

**WANNEROO**

**DEVELOPMENT DESIGN  
SPECIFICATION**

**WD11**

**VEHICULAR CROSSOVER  
DESIGN**



**DESIGN SPECIFICATION WD11  
VEHICLE CROSSOVER DESIGN**

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## DEVELOPMENT DESIGN SPECIFICATION WD11 VEHICULAR CROSSOVER DESIGN

### GENERAL

#### WD11.01 SCOPE

1. This specification sets out requirements to be used in the design of vehicular crossovers for the City of Wanneroo
2. This specification is made pursuant to the Local Government Act. All crossovers are to be constructed under the supervision and to the direction of the Council as outlined in this specification.

***Local  
Government  
Act***

#### WD11.02 OBJECTIVES

1. This specification aims to set standards and document requirements related to the provision of vehicular crossovers throughout the City of Wanneroo.
2. The specification seeks to provide uniformity of design across the City and to ensure safe and convenient access to property and compatibility with other road infrastructure.
3. Compliance with this specification ensures owners are eligible for a contribution to the crossover construction in accordance with Council's policies.

***Uniformity***

***Cost  
Contribution***

#### WD11.03 REFERENCE AND SOURCE DOCUMENTS

##### (a) Council Specifications

- Geometric Road Design – Section WD1 & D1 of this manual
- Specification - Construction of Standard Residential Brickpaved Vehicle Crossings
- Specification - Construction of Standard Residential Concrete Vehicle Crossings
- Specification - Construction of Commercial/Industrial Concrete Vehicle Crossings
- Specification - Rural Vehicle Crossing Place

### (b) Council Standard Drawings

#### Crossovers & Verge

- TS 07-1-0 - Residential – Width & Wing Alternatives
- TS 07-2-0 - Residential – Concrete Crossovers
- TS 07-3-0 - Residential – Concrete & Brick Paved
- TS 07-4-0 - Residential – Brick Paved Crossovers
- TS 07-5-0 - Residential – Verge Grades & Rises at Road Reserve Boundary
- TS 07-6-0 - Residential – Driveway Gradings with Standard 2% Verge  
(Maximum level above and below Kerb)
- TS 07-7-0 - Residential – Driveway Gradings with Standard 2%/10% Verge  
(Maximum level above Kerb)
- TS 07-8-0 - Residential Brickpaved Crossover – Approved Laying Pattern
- TS 07-9-0 - Residential Verge Hardstanding – Layouts and Sections
- TS 07-10-0 - Standard Rural Crossover – Details
- TS 07-11-0 - Industrial / Commercial Concrete Crossover
- TS 07-12-0 - Brickpaved and Concrete Residential Bin Pads – Layout and  
Details
- TS 07-13-0 - Crossover at Cul-de-sac heads – Typical Arrangement

#### Others

- TS 18-2-0 - Typical Crossover and Driveway Construction for Vacant Lot Strata  
Development
- TS 03-2-0 - Headwall Details

### WD11.04 CONTRIBUTION

1. If it is a first vehicle crossing constructed to the premises, Council may contribute towards the cost. Application for a subsidy payment must be made in writing within 6 months of the date it was constructed and must be accompanied with a Statutory Declaration that the crossover has been constructed to Council's specifications.

**Subsidy**

2. The crossover may be inspected for compliance. Approval of the Subsidy payment will be subject to all necessary documentation being received in accordance with Council's requirements.

### WD11.05 CROSSOVER BONDS

1. Crossover construction may also be required as a condition of the building approval/licence, for access to be established to a constructed road. Bonds equal to the cost of a standard concrete crossover for the construction or reconstruction of crossovers may be required to be paid prior to the issuing of the building licence.

2. The amount of the bond will be set by Council as part of its annual review of charges.

3. If the crossover is not constructed by the Owner/Agent/Developer within six months of the practical completion of occupation of the premises; Council may construct the crossover to the required standard using the bonded funds.

4. Crossover bonds will be refunded when the crossover has been constructed to the satisfaction and standards of Council and an application for the refund has been forwarded to Council.

