SPECIFICATIONS

FOR THE

CONSTRUCTION OF

VEHICLE CROSSINGS

- **Residential**
- **Industrial/Commercial**
- **Rural**

Amended February 2016

DWS #5096431

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Date:	**February 2016**	

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1. General

1.1 Objective

The purpose of this specification is to ensure that vehicle crossings are constructed and maintained to a safe and efficient standard, in accordance with the requirements of the City of Gosnells.

1.2 Definitions

Applicant means the person who makes application to the City to construct a crossing.

City means the City of Gosnells.

Contractor means the person or company who is responsible for construction of the crossing.

Crossing means that part of the driveway that is located within the verge.

Crossover has the same meaning as crossing.

Path means the paved or made portion of a thoroughfare used or intended for use by pedestrians and cyclists.

Local Government means the local government of the City of Gosnells.

Local Government Act means the Western Australian *Local Government Act 1995* (As amended).

Lot as defined in the Planning and Development Act 2005 - means a defined portion of land;

(a) depicted on a plan or diagram available from, or deposited with, the Authority and for which a separate Crown grant or certificate of title has been or can be issued or

(b) depicted on a diagram or plan of survey of a subdivision approved by the Commission or

(c) which is the whole of the land the subject of
- a Crown grant is issued under the *Land Act 1933*
- a certificate of title registered under the *Transfer of Land Act 1893*
- a survey into a location or lot under section 27(2) of the *Land Administration Act 1997* or a certificate of Crown land title the subject of such a survey
- a part-lot shown on a diagram or plan of survey of a subdivision deposited with the Authority or
- a conveyance registered under the *Registration of Deeds Act 1856*, but does not include a lot in relation to a strata scheme. A lot in relation to a survey-strata scheme, or a lot shown as common property on a survey-strata plan, as those terms are defined in the *Strata Titles Act 1985.*

Standard Vehicle Crossing means a standard residential concrete crossing specified for the purpose of Regulation 15 of the Local Government (Uniform Local Provisions) Regulations 1996 and comprising of a 100mm thick concrete slab (20 MPa), constructed over compacted sandy subgrade or limestone and measuring over the distance between the back of kerb and the lot boundary line, with a minimum width of 3.0m at the lot boundary, expanding to a minimum width of 5.0m at the back of kerb. This 5.0m measurement includes tapers/wings measuring 1.0m wide by 1.5m deep on each side. Kerb alterations are not included in the definition of a standard vehicle crossing.

Subsidy means the contribution that the City is prepared to make towards the cost of an approved crossing.

"…the local government is obliged to bear 50% of the cost, as estimated by the local government, of a standard crossing, but otherwise the local government is not obliged to bear, nor prevented from bearing, any of the cost…." Local Government (Uniform Provisions) Regulations 1996, regulation 15.

Verge means that portion of land between the road edge/kerb line and the lot boundary.

1.3 Statutory requirements

Under the provisions of Schedule 9.1, Clause 7 of the *Local Government Act 1995* and Regulation 12, 13 and 15 of the Local Government (Uniform Local Provisions) Regulations 1996, all landowners within the City of Gosnells must make application to the City for approval to construct a vehicle crossing. Failure to apply may result in a $1000 fine.

All crossings must be constructed to the requirements of this Specification.

1.3.1 Council subsidy

The City is obliged to bear 50% of the cost, as calculated by the City, of the first standard crossing to a lot based on the minimum features of a standard crossing.

The City's method of calculation is as follows:
3m width x crossing length (footpath is not included) + 1.5m for a wing (if applicable) = Crossing m^2
Crossing m^2 x 50% of the City's current tendered price for concrete = Subsidy amount.

Council has resolved that a standard crossing has the following minimum features:

- A residential concrete crossing,
- A minimum width at the property boundary of 3.0m,
- A maximum width at the kerb line of 5.0mand
- 1.0m wide and 1.5m deep tapers or wings on respective sides of the minimum width crossing at the kerb line.

2. Crossing Applications

All owners of a property, or their agent, wishing to construct a vehicle crossing must make written application to the City and complete the enclosed **Application for**

Constructing – Vehicle Crossing form before the crossing is constructed. Failure to apply can result in a $1000 fine. The City does **not** provide quotations to construct vehicle crossings.

