustainability: State Planning Strategy
- Changing social trends:
  - smaller households
  - increased part time work
  - housing and transport affordability
  - ‘sprawl’ as a community issue
- Need for certainty



WESTERN AUSTRALIAN PLANNING COMMISSION

Key differences from earlier policy approach

- Innovative approach by:
  - More thorough analysis of site and context to inform design
  - Encourage greater use of Structure Planning as a framework
  - Provide an alternative approach to design of neighbourhoods and towns to achieve compact, well defined and more sustainable urban communities
  - Moving toward a performance approach to subdivision to encourage innovation

WESTERN AUSTRALIAN PLANNING COMMISSION

Principle Aims of LN

- Urban structure of walkable neighbourhoods clustering to form town centres
- Access to neighbourhoods for all users
- Foster a sense of community and local identity
- Interconnected network of streets
- Activate street frontages
- Efficient use of public transport system
- Facilitate mixed use development
- Provide for a variety of lot sizes
- Avoid key environmental areas
- Integration of open space and urban water
- Affordable housing

WESTERN AUSTRALIAN PLANNING COMMISSION

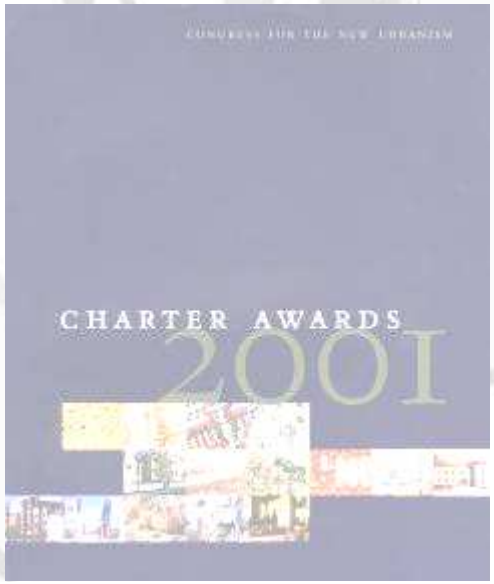
LN History

- LN1 introduced in February 1998 as alternative policy
- Reviewed by the WAPC in March 1999 after 12 month trial resulting in LN2
- Trialled further until February 2001
- Generally accepted by industry and wider community
- LN3 published 2004
- Submissions reviewed 2005

WESTERN AUSTRALIAN PLANNING COMMISSION

The Liveable Neighbourhoods Review

- WAPC decided in 2001 to review both DC and LN policies and develop operational policies that deliver sustainability
- Review overseen by **Steering Committee** of 11 members – UDIA, HIA, PIA, AAPC, IPWE, WALGA, MRWA, DoE etc
- Was to be accompanied by **SPP3 *Sustainable Settlements and Community***: now delayed
- Liveable Neighbourhoods internationally recognised and widely used: CNU Charter Award 2001.



WESTERN AUSTRALIAN PLANNING COMMISSION

Consultant Team

• Taylor Burrell Barnett	Planning and Urban Design
• Ecologically Sustainable Design	Urban Design
• Bruce Aulabaugh	Traffic and Transportation
• RPS Bowman Bishaw Gorham	Environmental
• Shrapnel Urban Planning	Retail
• Estill & Associates	Consultation

WESTERN AUSTRALIAN PLANNING COMMISSION

Genesis of the Liveable Neighbourhoods Community Design Code

A series of codes aimed at improving Australia's approach to (predominantly) residential subdivisions in the context of tackling urban sprawl

c.1987 Victoria: Residential Development Provisions
c.1987 SA: The Streets Where We Live
1989 Commonwealth Govt: AMCORD '89
1991 VicCode 1 - Subdivision and Single Dwellings
1993 Queensland Streets - Subdivision Guide
1995 Commonwealth Govt: AMCORD' 95
1997 Liveable Neighbourhoods Edition 1
1999 Liveable Neighbourhoods Edition 2

WESTERN AUSTRALIAN PLANNING COMMISSION

Significant Recognition for the 'Liveable Neighbourhoods' Community Design Code

***"One of the most advanced planning documents in the Western World"* (Andres Duany, DPZ, 1989)**

Winner of various awards including an inaugural Congress for the New Urbanism Charter Award in 2000 (New York)

Internationally recognised and widely-used

Catalysed a major change to design for Sustainable Urban Extensions in the UK

WESTERN AUSTRALIAN PLANNING COMMISSION

Why is LN Held in Such High Regard?

Status: A formal alternative, endorsed by WAPC (including a range of key state agencies) and promoted by State Government as a key strategy in addressing issues of urban sprawl;

Change agent; recognition of the major change in approach it has enabled between pre-1997 development and current WA practice;

Implementation: is being used and trialled as a regulatory tool, not just an 'advisory document'. Results can be seen on the ground;

Scale and scope of applicability: covering both Structure Plans and Subdivisions; and covering more than just residential development;

Content: seen as both comprehensive and practical.

Facilitative: the performance-based approach enables exemplary and leading edge projects to be approved even where they might stretch the bounds of the Code.

WESTERN AUSTRALIAN PLANNING COMMISSION

Task 1: Review of Design Approaches 1996 to 2002

- Review concluded there was a trend towards design in accordance with LN policy, especially with regard to:
  - Interconnected street networks
  - Park visibility and accessibility
  - Street block layouts
  - Lot layouts
- Noted that properly designed **Structure Plans** resulted in better designed and integrated subdivisions.
- BUT noted that LN policy is having minimal design impact on:
  - range of densities
  - provision of mixed use commercial centres at key intersections
  - main street neighbourhood centre development
  - small scale applications

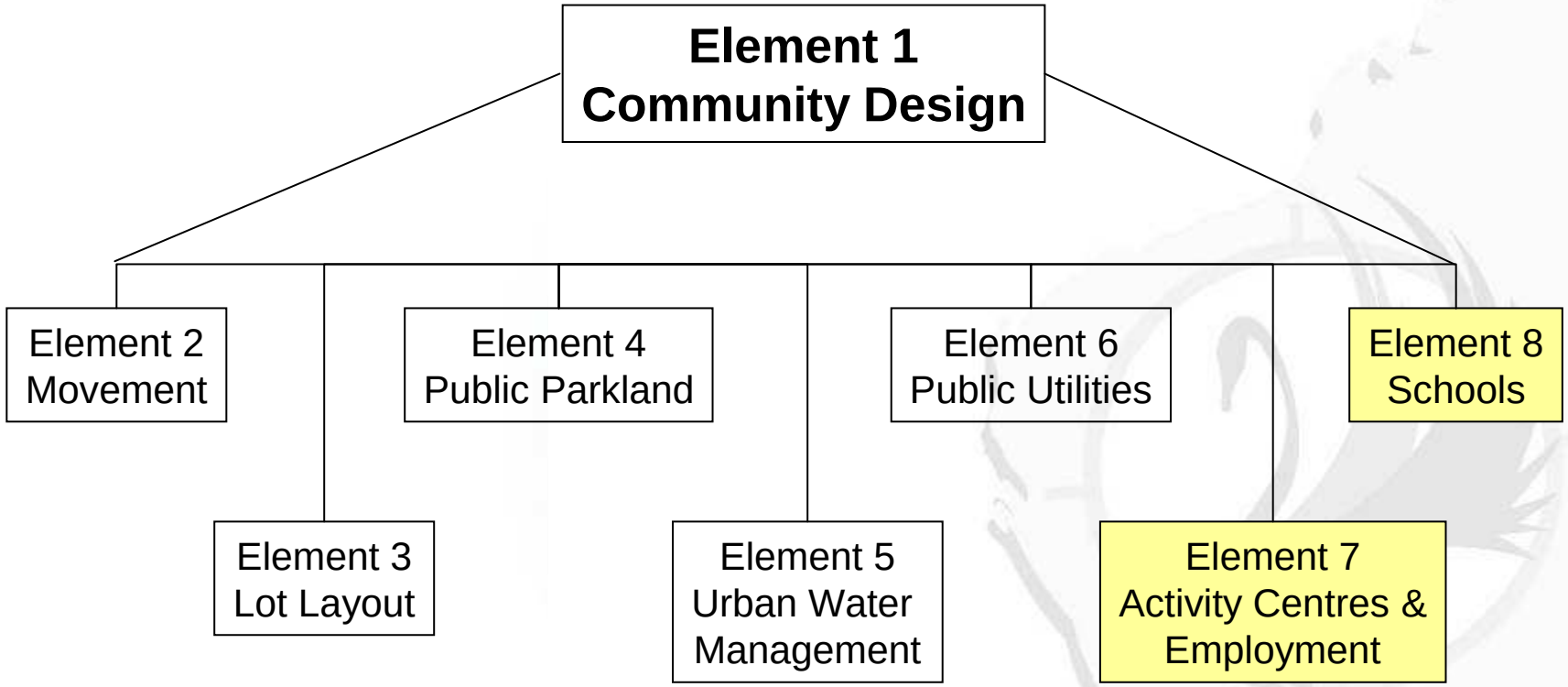
WESTERN AUSTRALIAN PLANNING COMMISSION

Key Stakeholders' Views

- **Support for LN in that it provides a more sustainable urban form:**
  - **Compactness** where it matters
  - **Diversity** of product through recognition of Transit Nodes and High Energy Intersections
  - **Robustness** of structure (i.e. street network) and built form (i.e. uses that change over time)
  - **Legibility** through the use of the interconnected street network modified to fit site conditions and context
  - **Democratising** the urban fabric allowing choice for those not wishing or able to drive a car in order to live, work & play within the nearby district
  - **Walkability** using SAFE streets to connect people with local facilities

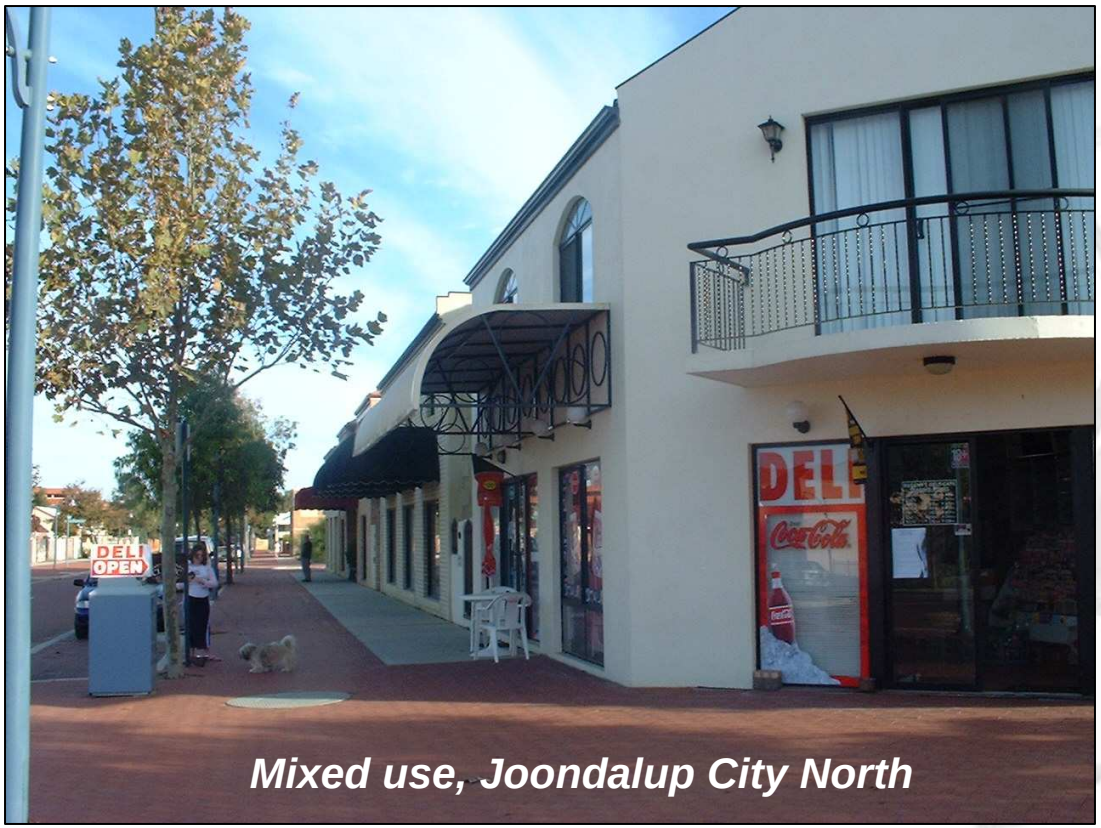
WESTERN AUSTRALIAN PLANNING COMMISSION

LN STRUCTURE



WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 1
COMMUNITY DESIGN

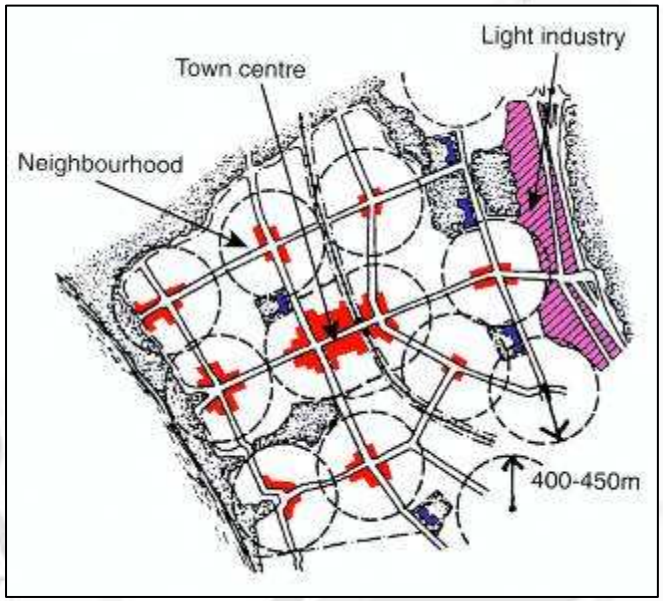


Mixed use, Joondalup City North

WESTERN AUSTRALIAN PLANNING COMMISSION

E1 Community Design Key Issues

- Strengthen linkages between LN and District Structure Planning
- Sustainability audits?
- Jobs and employment not being delivered
- Strata ‘lifestyle’ developments
- Balancing efficient urban structure with environmental requirements
- Regional variations and sense of place
- Need to promote main street mixed use town and neighbourhood centres, and employment
- Lot diversity and density