## URBAN CROSSOVER DESIGN

### WD11.06 GENERAL

- |   |   |
|---|---|
| <p>1. Urban residential crossovers may be constructed of concrete or brick paving in accordance with the following requirements.</p> <ul style="list-style-type: none"> <li>• All levels for, the grading, surface finish, jointing or any other construction requirement shall be as directed by Council.</li> <li>• All materials used in the construction of vehicle crossings shall be in accordance with the Council's standard specification for road construction. All construction shall be in accordance with the Council's Construction standards.</li> <li>• Any materials used which are inferior to those specified shall be liable to rejection or replacement without any payment or compensation being made to the contractor for the supply, delivery, laying, placing, finishing, removal or disposal of anything so rejected.</li> <li>• Protection of works and the public shall be provided by the contractor in accordance with the requirements of Australian Standard 1742.3</li> <li>• Any damage to services, Council facilities or private property during the course of the works or which may subsequently become evident from the operations thereof, shall be the sole liability of the owner or contractor.</li> </ul>  | <p><b>Residential Crossings</b></p> <p><b>Construction Standards</b></p> <p><b>Inferior Materials</b></p> <p><b>Protection of Works</b></p> <p><b>Liability</b></p> |
| <p>2. Verge profiles and crossover gradients are outlined in Council's Standard Drawings.</p>   | <p><b>Verge and Crossover Gradients</b></p>   |
| <p>3. Limitations on the location of crossover :-</p> <ul style="list-style-type: none"> <li>• Vehicular crossings shall only be constructed where the kerb profile is of a mountable type kerb.</li> <li>• Where the kerb profile adjacent the roadway is barrier or semi-mountable type kerbing across the full frontage the lot, Then the owner must contact the City to evaluate and establish a suitable location .</li> <li>• At intersections, <ul style="list-style-type: none"> <li>□ Where the kerb profile around the intersection is semi-mountable kerb (SMK), then the crossover shall <u>NOT</u> be constructed any closer to the intersection than the end of the transition from SMK to mountable kerbing.</li> <li>□ Where the kerb profile around the intersection is mountable kerb, then the crossover shall <u>NOT</u> be constructed any closer than 6.0 metres to the intersection of property lines at the street corner.</li> </ul> </li> <li>• The minimum setback of the crossover to the following items are as follow :- <ul style="list-style-type: none"> <li>□ Telstra pit or Power Dome – 0.5 metre</li> <li>□ Street trees – 1.5 metres</li> <li>□ Side Entry Pit (stormwater pit) – 1.0 metre</li> <li>□ Street light or street sign poles – 1.0 metre</li> <li>□ Pram ramp – 0.5 metre</li> <li>□ Bin pads – crossover may be located adjacent to but not incorporating the bin pad.</li> </ul> </li> <li>• Crossings to adjoining properties shall be constructed a minimum setback of 0.5 metre (preferably 1.0 metre) from the common boundary unless adjacent the items mentioned above (whichever is the greater).</li> </ul> | <p><b>Crossover locations</b></p>   |

## VEHICULAR CROSSOVERS

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- Where two residential vehicle crossings abut one to the other, they may be combined subject to Council's approval and subject to the combined width not exceeding 6.7 metres. **Combined Crossovers**
  - Where the combined width would exceed 6.7 metres, the two vehicle crossings shall be separated by a pedestrian refuge of 2.0 metres minimum width unless specifically approved by Council.
  - Crossovers abutting arterial roads shall be subject to the approval of both Main Roads Western Australia and Council. **Arterial Roads**
4. Vehicle crossings to be constructed to meet the kerblines at an angle of 90 degrees. Any variations must be approved by Council.
5. Verge Gradient - A positive 2% slope from the top of kerb to the property boundary (ie. a rise of 20mm for every 1.0 metre). **Verges**

### WD11.07 CONCRETE CROSSOVERS

1. Residential concrete crossovers shall be constructed to the line, level and shape as prescribed in Council's Standard Drawings attached to and forming part of these specifications. **Standard Design Drawings**
2. Concrete crossovers will meet the following design requirements **Dimensions**
- Depth of concrete - 100 mm minimum.
  - Minimum width at property line - 3.0 metres.
  - Maximum width at property line - 6.00 metres.
  - Wing dimension - 2m along kerblines and 3m at 90 degrees to kerblines, measured from the edge of the main body of the vehicle crossing.
  - Expansion Joints : 12mm wide by 100mm deep strips (nominal) **Expansion Joints**
    - Canite material - expansion joint material shall be such that when it is subject to compression in hot weather, no bitumen is extruded.
    - NON PORITE - Bitumen impregnated canite by the cold solvent process
    - FOSROC EXPANDITE
    - MELJOINT
  - Contraction joints shall be formed in locations as shown on Standard Drawing TS 07-02
  - Concrete high early strength to 32 MPa at 28 days. **Finish**
  - Surface finish – broomed non-slip.