2.1.1 Payment of a subsidy

With the first vehicle crossing constructed to the lot, the City **may** contribute towards the actual construction cost of a residential crossing. The subsidy is determined at the time of the inspection and is calculated on the defined standard crossing. The crossing must be compliant with these specifications for a subsidy to be received.

2.1.2 Subsidy Application process

To claim the subsidy, the owner must complete the enclosed **Application for Subsidy** – **Vehicle Crossing** form, **attach all receipts for the labour and materials** and lodge or forward it by mail or email to:

City of Gosnells
Engineering Operations
PO Box 662
GOSNELLS WA 6990
council@gosnells.wa.gov.au

Application for the subsidy must be made in writing and submitted within six months of the date that the crossing was constructed.

When the application is received, a site inspection will be undertaken by an Officer from the City to verify that the crossing has been constructed in accordance with these specifications. If the crossing complies with all of the City's requirements, then the subsidy payment will be processed and forwarded to the owner. This process normally takes a minimum of six weeks.

Where crossings do not meet the City's Specification, the subsidy will be withheld until such time as the crossing is rectified. A standard fee will apply to all privately constructed crossings requiring more than one site inspection. This will be deducted from the City's contribution towards the crossing. This fee is reviewed annually and identified in the City's annual fees and charges.

2.1.3 Contacts

Any enquiries on matters related to crossings, including requests for information, application forms, requests for inspections and as otherwise described in this Specification, should be directed to: City of Gosnells, Operations Centre on 9492 0111.

2.2 Type and method of construction

Crossings to residential lots must be constructed in either concrete or brick paving. A concrete crossing may be coloured to match the internal driveway, however, costs for coloured concrete are not covered by the City.

Asphalt, concrete or brick paved crossings for rural properties. Rural crossings may be spray sealed, unless a path crosses the crossing.

For commercial and industrial lots, crossings must be constructed in asphalt or concrete. Bitumen chip sealed crossings are not permitted for commercial and industrial properties. Commercial and Industrial crossings in rural areas can be concrete, brick paved, asphalt or bitumen chip seal.

Liquid limestone is not permitted for any crossing.

The construction of the crossing shall be executed in accordance with this Specification. Any variation must first be approved, in writing, by the City.

The contractor must include the following in the works undertaken:

- The set out levels,
- Construction of the crossing,
- Arrange relocation of any services, as required,
- Reinstatement of the verge and
- Any other works associated with the construction of the vehicle crossing.

Damaged paths must be replaced and arrangements made for the path to be removed and replaced by the City. Where damaged concrete paths need to be removed to accommodate the crossing, removal can only be undertaken once approved by the City. **All kerbing is to be replaced by the City**. All costs involved will be wholly borne by the owner.

2.3 Building permit

A Building Permit is for building construction inside the lot boundary and **does not** include the approval for the construction of the crossing. A separate application must be lodged for the construction of a crossing.

2.4 Maintenance responsibility

The property owner is responsible for the cost of construction and all future maintenance and repairs to the crossing.

Where damage is caused to the City's kerb and/or path infrastructure, as a result of the construction of the crossing, the City will undertake an inspection, determine a cost to rectify the damage, notify the Contractor or Applicant in writing and undertake to repair the damage. All repair costs, including inspection fees will be wholly borne by the Contractor or Applicant.

2.5 Location

- Existing paths are not to be removed to make way for a crossing.
- Every endeavour should be made to avoid public service utility facilities and trees present in the verge when locating the vehicle crossing.
- Crossings and driveways should be located as far as practical from any intersection. Refer to AS 2890.1 Parking Facilities – Part 1: Off Street Parking.