WESTERN AUSTRALIAN PLANNING COMMISSION

E1 Community Design Key Changes

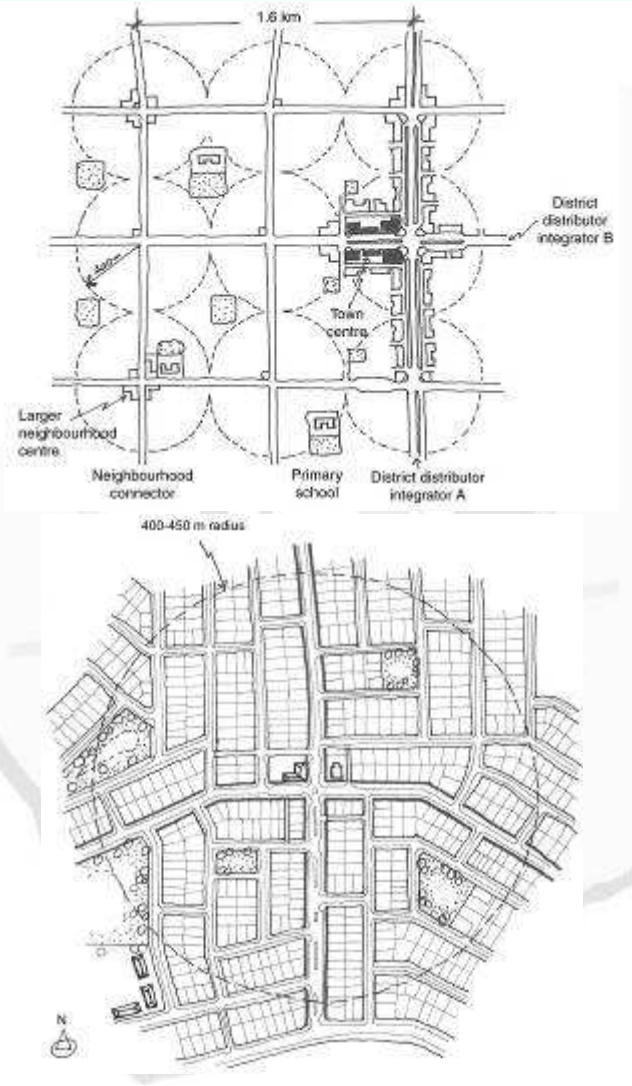
- Need to strengthen linkage between LN and District Structure Plans defining edges, centres and movement
- New Element on Activity Centres & employment (E7)
- New Element on Schools (E8)
- Introducing density targets and how densities and variety should be delivered through Structure Plans
- Balancing efficient urban structure with environmental sustainability outcomes.

Mixed use, Joondalup City North

WESTERN AUSTRALIAN PLANNING COMMISSION

E1 Community Design Detailed Policy Elements

- Application Requirements: R1
- Neighbourhood and Town Structure: R2-R4
- Integrating with adjoining development: R5 – Context Analysis
- Local Identity: R5-R7
- Street Network and Lot Layout:R8-R12
- Street and Lot Layout for energy efficiency: R13
- Mix of uses and employment: R14-R15: see also Element 7
- Density and mix of housing types: R16-R20



WESTERN AUSTRALIAN PLANNING COMMISSION

E1 Community Design
Detailed Policy Elements (cont)

- Schools: R21-R22: see also Element 8
- Community safety, social capital and health: R23-R24
- Bushfire hazard: R25: see also R67
- Public Parkland: R26-R27: see also Element 4
- Flooding and urban water management: R28-R29: see also Element 5
- Utilities and easements:R30-R31: see also Element 6
- Balancing urban and environmental sustainability: R32

WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 7
ACTIVITY CENTRES & EMPLOYMENT

York, Semi-formal square, Georgian scale



WESTERN AUSTRALIAN PLANNING COMMISSION

E7 Activity Centres & Employment Key Issues

- Insufficient guidance/direction on centres
- Strengthen main street based town centres
- Centres have been primarily retail, and not provided a mix of uses i.e residential mixed use Town Centres with retail NOT just shopping centres
- Information on how to achieve walkable neighbourhood centres required
- Insufficient guidance provided regarding delivery of jobs and employment
- Recognition and strengthening of local identity
- Strengthen relationship with public transport identity
- Local centres and viability, i.e. shop in each neighbourhood?
- How are jobs to be provided?
- Note that limited detail on centres in LN and no trial to date
- Lack of delivery of main street centres and mixed use

WESTERN AUSTRALIAN
PLANNING COMMISSION

Inverness – Big Box Fronting Street Market

WESTERN AUSTRALIAN PLANNING COMMISSION

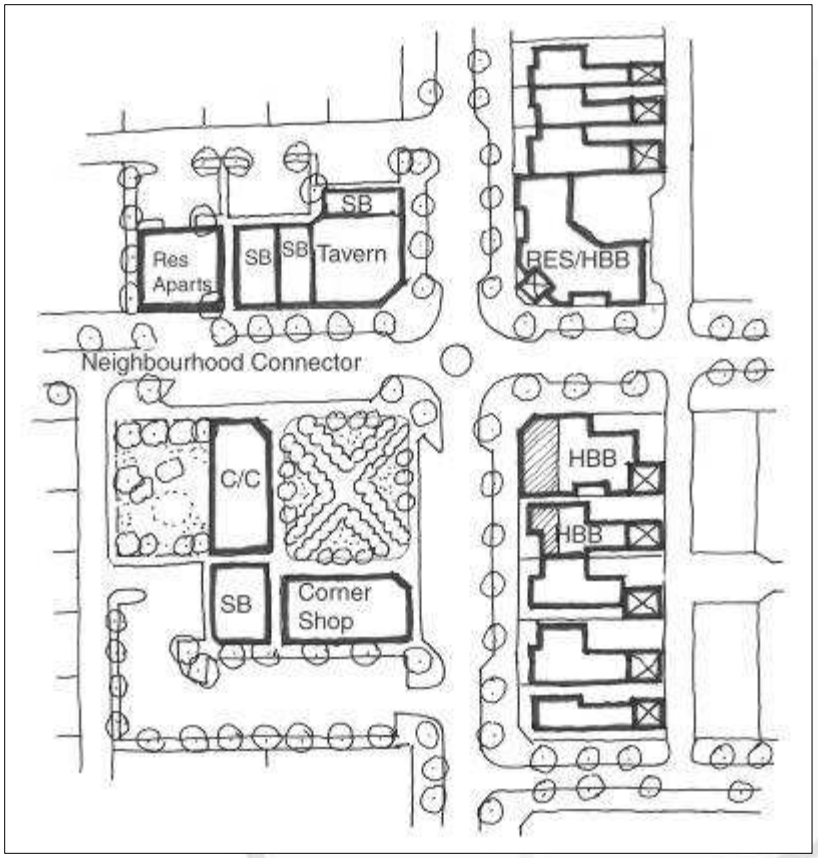
E7 Activity Centres & Employment Key Changes

- Planning for new residential areas to plan for jobs and businesses also
- Main Street-fronting retail layout as opposed to enclosed or parking lot dominant retail formats
- Mixed use centres not just shopping centres
- Centres capitalise on, relate to and address arterials rather than just using them for access
- Centres located on busier streets, not hidden away within residential cells
- Provision of small local neighbourhoods centres
- Centres design to facilitate walking, cycling and public transport access
- Reduced parking requirements where mixed use, shared parking and public transport can support it
- Off-street parking shared and on-street parking provided on most streets
- Location of mixed use centres and employment areas to provide strong destinations
- Commercial and business uses to be integrated
- Large institutional uses such as universities and TAFEs to be located in activity centres rather than as campus style, stand-alone precincts

WESTERN AUSTRALIAN PLANNING COMMISSION

E7 Activity Centres & Employment Policy Response

- To provide indicative location and design parameters for centres
- Predominantly main street or hybrid formats as per Metro Centres Policy
- Policy to provide general principles and indicative layouts but minimal requirements
- Indicate land requirements for jobs

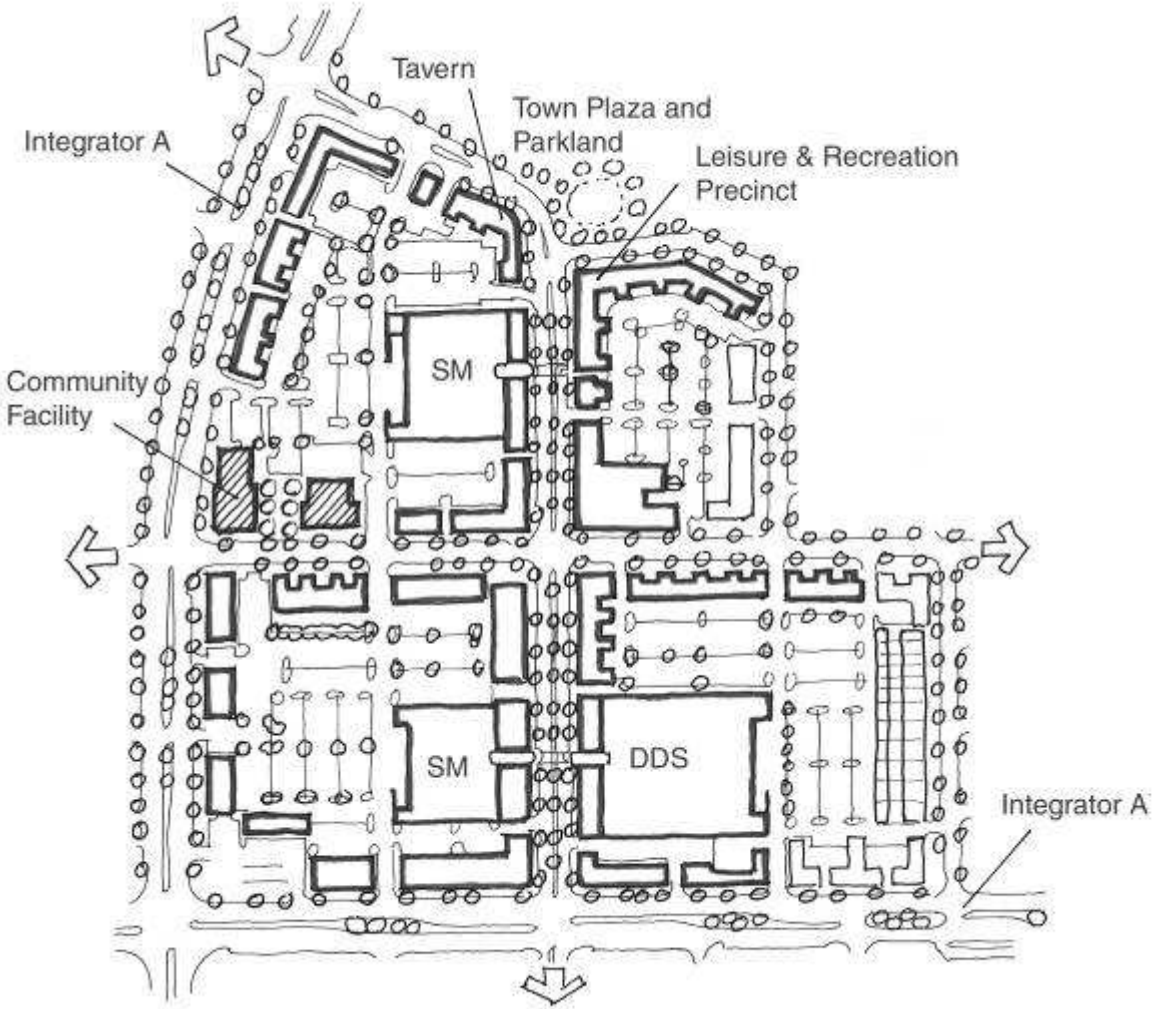


Centre focused around a small park or plaza

WESTERN AUSTRALIAN PLANNING COMMISSION

Example of a main street-based town or district centre structured as four street blocks

This centre comprises four town centre super blocks (with three of around 180 m x 180 m suited to accommodating anchor stores, and one smaller block containing a mini-major). The three larger centres have a rear lane providing access to the intra-block parking areas and loading docks (adapted from Point Cook Town Centre Concept Plan).