### WD11.08 BLOCK PAVING (Clay Brick & Concrete Block paving)

1. Only new materials are acceptable for crossover construction. All pavers used in residential areas are to meet the recommended manufacturers standards for light vehicular traffic. **Manufacturers Requirements**
2. Residential block paved crossovers shall be constructed to the line, level and shape as prescribed in Council's Standard Drawing attached to and forming part of these specifications. **Standard Design Drawings**
3. Laying patterns shall be in accordance with the requirements of the Council's Standard Drawing attached to and forming part of these specifications. **Laying Patterns**

4. Block Paving crossovers will meet the following design requirements **Design Standards & Dimensions**
- Paver - Minimum 60mm Heavy Duty rectangular or square unit.
  - Sub-Base - 100 mm of crushed limestone or rockbase
  - Sand Bed - 20mm to 40mm (2cm to 4cm) thick
  - Minimum width at property line - 3.0 metres.
  - Maximum width at property line - 6.0 metres.
  - Wing dimension - 2m along kerbline and 3m at 90 degrees to kerbline, measured from the edge of the main body of the vehicle crossing.
  - Edge restraints to be in concrete and as shown on Standard Drawing TS 07-4
5. Council will not accept liability for replacing any paving bricks located within the road reserve which are subsequently damaged through works undertaken therein. **Replacement Works**

## RURAL CROSSOVER DESIGN

### WD11.09 GENERAL

1. A standard rural vehicle crossing place shall incorporate a minimum 300mm diameter Class 2 (or Class X) reinforced concrete pipe, Aluminium Helcor Pipe or equivalent to cater for road table drainage. Should a pipe of diameter in excess of 300mm be required, the difference in the pipe cost shall be borne by Council. Headwalls and wing-walls shall be constructed in accordance with Council's standard drawings. **Drainage**
2. Rural Crossovers shall be constructed of concrete to the line levels and dimensions as outlined on Council's Standard Drawings attached to and forming part of these specifications. **General**
3. Rural crossovers shall have the following dimensions **Dimensions**
- Minimum width at property line - 3.0 metres.
  - Maximum width at property line - 7.50 metres.
  - Minimum distance from boundary fence - 1.0 m
  - Wing dimension - Refer to chart on Standard Drawings for Rural Crossovers

### WD11.10 CROSSOVER STANDARDS

1. Minimum depth of concrete shall be 150mm for rural crossovers. All other requirements for concrete crossovers shall be in accordance with the residential crossover specifications outlined above. **Concrete Crossover**
2. The following pavements standards shall apply for all rural bitumen sealed crossovers. **Bitumen Sealed Crossovers**
- Sub-base - 150mm crushed limestone
  - Sand Bed - 75mm Rock base material
  - Brick Paver - 25 mm asphalt or 14mm/7mm two coat bitumen seal
3. Where heavy commercial vehicles are anticipated, the design of the piped crossing crossover and the required cover must be suitably designed by a qualified structural engineer and endorsed as such.

4. Block or brickpaved crossovers are not to be used in rural environments where the roads are not kerbed and drained. In some rural residential areas where the roads are kerbed and drained, block or brickpaved crossover will be acceptable. The specification shall comply with the requirements for urban crossovers above.

***Block Paving***

## COMMERCIAL / INDUSTRIAL CROSSOVERS

### WD11.11 GENERAL

1. Commercial crossovers shall be constructed to meet the requirements of the traffic likely to use the crossover. While the following specification outlines the minimum design requirements for loadings associated with medium to heavy commercial and/or industrial traffic, designers should check the pavement capacity with actual traffic loadings prior to their application to Council.

2. Commercial crossovers shall be constructed of either concrete or block paving to the dimensions, line and level as outlined in Council's Standard Drawing attached to and forming part of this specification.

3. Commercial / Industrial crossovers shall have the following dimensions

***Dimensions***

- Minimum width at property line – 6.0 metres.
- Maximum width at property line – 10.0 metres or as approved
- Wing dimension – To match 6.0m curve radius of crossover wing
- Vehicle crossings shall not be constructed closer than 7.0 metres to the side boundary adjoining lots (measured to the straight of the crossover not the wing)

### WD11.12 CROSSOVER STANDARDS

1. Minimum depth of concrete shall be 150mm for commercial crossovers. All other requirements for concrete crossovers shall be in accordance with the residential crossover specifications outlined above and Standard Drawings.

***Concrete Crossover***

2. The following pavements standards shall apply for all commercial block paved crossovers. All other requirements for block paved crossovers shall be in accordance with the residential crossover specifications outlined above.

***Block Paved Crossovers***

- Sub-base - 150mm crushed limestone or rockbase
- Sand Bed - 20 to 40mm clean sand to manufacturers specification
- Brick Paver - 80mm (minimum) rectangular units

## STRATA TITLE CROSSOVERS

### WD11.13 GENERAL

1. The design requirements for crossovers associated with strata title properties are the same as those that apply for residential and commercial crossovers as applicable

***Residential crossovers***

2. Crossover layout shall be in accordance with Council's Standard Drawing attached to and forming part of this specification.

3. Where a new crossover is constructed as part of a strata development and there is an existing crossover in place, developers should confirm whether additional crossovers are eligible for a cost contribution at the time of their application. As a general rule contributions will only be made to the first crossover to a property.

**Cost  
Contribution**