- The crossing is not to be positioned within a corner truncation or closer than 6.0m from the property line intersection point at corner sites where no truncation exists on a lot.
- If the proposed location of the crossing conflicts with the location of existing services, such as drainage structures, power poles or street trees, it is the responsibility of the Owner/Agent/Developer, to arrange any relocation of, or alteration to, the existing service facilities with the appropriate authority.
- Generally, the crossing shall be located a minimum of 2.0m from the base of any street tree, however, in cases where this cannot be achieved please contact the **City's Parks and Environmental Operations Branch**. Telephone 9492 0111.
- For commercial crossings, the crossing is to be positioned a minimum of 6.0m beyond the end of the corner truncation. Where no truncation exists on the lot the crossing is to be positioned a minimum 12.0m from the property line intersection.
- The crossing shall be constructed at 90 degrees to the kerb line.
- The crossing shall be a minimum 0.5m from the side boundary of the lot.
- The crossing shall be 1.0m from a side entry drainage structure.
- For crossings located within 50m of a traffic signalised intersections contact Main Roads Western Australia. www.mainroads.wa.gov.au
- Where the crossing connects the lot boundary with Albany Highway, then approval for the crossing shall in the first instance be sought from the Commissioner of Main Roads Western Australia.
- Where the crossing connects the lot boundary with a "blue" road (as defined by the Metropolitan Region Scheme) then the Department of Planning are required to assess the application jointly with the City. Blue roads are as follows:
  - Burslem Drive (Spencer Road to Olga Road)
  - Corfield Street (Warton Road to Eileen Street, Eileen Street to Lake Road)
  - Garden Street - Champion Drive (Nicholson Road to Balfour Street, Balfour Street to Southern River Road, Southern River Road to East of Passmore Street)
  - Kelvin Road (Albany Highway to Tonkin Highway)
  - Nicholson Road (Albany Highway to Garden Street, Garden Street to Thomas Road)
  - Olga Road (Burslem Drive to Albany Highway)
  - Ranford Road – South Street (Armadale Road to Roe Highway)
  - Sevenoaks Street – Albany Highway (Welshpool Road to Roe Highway)
  - Spencer Road (Nicholson Road to Warton Road)
  - Warton Road (Ranford Road to Spencer Road)
  - William Street (at the Sevenoaks intersection)

2.6 Protection of existing services and the general public

- Any relocation of, or alteration to, the existing service facilities to make way for the crossing, shall be arranged with the appropriate authority and paid for by the property owner.
- Written approval shall be gained from the relevant authority for the adjustment or relocation of any conflicting public utility services.
- The City's existing drainage structures, such as pits and pipes, that conflict with the location of the proposed crossing shall, once approved, be adjusted by the City's

Engineering Operations section and all costs associated with this work shall be borne by the Applicant.

- Prior to undertaking any earthworks, the Applicant shall contact Dial Before You Dig to obtain information about existing services in the construction area. Existing services within the vicinity of the proposed crossing shall be protected at all times. Telephone 1100.
- Where damage is caused to the City's infrastructure, such as kerb, pathway, drainage structure or carriageway, as a result of the construction of the crossing, the infrastructure shall be repaired by the City, at the Applicant's expense.
- The removal, adjustment or reinstatement of reticulation is the responsibility of the Applicant.
- The Applicant shall be responsible for the protection of the public at all times. Signage, lighting, barricades, and/or any other protection measure deemed necessary shall be provided by the applicant to ensure that the public is protected during the execution of the works in accordance with the relevant current Australian Standards.
- Safe access for pedestrians on the verge shall be maintained at all times. The City will not permit pedestrians being forced to walk on the road pavement unless appropriate measures are put in place for the protection of pedestrians.

2.7 Street trees

Street trees shall not be removed under any circumstances without the prior written approval of the City's Manager Parks and Environmental Operations.

Any proposed removal of street trees to make way for the crossing, shall be arranged with the City and any costs involved shall be paid for by the property owner/applicant.

Location of a crossing:

- Crossings shall be located a minimum of 2.0m from the base of any tree.
- Root barriers shall be installed to restrict root intrusion under the crossing.
- A root barrier of impervious plastic material with a minimum thickness of 250 microns is to be installed at the edge of the crossing to a minimum depth of 700mm. The top edge of the barrier is to be protruding above ground level by no less than 20mm and may be incorporated into the header course on brick paving or be folded into the cement pour for a concrete crossing. The barrier must extend for the full length of the crossing with no breaks.
- The City's Parks and Environmental Operations Branch may approve a crossing to be placed closer than 2m to a tree, dependant on the species of tree.

Where tree removal is approved by the City:

- Written approval shall be gained from the City.
- Removal will only be undertaken where it can be demonstrated that this is the only available option.

- The Applicant may be required to pay the cost of the amenity value of the tree, as defined in the City's annual Schedule of Fees and Charges. The amenity value of the tree is determined by the Helliwell Method of valuation.
- The Applicant may be required to pay the City for the cost of removing the street tree, with the work being undertaken by the City or its Contractors.