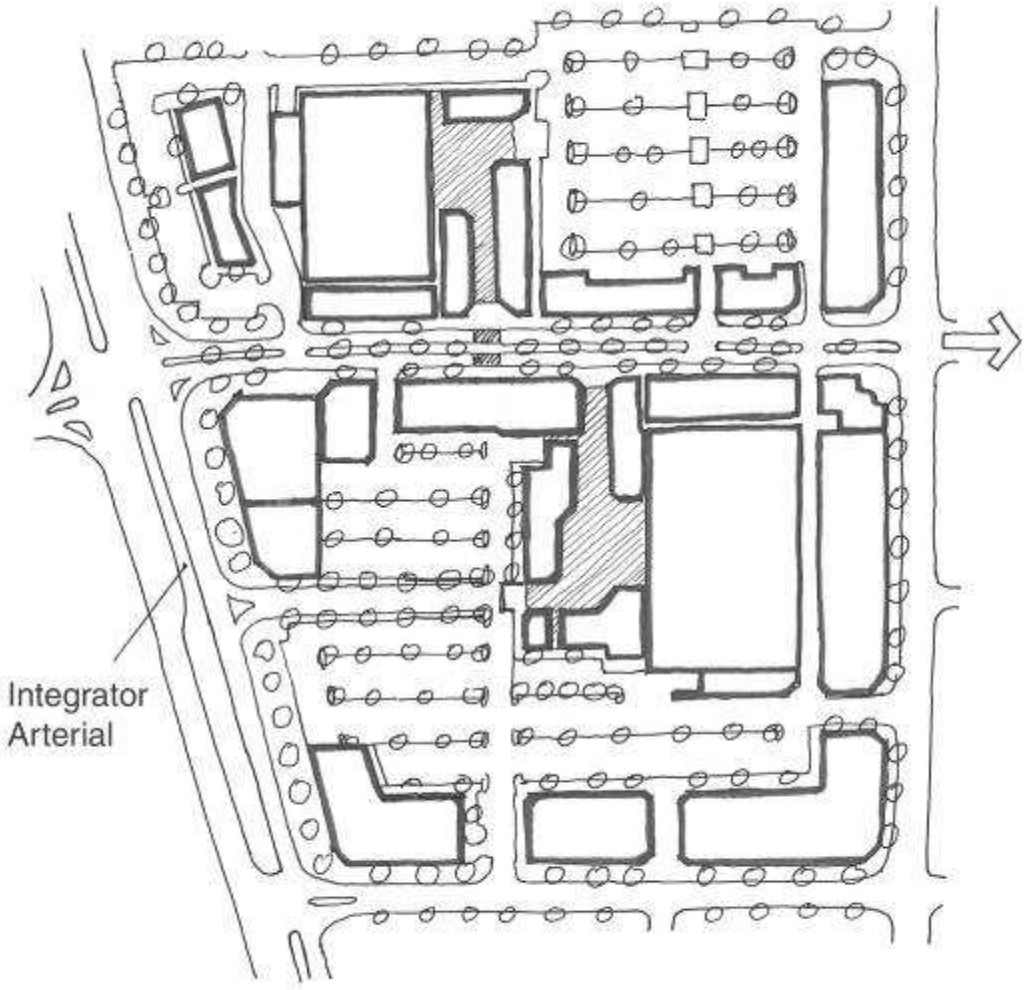


WESTERN AUSTRALIAN PLANNING COMMISSION

Hybrid centre – an example which mixes main street retail with small enclosed mall segments

This layout locates two anchors well apart, at either end of the main street so that movement between them activates main street retail. Car park accesses are also located to encourage pedestrian movement along main street. Some drawcard convenience retailers (chemist and newsagent) would be strategically located along main street. In addition, the proportion of specialty retail floor space that is in the enclosed format is relatively small.

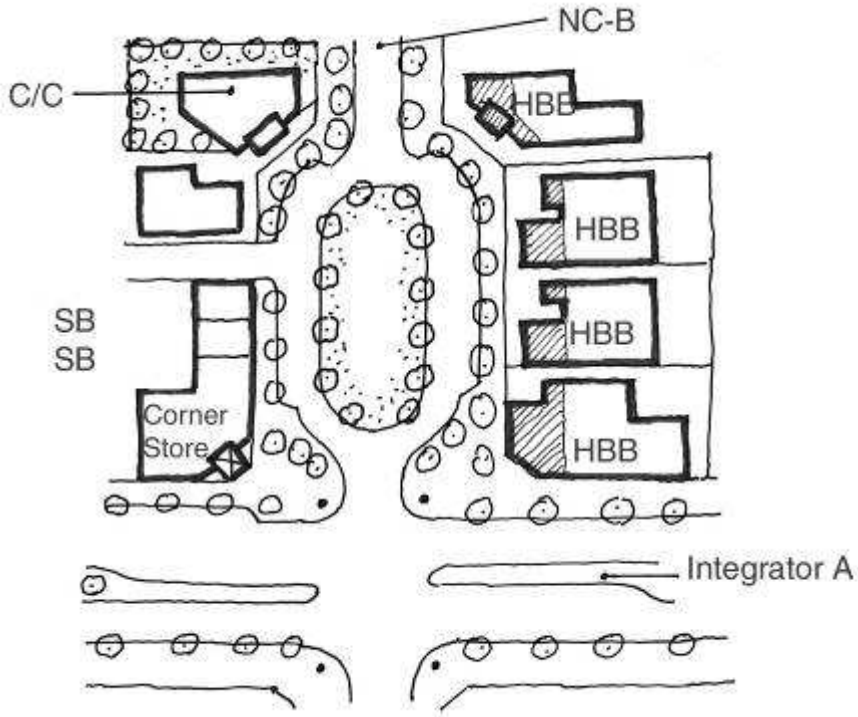
Note: This layout will not support the main street shops as strongly as one where the anchors directly connect out onto the main street. This model should only be used in situations where it is not practical to front the anchors onto the main street and where there is strong retail demand for the total floorspace provided.

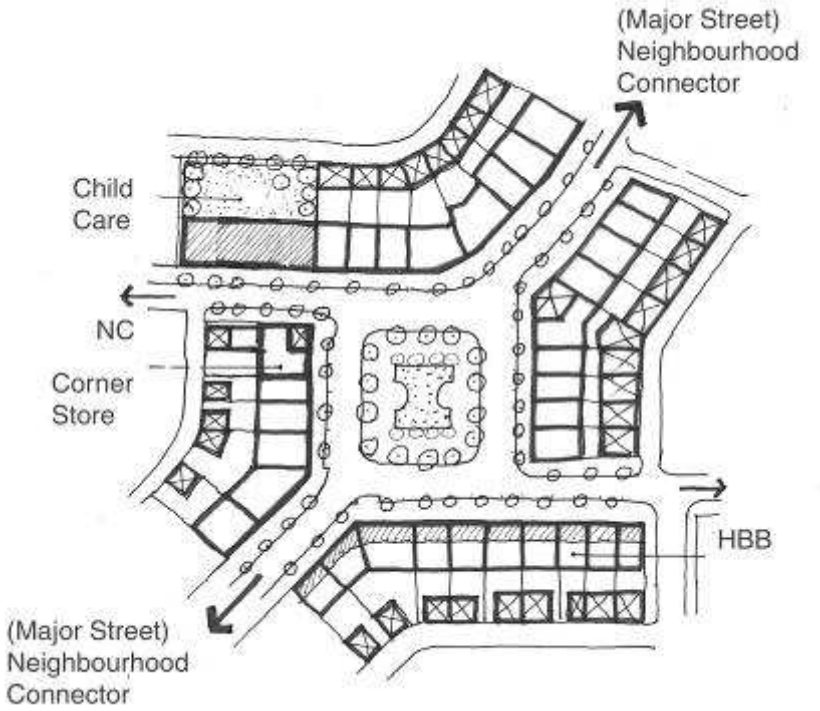


WESTERN AUSTRALIAN PLANNING COMMISSION

Typical Small Neighbourhood Centre Layouts

Neighbourhood centre at junction of major arterial with feature median and traffic lights





Turbine plaza feature intersection (adapted from Vermillion, USA, concept)

WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 2
MOVEMENT NETWORK

Washington Square, New York – Ped crossing and traffic calmed street environment

WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network Principle Issues

- Conflicts between the movement network provisions and improved sustainable urbanism outcomes and land efficiency.
- Need to share street between all users.
- Major difficulty in resolving street design standards for car movement and increase public transport effectiveness.
- Need to adjust street standards to help support decrease from 60 kph to 50 kph legal limit in all local streets, and the community desire for even lower design speeds.
- Acknowledge that there may need to be a range of ‘compromises’ in relation to street standards to get Local Government comfortable with LN as the standard, however these compromises should not be at the overall expense of achieving the sustainable urbanism that is the essence of LN.

WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network Design Issues

- Need confirmation that all new urban arterials (District Distributor Integrators DD1A, DD1B), and wherever possible, new development abutting existing arterials, is to be detailed as Integrated Arterials – with frontage.
- Street cross-sections – need for more typical (i.e. standard) sections
- Some pavement widths need reduction for speed management.
- Promote cycling.
- Kerb radii and corner truncations for pedestrian amenity.
- Deal with emerging issues such as requiring truncations on lane intersections and lane entries at footpaths.
- Allow for **special streets** to be proposed and justified by applicants.
- Review speed management impact if design changes are allowed (e.g. impacts of increasing sight distance, and increase intersection spacings)
- Determine an appropriate traffic level for allowing direct reversing-out vehicle access to neighbourhood connectors (currently 3000 vpd in LN and 7000 vpd in Appendix 1 of Guidelines for Geometric Layout of Roads).

WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network Design Issues (cont)

- Intersection controls – along arterials to support walkability and public transport stop access; and to encourage more 4-way intersections in local streets.
- Footpath provision – there is concern amongst developers that LG is mandating two footpaths everywhere, even though LN provides for one footpath in low volume access streets. Need to expand and clarify LN footpaths provisions.
- Rear lanes – need to expand details of appropriate rear lane designs and layouts to address community safety issues. (Also need to cover in lot layout).

Savannah, USA

WESTERN AUSTRALIAN
PLANNING COMMISSION

Greenwich Village – Yield Street, Slow Speed

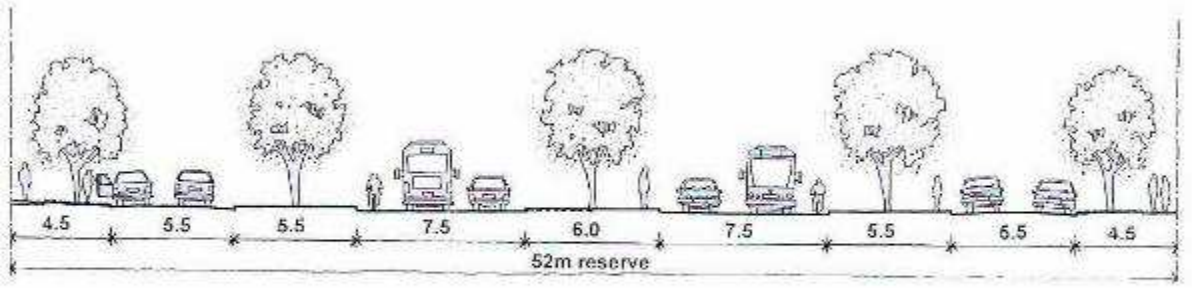
WESTERN AUSTRALIAN
PLANNING COMMISSION

Greenwich Village – Ped Crossing

WESTERN AUSTRALIAN PLANNING COMMISSION

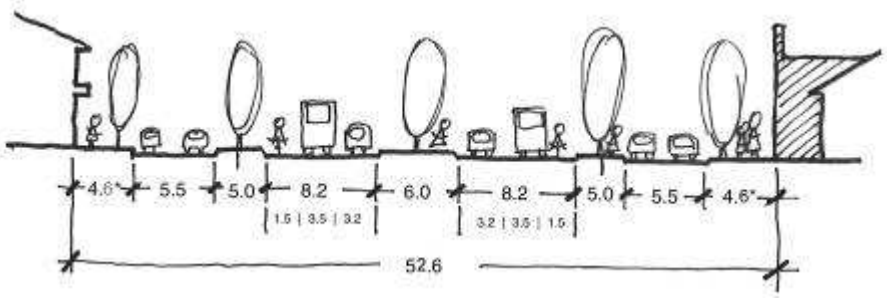
E2 Movement Network
Integrator A Cross-Sections

Existing LN

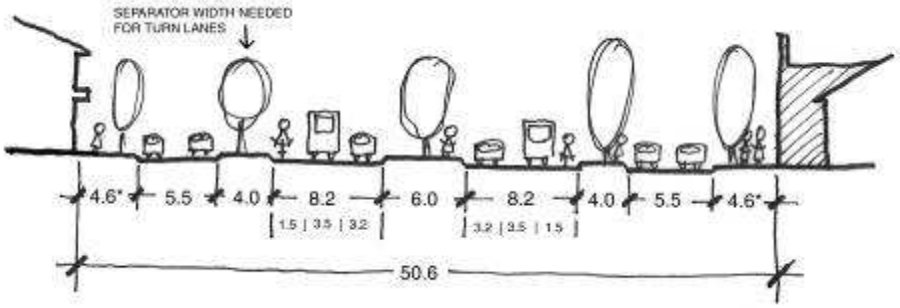


District Distributor Integrator A (4 lanes with central median and service roads)

Proposed Section



INTEGRATOR A – BOULEVARD - 70 km/hr (15-35 000 vpd)
Four lanes with central median, buses, cycle lanes and service roads fronted by development, and wide 2.5 m shared path on both sides.

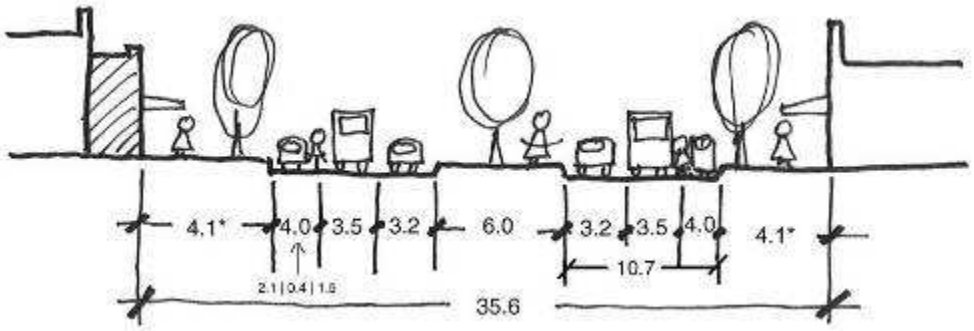


INTEGRATOR A – BOULEVARD - 60 km/hr (15-35 000 vpd)
Narrower bus travel lanes and narrower outer separators. Service roads with fronting development. Wide (2.5 m) shared paths on both sides as standard.

WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network
Integrator A Cross-Sections (cont)

Proposed Section

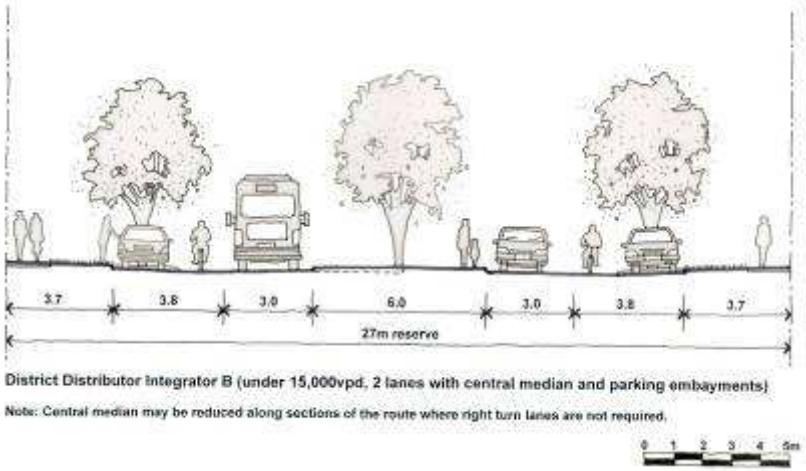


INTEGRATOR A – CENTRES – 60 km/hr (up to 25 000 vpd)
Arterial generally for business use in town centres, but not for retail main street. Four lanes, central median with parking and bike lanes, with development at or close to frontage to give visual containment. Note: Must be of limited length (eg <800 m)

WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network
Integrator B Cross-Sections

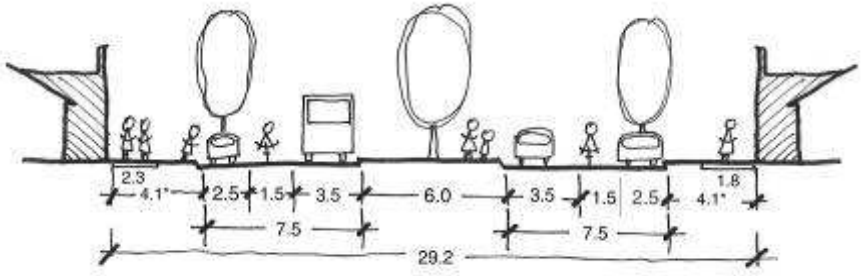
Existing LN



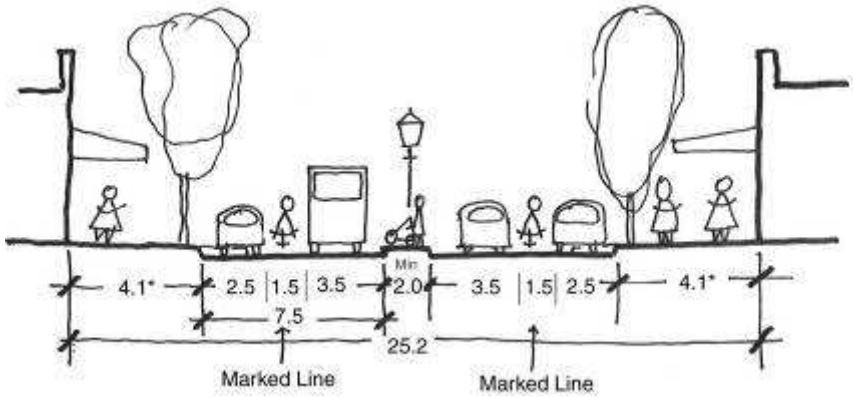
District Distributor Integrator B (under 15,000vpd, 2 lanes with central median and parking embayments)

Note: Central median may be reduced along sections of the route where right turn lanes are not required.

Proposed Section



INTEGRATOR B – OUTSIDE CENTRES – 60 km/hr (up to 15 000 vpd)
Two lanes, central median, buses, cycle lanes and parking. Development fronting, forward vehicle exiting.

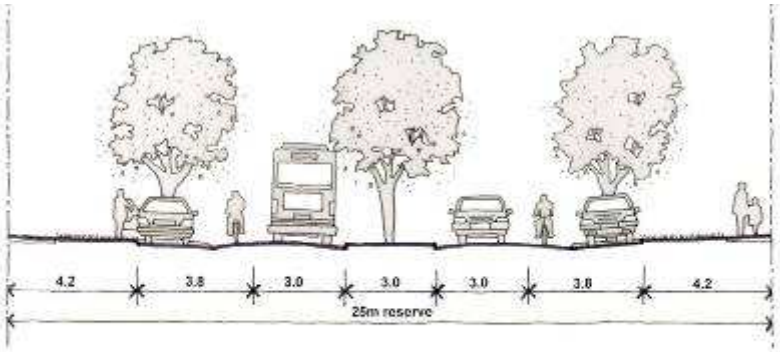


INTEGRATOR B – TOWN CENTRE MAIN STREET – 40-50 km/hr (up to 15 000 vpd)
Town Centre, main street suited to retail both sides, two lanes, small median, buses and parking, cycle lanes. Suitable for streets up to 400 m long within centres. Travel lane widths may be reduced to 3.3 m where street is less than 200 m in length.

WESTERN AUSTRALIAN PLANNING COMMISSION

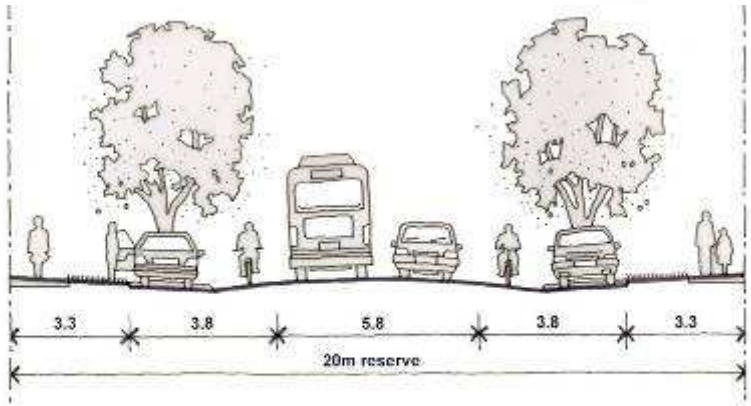
E2 Movement Network
Neighbourhood Connector Cross-Sections

Existing LN



Neighbourhood Connector
(central median, with parking embayments)

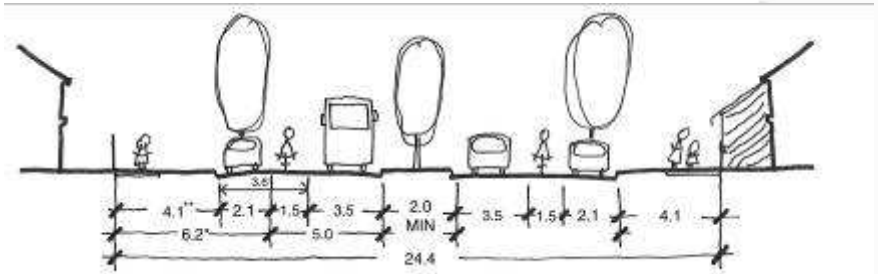
Note: For traffic volumes <3000vpd, shared parking/bike lane may be reduced to 2.5m and reserve to 22m.



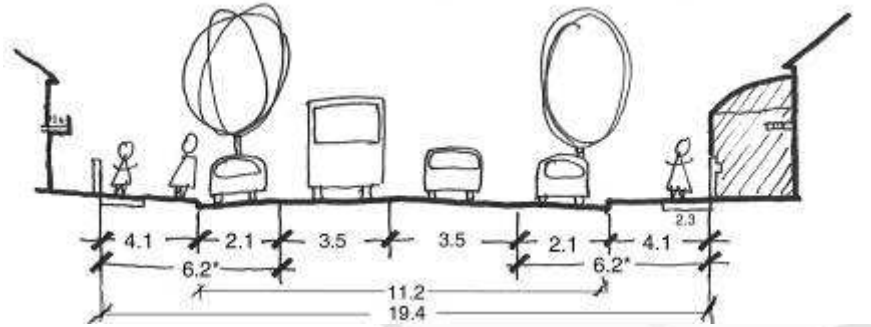
Neighbourhood Connector
(no median, with parking embayments)

Note: For traffic volumes <3000vpd, shared parking/bike lane may be reduced to 2.3m and reserve to 17m.

Proposed Section



NEIGHBOURHOOD CONNECTOR A 50 km/hr (up to 7 000 vpd, with >3 000 vpd preferred) Central median, buses, cycle lanes and parking. Bus stops are normally in travel lane against kerb extensions in parking lane.



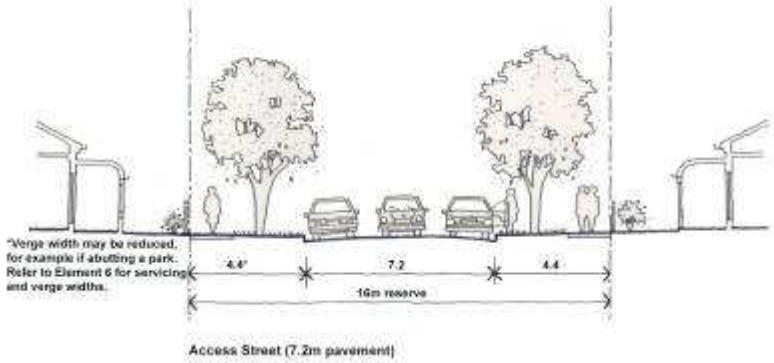
NEIGHBOURHOOD CONNECTOR B 50 km/hr (<3 000 vpd)

Lower volume neighbourhood connector, bus route, no cycle lanes, parking. Typically a residential environment with low parking turnover. Detailing of design to visually narrow street (eg including trees in parking lane, painted parking line), together with other speed control mechanisms to limit typical operating speeds to less than 50 km/hr. Bus stops in travel lane against kerb extension in parking lane. A 2-2.3 m shared path provided on at least one verge in lieu of on-street cycle lane.

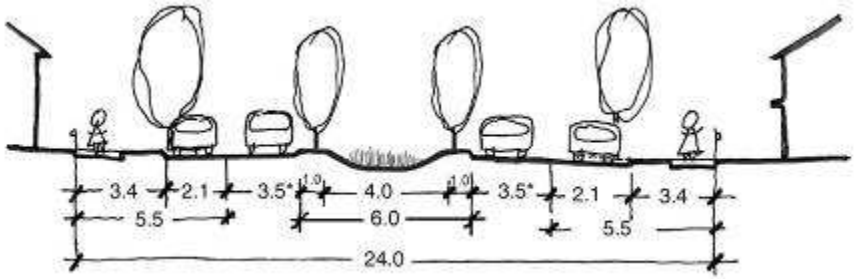
WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network
Access Street Cross-Sections

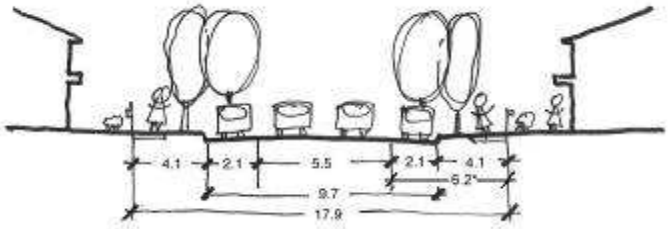
Existing LN



Proposed Section



ACCESS STREET A – AVENUE - TARGET SPEED 40 km/hr (<3 000 vpd)
Central median, indented parking, no separate cycle lane, no buses. Suited to 6 m-wide medians containing swale drains.

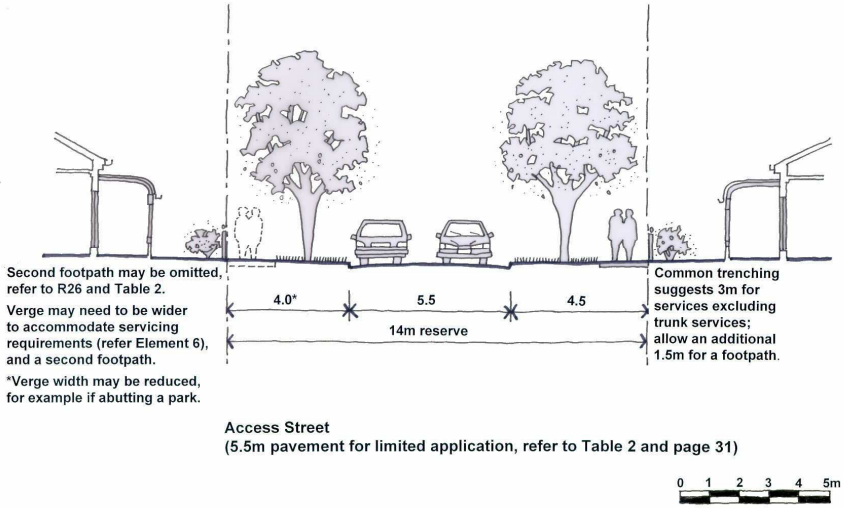


ACCESS STREET B – WIDER ACCESS STREET TARGET SPEED 40 km/hr (< 3 000 vpd) Wider access street suited to higher density residential areas (typically R30 –R40+, or where dwelling density is greater than around 1 per 250 m^2) with higher parking demand. Extensive parking, no bike lane, no buses, trees in verge, with additional trees in parking lane if required.

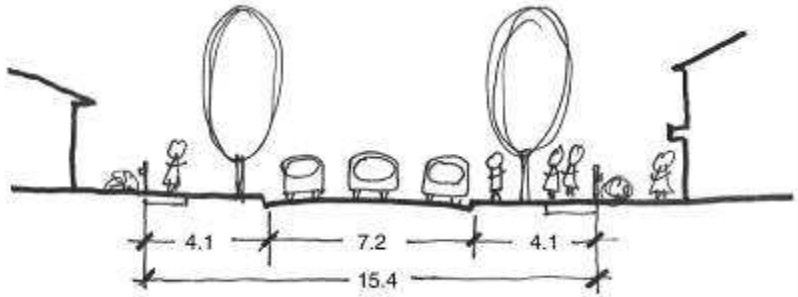
WESTERN AUSTRALIAN PLANNING COMMISSION

E2 Movement Network
Access Street Cross-Sections (cont)

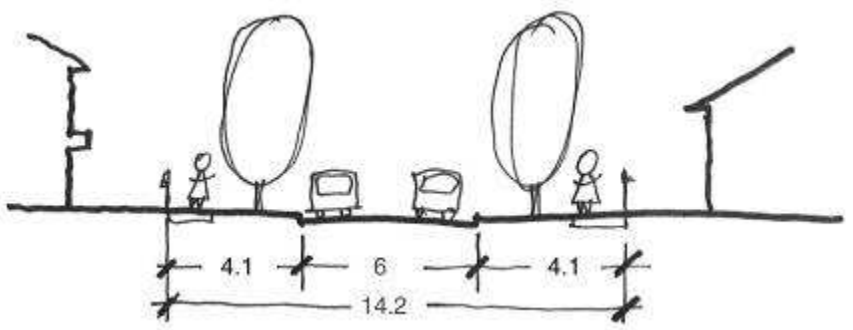
Existing LN



Proposed Section



ACCESS STREET C – YIELD (or Give Way) STREET TARGET SPEED 40 km/hr (< 3 000 vpd) Standard access street or yield (or give way) street. Relatively frequent parking on both sides of street (on the pavement) desirable and needed as part of speed control. No buses, no bike lane. This is likely to be the most common residential street in densities up to and often including R30 - R35 (or a typical lot size down to 250-300 m^2).