Where tree removal is not approved by the City:

- Where a street tree, that was not identified / approved for removal, has been damaged during the course of construction of either the building or crossing, to such a point that it cannot be repaired and requires removal, the applicant shall pay the amenity value of the damaged tree (Helliwell Method) and provide a replacement tree of a minimum height of 2 metres, to the satisfaction of the Manager Parks and Environmental Operations.
- Where a street tree has been damaged in a fashion that remedial pruning would allow for rehabilitation of the tree, the applicant may be liable for the pruning costs.

2.8 Levels and shape

The levels and shape of the crossing shall be constructed in accordance with the City's Standard Drawings. The type of profile to be applied for grading of the crossing will depend on whether the property is higher or lower than the top of kerb or road edge.

The standard longitudinal slope shall be positive 2% (1 in 50) from the top of kerb to the lot boundary line. The crossing shall commence at the top of the kerb and rise 60mm to a point 3.0m behind the kerb. Beyond that point the crossing may be graded to match the level of the lot boundary or internal driveway.

Under no circumstances shall the crossing junction at the lot boundary be stepped unless specifically authorised by the City.

2.9 Excavation, filling and compaction

The excavation for the crossing bed shall be taken out to the levels, lines and grades in accordance with the City's Standard Drawings.

Excavation shall be cleanly and evenly executed, watered and compacted to give a compaction of 95% maximum dry density (MMDD) as determined by modified compaction test under Australian Standard AS1289. It shall provide a sound base free of depressions, soft spots and any deleterious materials to accommodate a:

- Minimum 100mm thick concrete pavement for residential and rural crossings
- Minimum 150mm thick concrete pavement for commercial / industrial crossings
- Minimum 190mm for rural or residential brick paving (100mm deep base layer, 30mm sand and 60mm brick).

The sub-grade, including any filling shall be moistened and thoroughly compacted using a plate compactor over a minimum of two passes.

All surplus material resulting from site preparation and construction of the crossing is deemed to be the property of the Applicant/Contractor and shall be completely removed from the site at the expense of the Applicant/Contractor.

2.10 Removal of existing kerbing and or path

No kerbing or path is to be removed without the City's prior approval. Telephone: Engineering Operations on 9492 0111.

2.10.1 Mountable kerbing

The crossing shall be installed to abut the kerbing with the level of the crossing installed to align with the level of the top of the mountable kerb. The mountable kerbing equal to the appropriate entrance width of the crossing shall only be replaced if:

- The mountable kerbing is cracked in one or two places and that cracking is likely to affect the structural integrity or cause further deterioration of the kerbing. This does not include hairline cracks.
- The average height between the road surface and front edge of the mountable kerbing exceeds 30mm, where the final hot mix/asphalt surface has been placed.

2.10.2 Barrier or Semi-Mountable kerbing

Where barrier or semi mountable kerbing is in place at the crossing entrance, the length of kerbing equal to the appropriate entrance width of the crossing shall be removed by the City and replaced with trafficable facilities in accordance with the City's Standard Drawings, to enable the construction of the crossing.

2.10.3 Removal of kerb

No kerbing is to be removed or replaced without prior approval from the City. The removal and replacement of kerbing shall be undertaken by the City, at the expense of the Applicant.

Telephone: Engineering Operations on 9492 0111 to enquire about a quotation.

2.10.4 Existing path

The path shall be kept in a safe condition at all times, with appropriate signage installed, in accordance with the relevant Australian Standards, warning pedestrians of construction works until reinstatement work is completed.

Where the existing footpath or shared path is insitu concrete, in good condition and is a minimum of 100mm thick adjacent to the lot boundary or kerb line, the crossing shall be constructed either side of the concrete path and match up with it.

Where deemed absolutely necessary and approved by the City, or when the existing concrete footpath or shared path is in poor condition or less than 100mm thick, the existing path may be removed and replaced by the City. Where the crossing is to be constructed in brick paving the path is to be replaced with a concrete footpath or shared path that meets current specifications.

Figure 1 - Existing concrete path - Compliant

Where there is damage to a portion of the existing path that is in the area where you wish to construct your crossing, you must contact the City. Telephone: Engineering Operations on 9492 0111.

Minimum of 10mm expansion joints shall be constructed either side of the crossing. The expansion joint shall be continuous from 'form to form' and extend vertically for the full depth of the concrete slab. The joint shall not protrude above the surface of the crossing or the abutting kerb.

2.11 Crossing entrance

Where kerbing has been removed by the City to permit the construction of a crossing, the water channel shall be restored by constructing a crossing entrance as shown in the City's Standard Drawings.

A lip 30mm high shall be created between the road surface and the top of the front edge of the crossing entrance to allow for future resurfacing of the road. Brick pavers shall not be permitted to abut the road surface on the crossing entrance or to replace what would be the crossing apron.

The City shall be advised of any damage caused to the edge of the road surface and such damage will be repaired by the City, with all of the associated costs being met by the applicant. The damage is **not** to be corrected by the Applicant or Contractor.

Figure 2 - Brick pavers abutting the road surface - Not permitted

3. Technical Specifications – Concrete Crossings

3.1 Concrete Specifications

3.1.1 Residential and Rural crossings

Pre mixed concrete shall comply with AS1379 and AS3600.

All concrete used in the crossing shall develop a minimum compressive strength of 25 mega Pascal (MPa) at 28 days and shall have high early strength additive to give rapid hardening. All concrete used shall have a maximum slump of 80mm and be delivered by transit truck from an approved mixing plant.

The concrete thickness shall be a minimum of 100mm placed to the requirements of the City's Standard Drawings.

Hand or machine mixing of concrete on site is **not** permitted.

Documentation on the concrete used for the construction of the vehicle crossing shall be made available to the City, when requested.

3.1.2 Commercial and Industrial crossings

Pre mixed concrete shall comply with AS1379 and AS3600. Steel reinforcing materials shall comply with AS 4671. Minimum F82 reinforced mesh.

All concrete used in the crossing shall develop a minimum compressive strength of 25 mega Pascal (MPa) at 28 days and shall have high early strength additive to give rapid hardening. All concrete used shall have a maximum slump of 80mm and be delivered by transit truck from an approved mixing plant.

The concrete thickness shall be a minimum of 150mm.

Commercial/industrial crossings shall be designed to meet the requirements of traffic loads and suitable access; therefore the thickness noted above is only the minimum standard and reinforcement mesh may be necessary.

Hand or machine mixing of concrete on site is **not** permitted.

Documentation on concrete used for the construction of the vehicle crossing shall be made available to the City when requested.

3.2 Placing concrete

The base shall be thoroughly and evenly moistened, but not saturated, prior to placing the concrete. In addition, any deleterious materials, depressions or soft spots shall be removed from the base before pouring the concrete. The base is to be compacted to give a compaction of 95% maximum dry density (MMDD) as determined by modified compaction test under Australian Standard AS1289.

The concrete shall be evenly placed to the depth specified in one continuous operation and shovelled into position continuously and spaded, or vibrated, especially at the

edges, to give maximum density. No break in operations shall be permitted from the time of placing to finishing, except as authorised by the City.

Delivered concrete shall have a temperature at the acceptance point of not greater than 35 degrees Celsius, in accordance with Australian Standard 1379.

3.3 Finishing concrete

The finish shall be obtained by screeding to the correct levels and finished with a transverse brooming tool to provide a non-slip dense surface, free of any depressions, float marks, irregularities, honeycomb sections or slurry likely to cause excessive surface wear.

A steel trowel finish is not permitted on a vehicle crossing. The final surface finish shall be to the entire satisfaction of the City, who reserves the right to require the removal of or the correction of any surface deficiencies or finish.

Colouring and texturing of the surface is permissible, however, please note that the City's subsidy is payable for a non-coloured standard crossing.

Concrete edges shall be finished with a 100mm wide edging tool.

Curing of concrete is to be done in accordance with the manufacturer's specifications and relevant Australian Standards.

To obtain optimum strength, vehicles should refrain from driving on the concrete for a minimum of three days, however, seven days is preferable.

3.4 Jointing concrete

3.4.1 Contraction joints

Contraction joints shall be made with an approved jointing tool and in positions as shown on the City's Standard Drawings. The distance either laterally or longitudinally between contraction joints shall not exceed 2.0m.

3.4.2 Expansion joints

Expansion joints shall be:

- Full depth joints of 10mm minimum width.
- Filled with bitumen-impregnated canite or similar approved material and butyl mastic sealer.
- Located at the lot boundary and both sides of a path where there is a path and also at the back of the kerb section adjoining the crossing.
- Located where it adjoins a rigid structure or any public utility structure.
- Located at the ends of existing kerbing where kerbing has been removed.
- At 6.0m maximum spacing on long crossings.