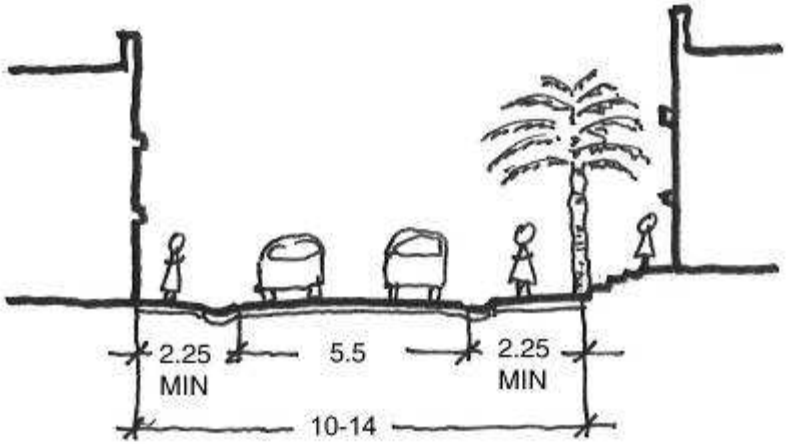


ACCESS STREET D – NARROW YIELD (or GIVE WAY) STREET TARGET SPEED 30 km/hr (< 1 000 vpd) Narrower access street for shorter lengths, low parking demand, serving larger lots. No buses, no bike lanes, no indented parking. Staggered parking on both sides of street as part of speed control, low speed. Not through route, low traffic volume.

WESTERN AUSTRALIAN PLANNING COMMISSION

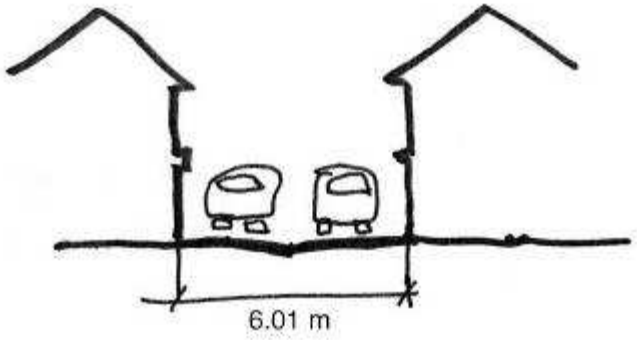
E2 Movement Network
Special Streets Cross-Sections

Proposed Section



SMALL TOWN CENTRE STREET - TARGET SPEED 30 km/hr or less (up to 1 000 vpd)

Suited to small secondary streets in centres where a visually contained street is required. Shared by cars, pedestrians and cyclists in low speed environment. Short length (less than 150 m), low traffic volume, may have parking on one side of street if one-way, limited or no parking on street if two-way.



LANEWAY – FOR REAR VEHICLE ACCESS - TARGET SPEED 15 km/hr

Two-way. Normally no parking. Normally central-invert drainage. Wide enough to allow vehicle access into garages located on the property boundary. Studio units above garages. In some circumstances, studios may have balconies projecting over the lane, provided that they are a minimum of 2.7 m above the pavement. Pavement may be narrowed to 3 m or 5 m at laneway entries. This improves sightlines to footpaths.

WESTERN AUSTRALIAN
PLANNING COMMISSION

Pinjarra Road

WESTERN AUSTRALIAN
PLANNING COMMISSION

Anstruther Street

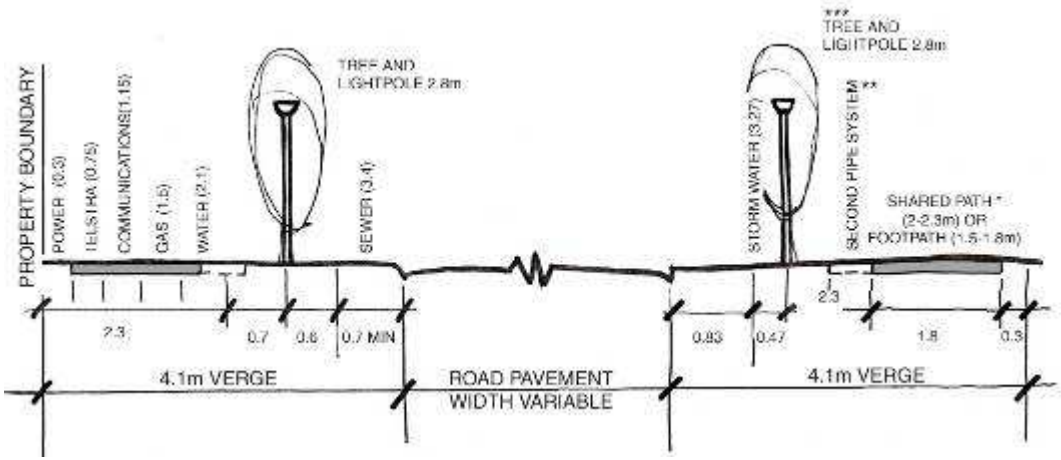
WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 6
PUBLIC UTILITIES

WESTERN AUSTRALIAN PLANNING COMMISSION

E6 Utilities
Issues and Policy Response

- Inclusion of provision for waste water reuse alignment
- Utility alignments and cross sections have minor variations to Utility Providers Code of Practice with 4.1m verge.
- More specific about services in laneways
- More emphasis on provision of street trees



WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 3
LOT LAYOUT

Savannah – Studio house overlooking lane

WESTERN AUSTRALIAN PLANNING COMMISSION

E3 Lot Layout Key Issues

- RD Codes provide an artificial restriction to lot diversity
- Density not being delivered via R Codes
- Climatic response needs updating
- Detail laneway provisions
- Detailed Area Plans
- Achieving density around centres and stations
- Development in the centre of neighbourhoods
- Mixed use



WESTERN AUSTRALIAN PLANNING COMMISSION

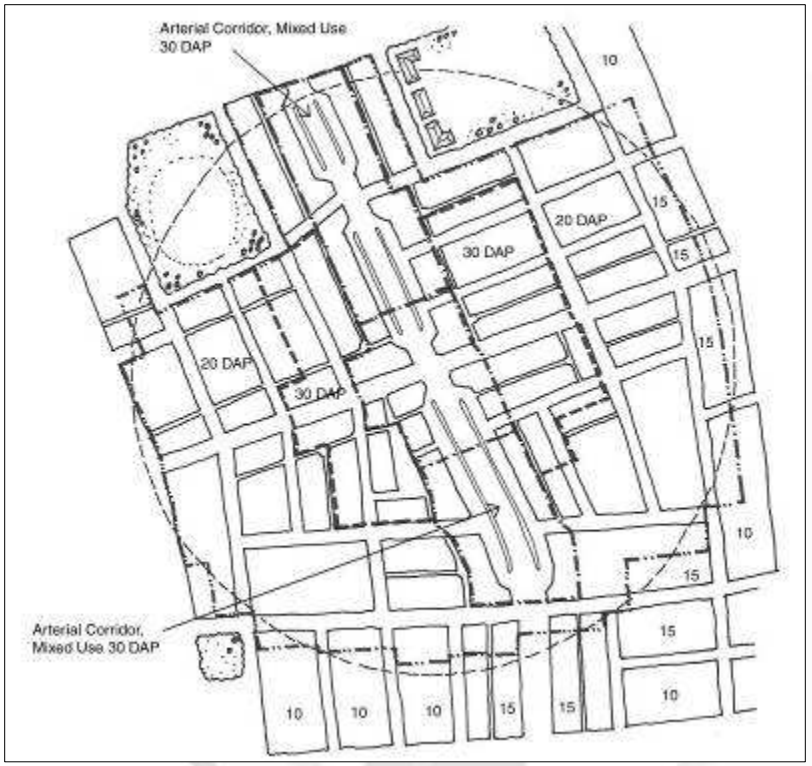
E3 Lot Layout Key Changes

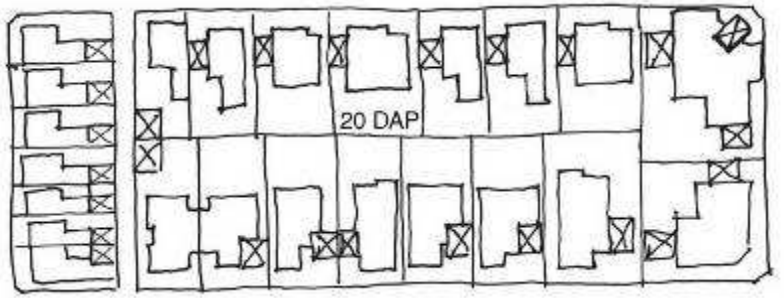
- Improve nexus with RD Codes, without having lot diversity limited by the RD Code Table.
- Address delivery of residential density through Structure Plans and Detailed Area Plans.
- Strengthen the emphasis on designing to maximise benefits of site characteristics over solar orientation but optimise N-S and E-W orientation wherever possible.
- Improve the guidance for relating lot sizes with lot orientation.
- Improve the guidance and rationale for providing an adaptable large lot(s) at the centre of a 400 m walkable catchment, to accommodate future change of use and include DAP requirements.
- Provide better guidance for **lot diversity** and mixed use distribution.
- Update guidance for school site design with findings of the Primary School Sites Review.
- Provide a stronger direction for the application of density codings, and development to the desired coding around centres and stations.
- Need to review truncations again.

WESTERN AUSTRALIAN PLANNING COMMISSION

E3 Lot Layout Policy Response

- Provision for density targets in structure plans (R2-R6)
- Use of Detailed Area Planss for precinct variations to RD Codes (R35-R36)
- More guidance on laneway design (R37)
- Updated solar response by SEDO (R19-R20)
- Lot shapes for breeze access (Regional Variation) (Fig 12)



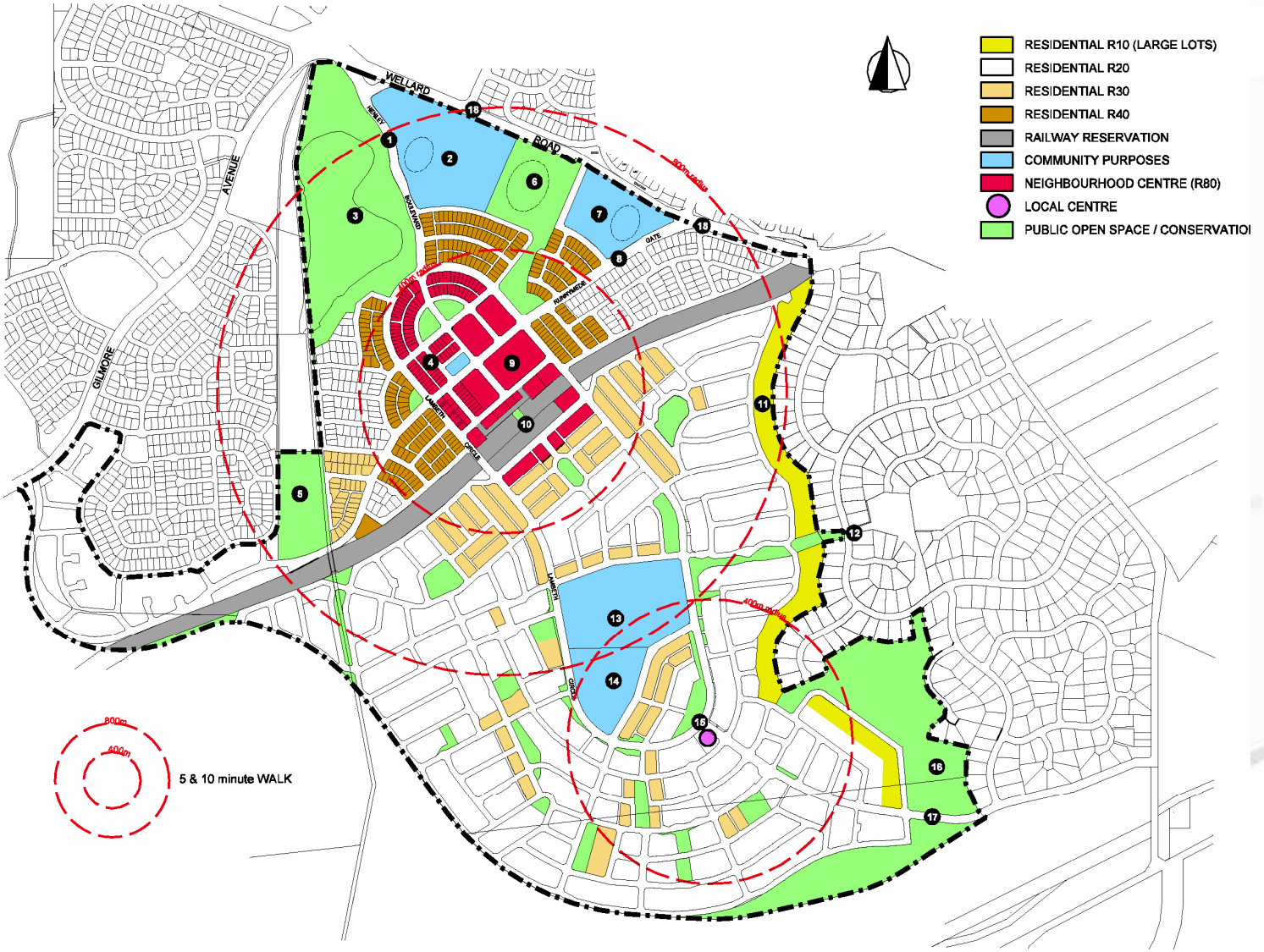


E3 Lot Layout DAP

WESTERN AUSTRALIAN PLANNING COMMISSION

Wellard Village TOD

1. MAJOR CONNECTION TO KWINANA TOWN CENTRE
2. ANGLICAN PRIVATE SCHOOL K-12
3. CONSERVATION WETLAND AND RECREATION
4. MEDIUM DENSITY RESIDENTIAL / MIXED USE IN CLOSE PROXIMITY TO NEIGHBOURHOOD CENTRE
5. PUBLIC OPEN SPACE LINK BETWEEN WETLANDS AND REGIONAL OPEN SPACE
6. DISTRICT RECREATION FACILITY COMPRISING OVAL
7. PUBLIC PRIMARY SCHOOL
8. RUNNYMEDE GATE - TREE LINED ENTRY - MEDIAN PROVIDED
9. NEIGHBOURHOOD CENTRE INCORPORATING EDUCATION, RETAIL, OFFICE RESIDENTIAL AND COMMUNITY FACILITIES
10. WELLARD TRAIN STATION
11. LARGE LOTS (1500m2) TO PROVIDE TRANSITION BETWEEN EXISTING SPECIAL RESIDENTIAL DEVELOPMENT AND FUTURE RESIDENTIAL
12. POS LINK TO EXISTING RESIDENTIAL DEVELOPMENT
13. HIGH SCHOOL INCORPORATING PUBLIC PLAYING FIELDS
14. PRIMARY SCHOOL
15. SOCIAL CENTRE FOR POSSIBLE NEIGHBOURHOOD NODE
16. BUSH FOREVER (CONSERVATION)
17. PROPOSED EXTENSION OF LEDA BOULEVARD
18. WELLARD ROAD IS IDENTIFIED AS 'OTHER REGIONAL ROAD RESERVE' UNDER THE MRS. MRS AMENDMENT 1099/33 PROPOSES THE DOWNGRADING OF WELLARD ROAD BY REMOVING THE OTHER REGIONAL ROADS CLASSIFICATION