3.5 Aesthetics

If due to the alignment of the road or lot boundary or for any other reason the installation of a standard crossing shape is difficult or would result in a shape that detracts from the Specification, the Applicant must contact with the City on 9492 0111 to seek approval of the crossing alignment.

4. Technical Specification – Brick Paved Crossings

4.1 Paver type and thickness

Only pavers that are manufactured in concrete or clay and are specifically designated by the manufacturer for use in crossings or driveways shall be used. Any materials used which are inferior to those specified, as determined by the City, will be rejected. Replacement will be at the cost of the Applicant.

For residential crossings, pavers must be a minimum 60mm thick heavy duty, made from either concrete or clay. They can be rectangular, interlocking or square.

4.2 Base layer preparation

The base layer shall be comprised of a minimum 100mm deep limestone or road base on a sand subgrade (Class A) and 150mm deep limestone or road base on a clay subgrade (Class S or M). The base layer shall be compacted to 95% (MMDD) in accordance with AS 1289. The base layer should provide a consolidated, sound base, free of depressions, soft spots and any deleterious materials.

The base material shall be loosely spread in a single layer to the required level and compacted using overlapping passes of a vibrating plate compactor or suitable vibrating/pedestrian roller.

The base finished surface shall be trimmed so that it does not deviate by more than 10mm from the base of a 2.0m long straight edge, placed in any direction.

4.3 Edge restraint

The perimeter of the crossing shall be provided with restraining barriers to either of the options provided on the City's Standard Drawing. Restraints shall be robust enough to withstand vehicle impact and prevent the lateral movement of the paving bricks; as such movement could cause failure. Visible edge restraints shall be installed to the same level as the brick pavement.

A solid brick or concrete footing is to be provided at the perimeter of all paved areas to prevent lateral movement of the header course of bricks.

Where the crossing requires the removal of existing kerbing, the Contractor must first make contact with the City, to arrange for the kerbing to be removed and replaced. All costs associated with the removal and replacement of kerbing will be wholly met by the Applicant as noted in Clause 2.10.3. For the installation of brick paving the kerbing will be replaced with mountable kerbing. The mountable kerb will be constructed parallel to the roadway and transition into the existing kerbing at respective ends.

4.4 Sand bedding layer

The bedding material needs to be well graded sand passing a 5mm sieve. Single sized dune sand is not suitable for use. The bedding sand shall be non-plastic and free from deleterious materials such as stones, tree roots, clay lumps or excessive organic material.

At the time of placing, the sand should have uniform moisture content. The sand must be screeded slightly ahead of laying and protected from the compaction. The pre-depth of the sand bedding layer shall be 30mm minimum (+/- 5mm) just before the laying of bricks.

4.5 Laying patterns

The brick pavers shall be laid to the patterns shown on the City's Standard Drawing.

4.6 Laying of pavers

Paving bricks shall be placed on the bedding sand by hand with 2mm to 3mm gaps between adjacent bricks. All full bricks shall be laid first. It is recommended that closure bricks shall be not less than 25% of a whole paver and shall be cut with a saw and fitted subsequently. It is desirable that bricks be laid to the herringbone pattern, as superior strength is obtained, however, other patterns that achieve the necessary interlocking characteristics are acceptable.

Paving bricks shall be laid commencing from the rear face of the kerb. The perimeter of all paved areas shall be provided with a header course laid on a solid brick or concrete footing to prevent lateral movement of the bricks. Header bricks shall be mortared to the footing.

4.7 Compaction and joint filling

The bricks shall be immediately compacted and brought to level by not less than three passes of the vibrating plate compactor. The plate should have sufficient area to simultaneously cover 12 bricks. To prevent damage to pavers, sheets of plywood of 12mm minimum thickness should be laid on the bricks to prevent the compactor coming into contact with the paved surface.

As soon as possible after compaction, dry sand for joint filling shall be broomed over the pavement and into the joints. Excess sand shall be removed as soon as the joints are filled.

The sand used for joint filling should be finer than the bedding layer, with a nominal maximum particle size of 2mm. Sand used for joint filling should be free from salts or contaminants likely to cause efflorescence. However, the use of bricklayer's sand or the addition of a small amount of silty material to the joint filling sand can be of benefit in reducing water penetration in the early life of the pavement.

5. Summary of main requirements

5.1 Residential crossings

- Minimum width at lot boundary – 3.0m.
- Minimum width at the kerb line – 5.0m, includes wings.
- Maximum width at lot boundary – 6.0m, no wings required.
- Minimum wing size 1.0m wide and 1.5m deep on both sides of the crossing.
- Concrete depth - minimum 100mm.
- Minimum strength - 25 MPa at 28 days.
- Surface finish - Transverse broomed/non-slip.
- 10mm minimum expansion joints.
- Minimum 60mm thick bricks pavers classified as heavy duty by the manufacturer.
- Bedding sand 30mm deep after compaction.
- Base layer under brick paving to be minimum 100mm deep compacted limestone or road base when sand (Class A) subgrade.
- Base layer to be minimum 150mm deep compacted limestone or road base when clay (Class S or M) subgrade.

5.2 Rural crossings

- Minimum width at lot boundary – 3.0m, wings required.
- Minimum width at the kerb line – 5.0m, includes wings.
- Maximum width at lot boundary – 6.0m, no wings required.
- Concrete depth – minimum 100mm.
- Minimum strength – 25 MPa at 28 days.
- Surface finish -Transverse broomed/non-slip.
- Minimum 30mm thick asphalt.
- Base layer to be a minimum 100mm deep compacted limestone or 100mm road base, or 200mm limestone alone for sand or rock (Class A) subgrade.
- Base layer to be minimum 150mm deep compacted limestone or road base, or 100mm deep compacted limestone and 200mm road base when clay (Class S or M) subgrade.
- Existing open drains to be piped to accommodate the crossing.
- Culvert crossings to be priced and built by the City.
- Spray seal may be permitted in certain areas – Contact the City on 9492 0111.

5.3 Commercial and Industrial crossings

- Minimum width at lot boundary - 6.0m.
- Maximum width at lot boundary – 10m. Greater widths require separate approval.
- Concrete depth - minimum 150mm.
- Minimum strength - 25 MPa at 28 days.
- Surface finish -Transverse broomed/ non-slip.
- Mesh as required.
- Minimum 35mm Asphalt (AC10) on primer seal and base course.
- Minimum base course 150mm limestone or road base on sand or rock (Class A) subgrade, or
- Minimum base course 200mm limestone or road base on clay (Class S or M) subgrade.

6. Glossary of Drawings

DRAWING NUMBER	DESCRIPTION
ES-2-1	Crossing - Concrete adjacent to barrier / semi-mountable and mountable kerb
ES-2-2	Crossing - Concrete – No path adjacent to barrier / semi-mountable and mountable kerb
ES-2-3	Crossing - Brick paved adjacent to barrier and semi-mountable kerb
ES-2-4	Crossing - Brick paved – Path adjacent to barrier and semi-mountable kerb
ES-2-5	Crossing - Rural – Open Drain - Asphalt or bitumen seal
ES-2-6	Crossing – Residential Brick paved – Edge restraint details
ES-2-7	Crossing - Brick paving patterns
ES-2-8	Crossing - Location in relation to side entry pit
ES-2-9	Crossing – Location in cul-de-sac and intersections
ES-2-10	Crossing - Location at controlled intersection
ES-35-1	Barrier and flush kerb details
ES-35-2	Semi-mountable kerb details
ES-35-3	Mountable kerb details
ES-35-4	Kerb detail

To download or view the drawings please visit the City's website.

www.gosnells.wa.gov.au > Your Property > In Your Street > Crossovers and Driveways

Examples of compliant crossings

Figure 3 - Concrete crossing - Compliant

Figure 4 - Brick crossing with path - Compliant

Examples of non-compliant crossings

Figure 5 - No kerb - Non- Compliant

Figure 6 - Crossing constructed through path, too wide, too close to side entry pit and incorrect kerb replacement- Non-compliant

References:

Australian Standard AS 2890.1 Parking Facilities – Part 1: Off Street Parking
Australian Standard AS 3727 – 1993 Guide to Residential Pavements
City of Gosnells Policy number 2.4.7, Crossing Policy
City of Gosnells Policy number 2.4.11, Pedestrian and Cyclist Paths
Local Government Act 1995, Schedule 9.1
Local Government (Uniform Local Provisions) Regulations 1996
Main Roads Western Australia Policy and Guideline document D12#57412, Driveways
State Planning Policy 3.1 Residential Design Codes