WESTERN AUSTRALIAN PLANNING COMMISSION

E3 Lot Layout DAP

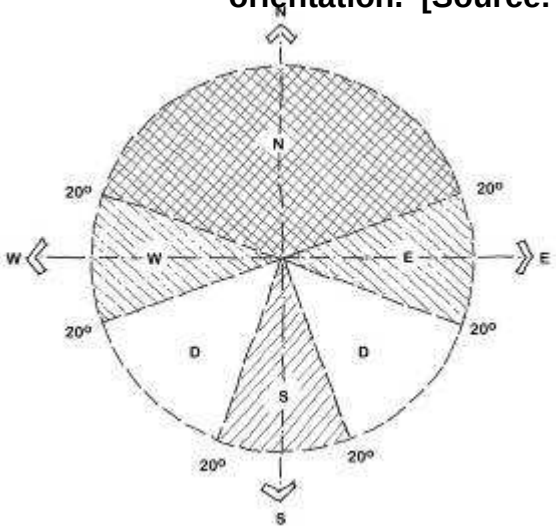
Site responsive design

- 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.

Climate responsive design

- 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 (figures 9, 10 and 11). This may be achieved by:
  - maximising the number of lots which have their long axes within the range N20oW to N30oE, or E20oN to E30oS;
  - 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.
- 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 (figure 12).

Figure 9: Lot orientation for solar access; lot widths that will give allowance for a four-star house in each orientation. [Source: SEDO]



	Lot width (street frontage)				
Facing direction of lot	**<13 m**	**13-15 m**	**15-17 m**	**17-23 m**	**>23**
North (N)	★★★	★★★	★★★½	★★★½	★★★★
East or West (E or W)	★★★★ ½	★★★★½	★★★★½	★★★★½	★★★★★
Diagonal (D)	★★★	★★★½	★★★½	★★★★	★★★★
South (S)	★★★	★★★	★★★★½	★★★★½	★★★★★

★ Very limited solar access potential
★★ Limited solar access potential
★★★ Moderate solar access potential
★★★★ Large solar access potential
★★★★★ Very large solar access potential

Notes: Lots in temperate climates should be oriented to facilitate siting of dwellings and private open space to take advantage of winter solar access and summer sun deflection as per **Figures 9 and 10**.

1. If lot is north facing but rear right-of-way access and setback provisions are provided, the lot may be deemed as south or diagonal.
2. The length of the north facing boundary may be used as the lot width for all corner lots with a north boundary to the street.
3. If the house built on the lot is to be attached on both sides all orientation will perform well.
4. If the house built on the lot is attached on one side, north lots >15 m and diagonal and south lots >13 m are acceptable.
5. **Figure 9** assumes same storey houses on adjoining lots.
6. For further information, visit <http://www.sedo.energy.wa.gov.au>.

Figure 10: Notional lot/house layouts for varying lot orientations in temperate climates

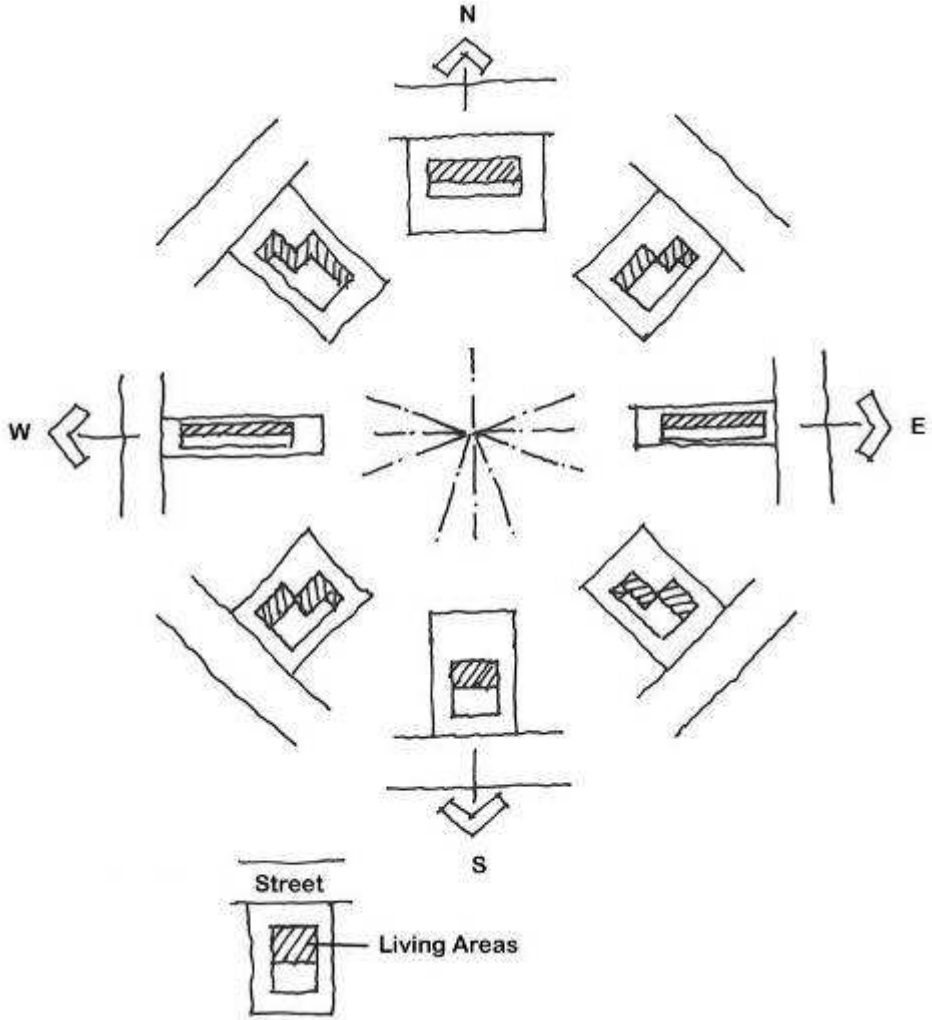
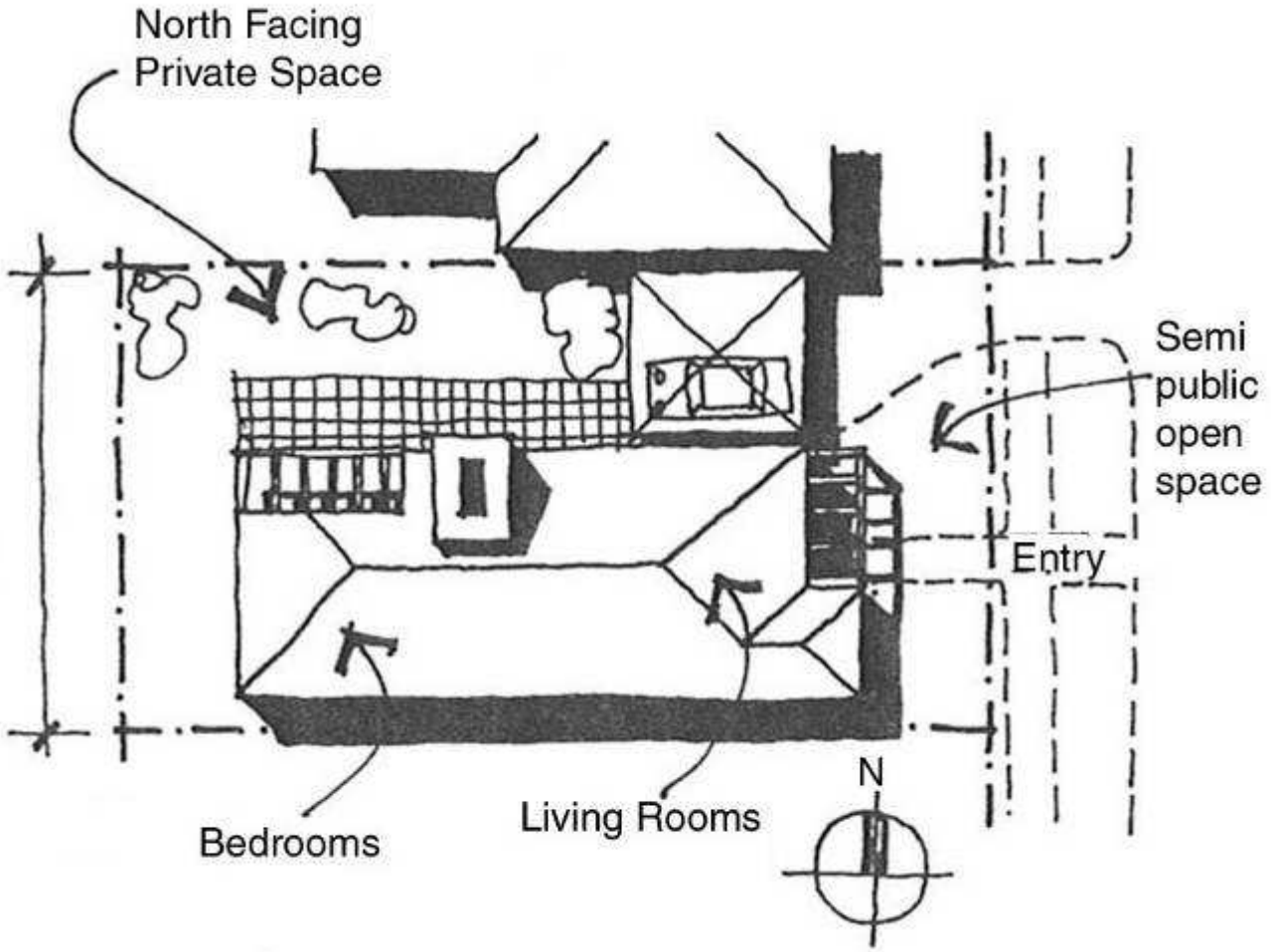


Figure 11: Example of site planning for a single dwelling on an east-west lot in a <u>temperate climate</u>

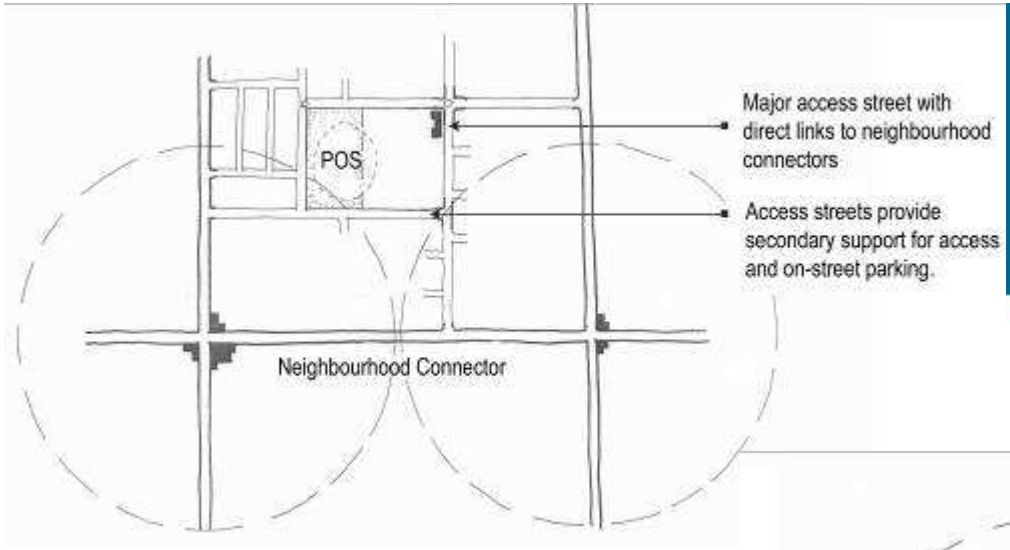


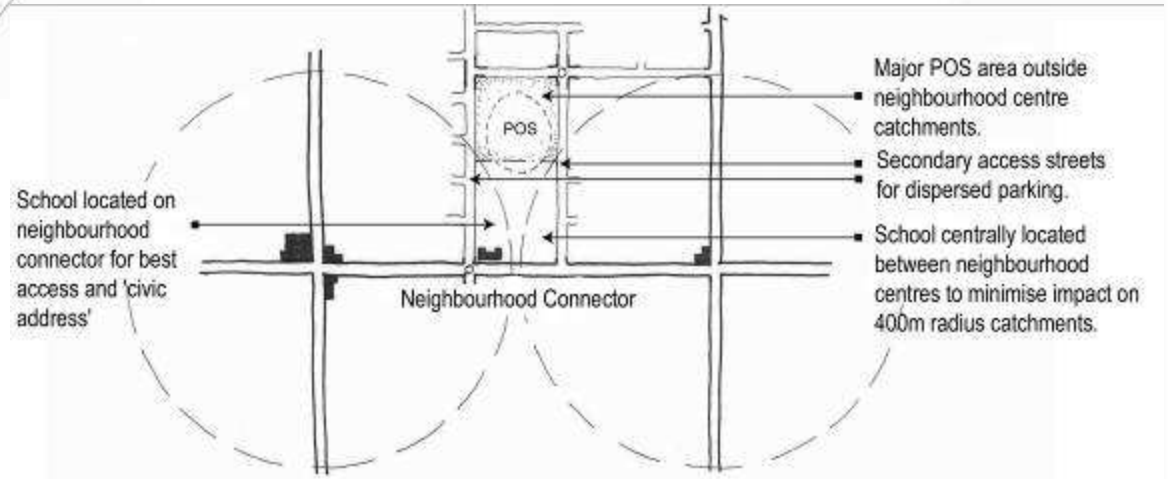
WESTERN AUSTRALIAN
PLANNING COMMISSION

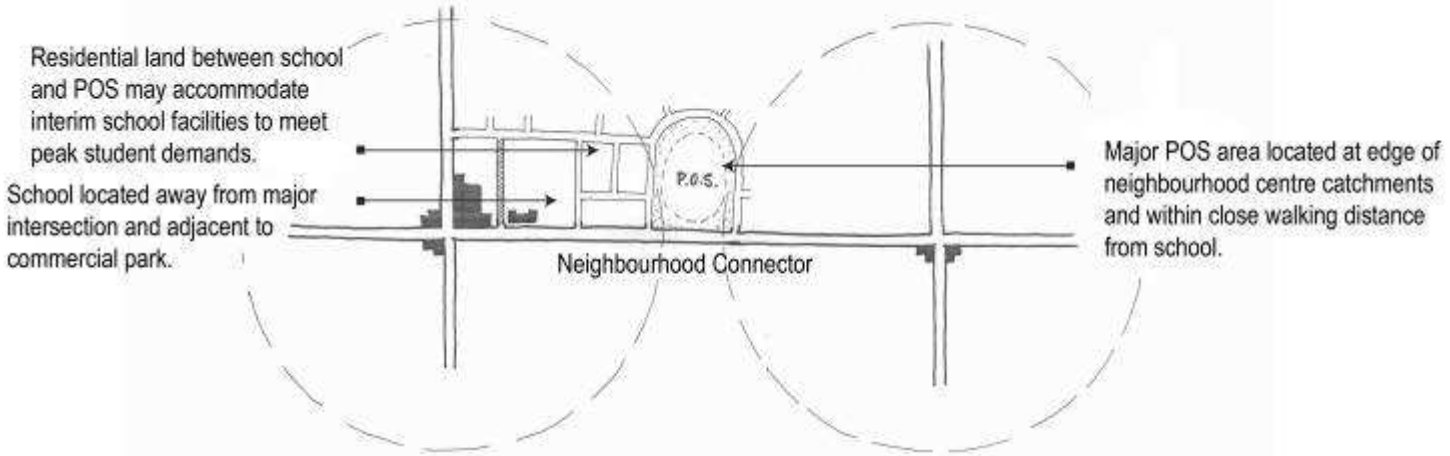
ELEMENT 8
SCHOOLS

Schools in shops- Secret Harbour

E8 Schools
Detailed Policy Elements







WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 4

PUBLIC PARKLAND

WESTERN AUSTRALIAN PLANNING COMMISSION

Key Issues

- Role of district structure planning:
  - Hierarchy of POS
  - District provision
- POS standards/credits
- Small parks and specific purpose parks
- Development of POS

Savannah Square – Jazz at lunchtime

WESTERN AUSTRALIAN PLANNING COMMISSION

E4 Public Parkland Key Changes

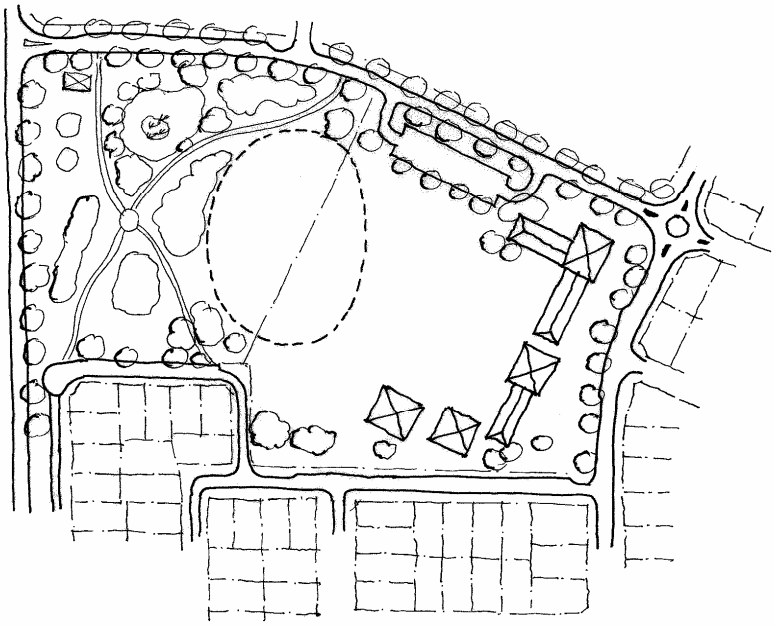
- ROS, foreshore reserves and the 10% POS differentiated.
- Requirement for landscaping of POS to a minimum standard.
- Need for agreement with LG if landscaping exceeds min standard.
- Standard 10% POS – 2% concession to 8% for development deleted.
- Mentions Bush Forever but does not detail negotiated outcomes.
- Credits allowed for:
  - Regional open space to 20% POS max and usable (R5).
  - Foreshore reserves, max 50% credit to 20% POS max subject to usability and maintenance agreement (R6).
  - Drainage swales/detention areas up to 100% credit, artificial lakes, natural wetlands, damplands, sumplands to 50% credit; all to max 20% of POS.
- Detailed cash in lieu provisions.

WESTERN AUSTRALIAN
PLANNING COMMISSION

Ion – Formal Linear Park

E4 Public Parkland Policy Response

- Return to 10% POS – no 2% concession (R3)
- A max of 20% POS allowed for 'restricted use' POS (R4, R5)
- 100% allowance ('credit') given for the 20%, with prioritisation left to LGs (R28)
- Requirement for development of POS to a min. standard (R34-35)
- Wetlands and foreshore provisions specified (R8-R10)
- Regional reduction to 5% min subject to usage and development (R31)



WESTERN AUSTRALIAN PLANNING COMMISSION

E4 Public Parkland Policy Response

Public open space (POS) schedule applies to structure plans and subdivisions			
Site area **Less**			200 ha
Environmental protection policy areas Wetlands to be ceded Protected bushland site Foreshore reserves to be ceded	 3.0 ha 12.0 ha 5.0 ha		
Total Net site area		20.0 ha	 180 ha
Deductions			
Primary school Town centres and commercial Dedicated drainage reserve Transmission corridors Other approved contingencies	4.0 ha 3.5 ha 1.0 ha 1.0 ha 0.5 ha	 10.0 ha	
Gross Subdivisible area			170 ha
POS @ 10%			17 ha
Public open space contribution			
May comprise: -minimum 80% unrestricted POS -minimum 20% restricted use POS (ie one-fifth of 17 ha)		 13.6 ha 3.4 ha	 17 ha
Unrestricted POS sites			
12 local parks @ 3 000 m^2 each (list and specify) 4 neighbourhood parks @ 8 000 m^2 each 1 district park (specify) Community purposes site		3.6 ha 3.0 ha 6.8 ha 0.2 ha	 13.6 ha
Restricted use POS sites			
Total restricted use public open space contribution (ie 20% of 17 ha = 3.4 ha maximum allowance.			
eg local Bushland eg wetland buffer Total restricted use POS	1.0 ha 2.4 ha		 3.4 ha
PUBLIC OPEN SPACE PROVISION	**3.4 ha**		**17 ha**

WESTERN AUSTRALIAN
PLANNING COMMISSION

Savannah – Forsyth Park

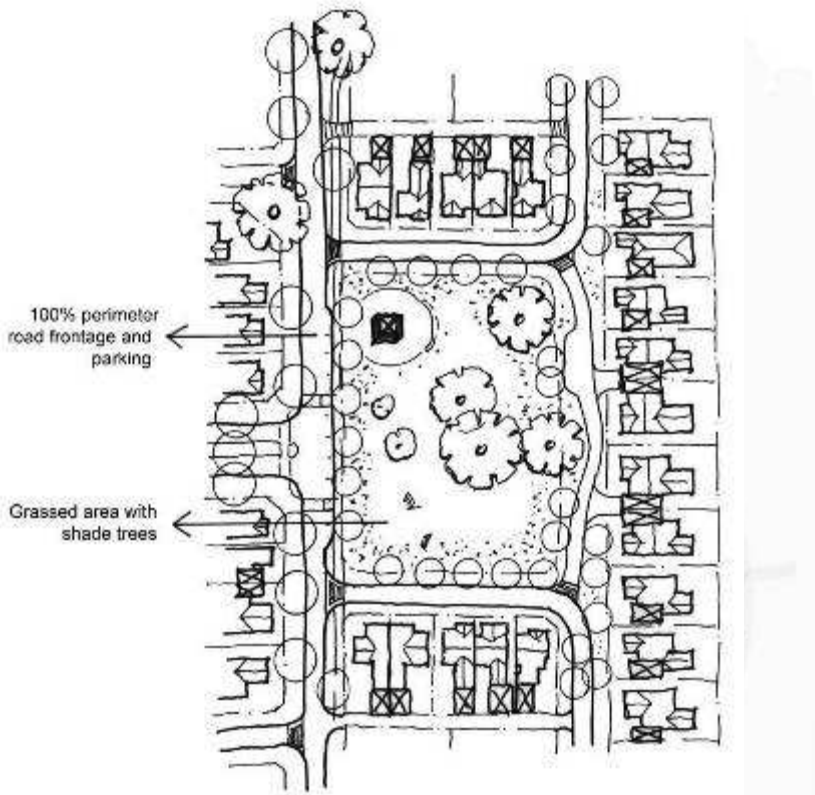
WESTERN AUSTRALIAN
PLANNING COMMISSION

1858 Cast Iron Fountain - Forsyth Park

WESTERN AUSTRALIAN PLANNING COMMISSION

E4 Public Parkland Detailed Policy Elements

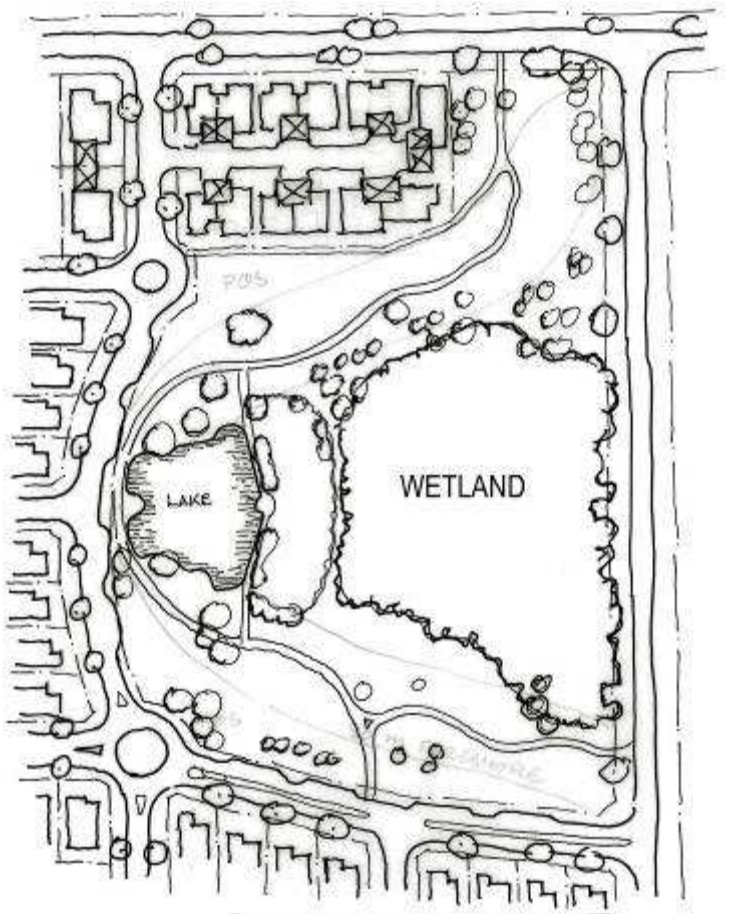
- Application requirements: R1
- Parkland function and distribution: R2
- Amount of public open space: R3-R5
- Regional open space: R6-R7
- Foreshore reserves:R8-R9
- Wetlands and Buffers: R10
- Parkland frontage and surveillance: R11-R12
- Local parks: R13
- Neighbourhood parks: R14-R15
- District parks/open space: R16-R18
- Combining parks with different functions: R19



WESTERN AUSTRALIAN PLANNING COMMISSION

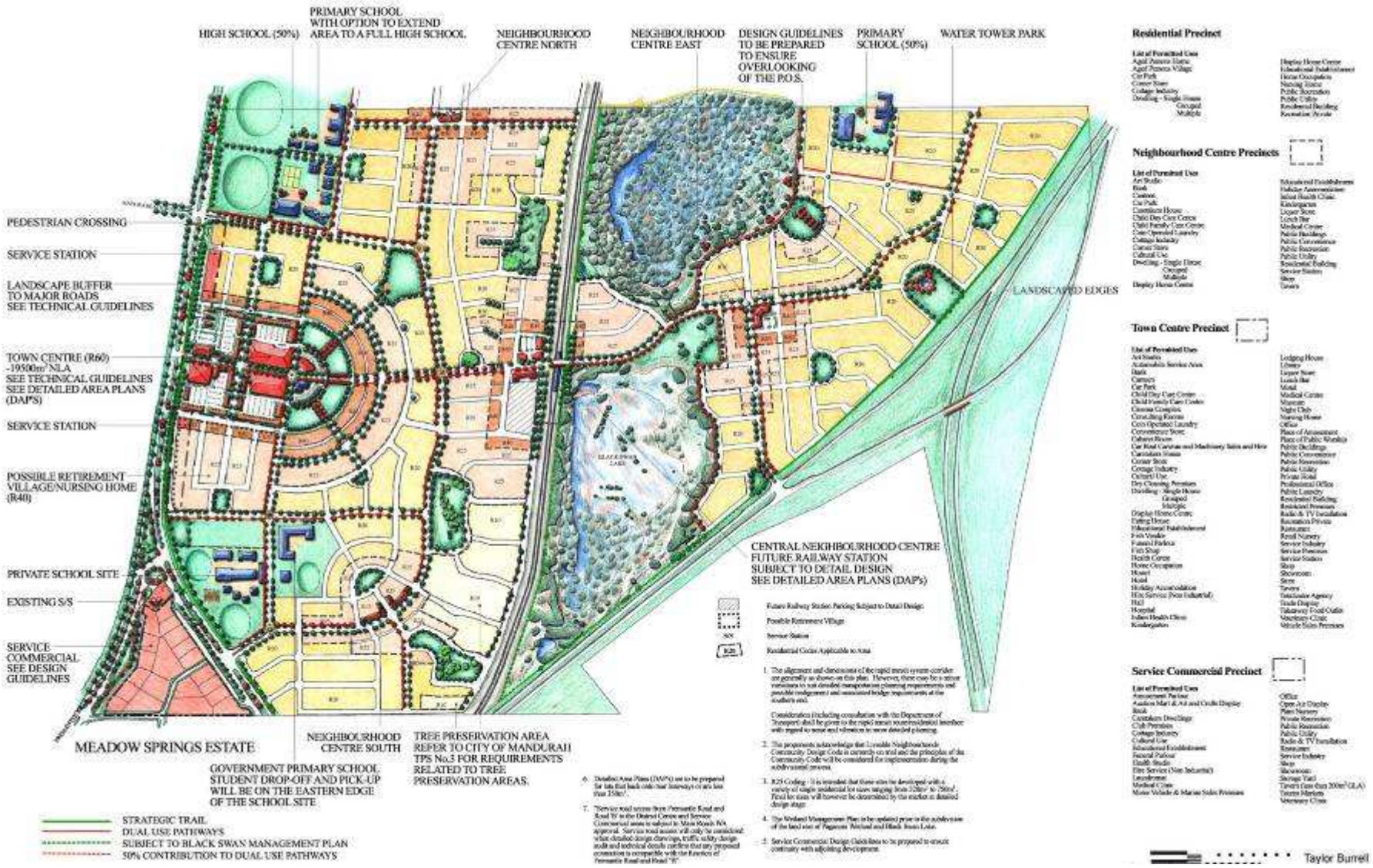
E4 Public Parkland
Detailed Policy Elements (cont)

- Integrating stormwater and public parkland: R20-R23
- Community purpose sites: R24-R27
- Public space allowances: R28
- Public open space provision and restricted public open space uses:R29-R30
- Regional variations: R31
- Cash in lieu and transfers: R32-R33
- Development of public open space: R34-R35
- Public open space for five lots or less: R36
- Implementation : R37-R38
- Public open space in stages: R39
- Deductions: R40



WESTERN AUSTRALIAN PLANNING COMMISSION

Lakelands ODP



WESTERN AUSTRALIAN
PLANNING COMMISSION

ELEMENT 5
URBAN WATER MANAGEMENT

WESTERN AUSTRALIAN PLANNING COMMISSION

E5 Urban Water Management Key Issues

- Institutional and administrative reform.
- Best management practices.
- Implications on good urban form outcomes
- Public open space credits associated with integration of UWM techniques
- Water sensitive urban design is unproven: few demonstration examples
- Need for clarity on POS credits
- Need for institutional reform in urban water management to clarify roles and delivery esp LG/Water Corp/DOE.
- Financial capacity of LG to maintain water management bodies limited- needs addressing

Ascot Waters

WESTERN AUSTRALIAN PLANNING COMMISSION

E5 Urban Water Management Key Changes

- Promotes the integration of stormwater management elements into the urban form which results in the provision of a range of ecological, social and economic benefits
- Plan for appropriate emphasis on integrating urban water management and delivery of sustainable urban form, such as:
  - Treatment of waste water and reticulation for non-potable use
  - Integration of stormwater treatment measures within public open space
  - Storage of treated stormwater in public water bodies
  - Building urban layouts that are conducive to achieving the objectives of potable mains water conservation, waste water minimisation and stormwater quality improvements
  - Stormwater requirements for roads are to be designed according to road hierarchy in order to ensure that the level of drainage is appropriate for the type of road and levels of amenity required

Ascot Waters

WESTERN AUSTRALIAN PLANNING COMMISSION

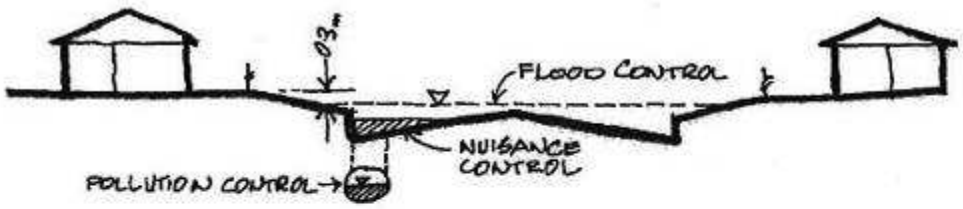
E5 Urban Water Management Key Changes (cont)

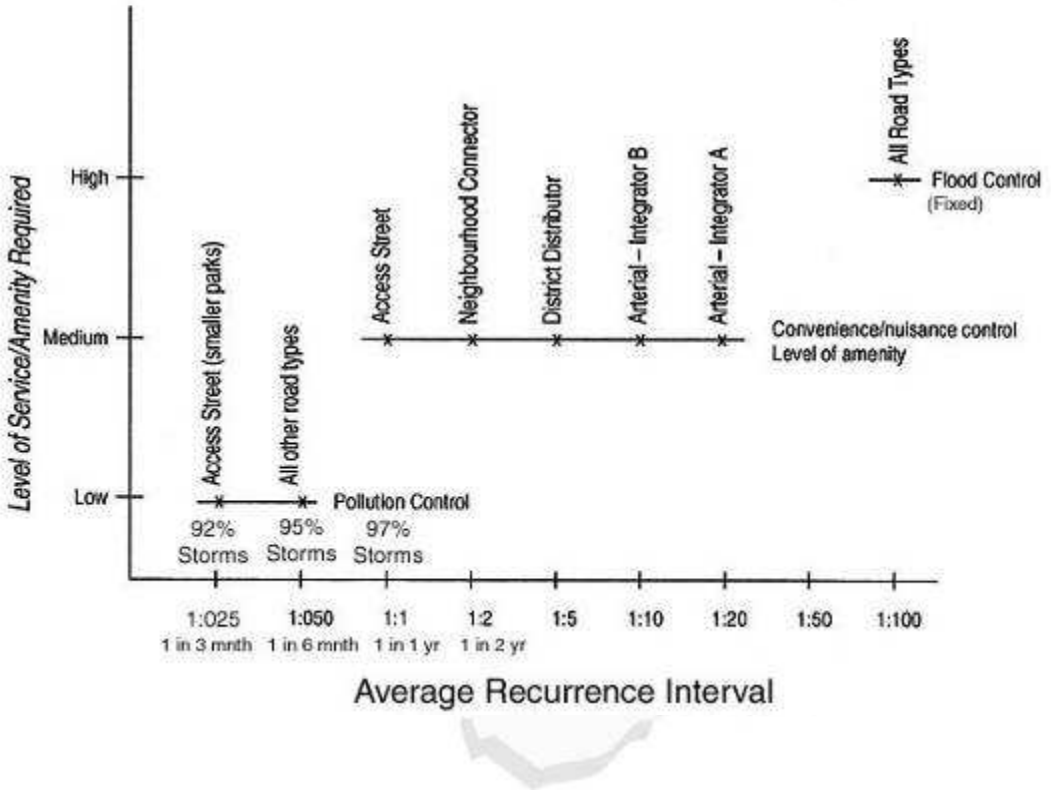
- An overall water management strategy is required (possibly as part of the District/Local Structure Plan).
- Update to reflect the current approach through the concept of “Total Water Cycle” management. The DoE has updated core objectives and design principles for urban water management which have been developed in the course of updating and revisiting the stormwater manual.
- Need to recognise funding arrangements for long term management and maintenance of urban water management areas need to be defined as part of the district/local structuring planning process

WESTERN AUSTRALIAN PLANNING COMMISSION

E5 Urban Water Management Policy Response

- Introduces BPPs and BMPs
- Proposes stormwater infrastructure as function of road hierarchy (Fig 1)
- Seeks to balance urban stormwater against urban structuring objectives
- Provides examples of WSUD
- Note that delivery is reliant on governance issues being resolved.

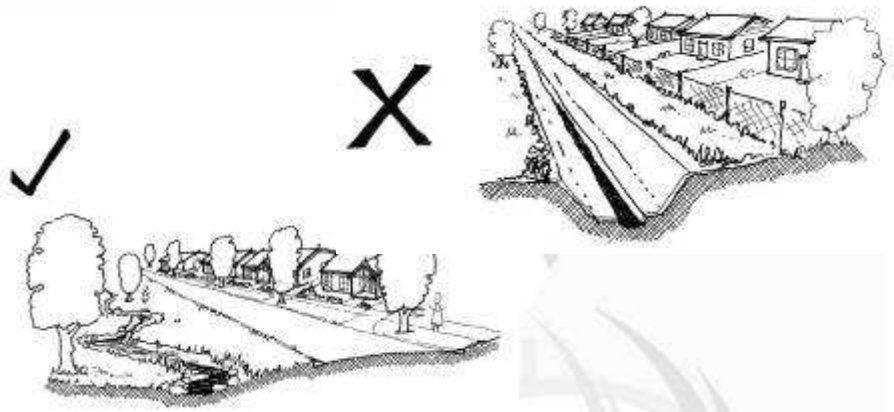


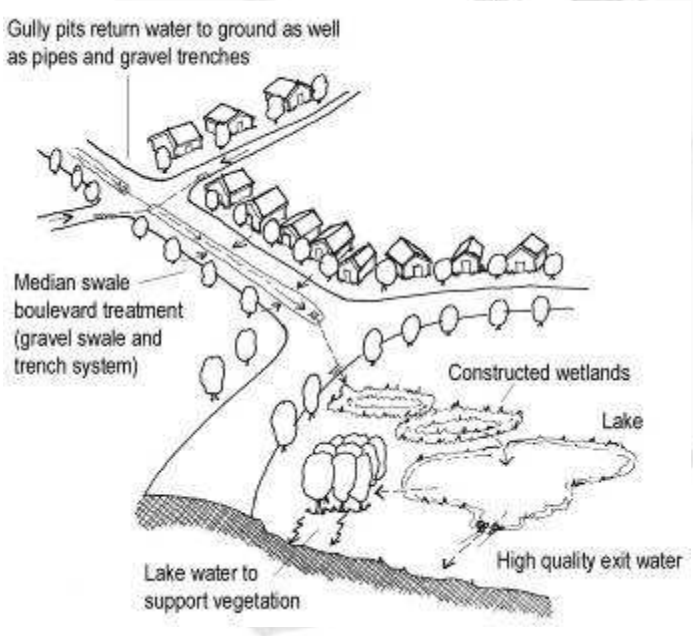


WESTERN AUSTRALIAN PLANNING COMMISSION

E5 Urban Water Management Detailed Policy Elements

- Application requirements: R1
- Urban Structuring: R2-R4
- Water quality: R5-R7
- Water quantity: R8-R10
- Water conservation:R11
- Protecting and enhancing valued native vegetation and habitats: R12
- Integrating stormwater into the landscape: R13-R16
- Street network and design: R17-R21
- Maintenance and management: R22





WESTERN AUSTRALIAN PLANNING COMMISSION

SUMMARY OF KEY CHANGES

- Increased emphasis on supporting sustainable urban development through land efficiency across all elements.
- Increased support for walking, cycling and public transport.
- Increased emphasis on achieving density targets and lot diversity, particularly around activity centres and pubic transport nodes.
- Promoting increased integration of urban water management elements into the urban form.
- Revised public open space credits including acknowledgement of sustainability measures through applications of public open space credits for retention of environmental features and adoption of water-sensitive urban design principles.
- Requirement for landscaping of public open space to a minimum standard.
- 'Deemed to comply' street cross-section standards applicable across all local governments in the state.
- Resolution of anomalies and up-dated cross-sections in Element 2 Movement Network with increased emphasis on traffic speed control and land efficiency.
- Revised street reservation requirements to accommodate a standard minimum verge width including street trees.
- Introduction of two new elements: Element 7 Activity Centres and Employment and Element 8 Schools.
- Increased guidance provided on delivery and design of centres, strengthening main street development, achieving walkable centres and delivery of jobs and employment.
- Increased recognition and strengthening of local identity and relationships with public transport identity.
- Simplified context and site analysis and application requirements.

WESTERN AUSTRALIAN PLANNING COMMISSION

Where to from here

- Review submissions
- Adopt as policy to deliver:
  - Sustainability of urban form
  - Greater certainty of outcome for all users
  - Return to traditional urbanism
  - Encouraging innovation in delivery of sense of place
  - Structure Plans to deliver density targets and diversity with support of Detailed Area Plans (DAPs)