



TECHNICAL SPECIFICATION NO	TS-OPS 6464
TECHNICAL SPECIFICATION	Vehicle Crossover Technical Specification
RESPONSIBLE DIRECTORATE	INFRASTRUCTURE
DIRECTOR INFRASTRUCTURE APPROVAL	Date: July 2017
REVIEWED/MODIFIED	Date: October 2018
REVIEW DUE	Date: October 2020
LEGISLATION	N/A
RELATED POLICIES	CP/OPS-3653 Vehicle Crossover Subsidy
OTHER DOCUMENTS	Crossover Application Standard Engineering Drawing

PURPOSE:

This specification applies to all crossovers constructed in the Shire of Wyndham East Kimberley

This specification shall be read in conjunction with the drawing and approval, which form part of this specification.

No crossover is eligible for the payment of a subsidy unless it conforms strictly to this specification, and has been certified by the Shire's inspector that all conditions have been met.

DEFINITIONS:

"Applicant" means the person/s applying to the Shire of Wyndham East Kimberley

"ALD" means Average Least Dimension of an aggregate particle employed in bituminous spray sealing, which is employed to calculate bitumen application rates

"CBR" means California Bearing Ratio, which is a penetration test for the evaluation of the mechanical strength of natural ground, subgrades and base courses beneath new carriageway construction

"CEO" means the Chief Executive Officer of the Shire of Wyndham East Kimberley

"Road" means the road reserve, inclusive of pavement, shoulders, drains, bridges, fords and verges.

"Shire's Engineer or Inspector" means an engineer or Infrastructure officer employed by the Shire or firm of Consulting Engineers, or their representatives, appointed by Shire from time to time to act on its behalf.

"Shire" means the Shire of Wyndham East Kimberley (Local Government Act 1995).

"Street" shall have the same meaning as the definition of the term contained in the Local Government Act 1995 which reads:

"Street" includes a highway and a thoroughfare which the public are allowed to use and includes



every part of the highway or thoroughfare, and other things including bridges and culverts, appurtenant to it.”

The meaning of all the other terms not specifically defined in this policy shall be the same as the definitions contained in the *Local Government Act 1995*.

SPECIFICATION:

1. General

This specification applies to all crossovers constructed in the Shire of Wyndham East Kimberley.

This specification shall be read in conjunction with the Shire standard drawing and approval, which form part of this specification.

2. Planning Guidelines

2.1 Crossover Density

Where applicable, the design principle for designing crossovers in Western Australia is to design for the least amount of crossovers in a given area where possible (R-Codes). This improves the safety of path users and lowers costs associated with constructing and maintaining crossovers. Minimizing the number of crossovers also reduces the level of conflict and friction along busier roadways, and creates additional space for street trees, pedestrian crossing and on-street parking.

The R-Codes, if applicable, specify a maximum density of 1 crossover per 20m of frontage, where housing density is greater than R30. Crossovers to be provided where required for housing density less than R30. Narrow lots shall be constructed with paired crossovers to minimize conflict and retain verge space for street trees, lighting, overhead power and on-street parking.

2.2 Crossover Position

The crossover position shall be approved by the Shire satisfying the WA Local Government Association Crossover Guidelines or as defined by Australian Standards (AS2890.1).

The minimum sight distance of the crossover position at the road interface shall satisfy Australian Standards (AS2890.1: Figure 3.2).

Every endeavor should be made to avoid public service utility facilities and trees present in the verge when locating the vehicle crossing.

The removal or relocation of trees to make way for the crossing shall be first approved by the Shire, and arranged and paid for by the property owner.

If the proposed location of a crossover conflicts with the location of existing services, such as manholes, power poles, street trees, etc it is the responsibility of the Owner/Agent/Developer to relocate such services at their expense.

3. Underground Services

It is the responsibility of the applicant to make all necessary enquiries with service authorities to determine the location, depth and nature of services that may require protection.

Any damage caused to any service resulting from the construction of the works is the responsibility of the applicant to repair notwithstanding any approval supplied to the applicant by the Shire. The Shire may order the applicant to effect repairs. If the applicant fails to repair the damage within the time stipulated by the notice, the Shire may do so and all costs,



including administrative on costs will constitute a charge against the property and be payable by the applicant and may be deducted from the subsidy payment.

4. Above Ground Damage

The applicant shall take all precautions necessary to prevent damage or disturbance to existing fences, drains, drainage structures, the roadway pavement or kerbs, verge trees, signs or any other Shire property.

All damage caused to any such property resulting from the construction of the works will be the responsibility of the applicant to repair notwithstanding any approval supplied to the applicant by the Shire. The Shire may order the applicant to effect repairs. If the applicant fails to repair the damage within the time stipulated by the notice, the Shire may do so and all costs, including administrative on costs will be payable by the applicant and may be deducted from the subsidy payment.

5. Concrete Path

Where the proposed crossover intersects with the Shire's cast in situ concrete footpaths, the footpath shall be reconstructed using concrete to the crossover specification. Any damage caused to the footpath shall be repaired by the applicant at the applicant's expense to the satisfaction of the Chief Executive Officer.

6. Public Safety

The applicant shall ensure that all necessary precautions remain in place during the works such that all members of the public, including motorists are protected from exposure to hazards or injury and any inconvenience to the public is minimized. This may include a requirement for the provision of a Traffic Management Plan provided by the holder of a certificate in Advanced Worksite Traffic Management.

Such precautions shall include, but not be limited to:

- i. The provision of clearly defined temporary pedestrian access. Such access shall not present trip or traffic hazards.
- ii. The barricading off of the work area with properly secured high visibility mesh.
- iii. The placement of high visibility cones on road pavements to ensure motorists are aware of works occurring on the adjacent verge.
- iv. Should it be necessary to divert pedestrian traffic onto a roadway, the pathway shall be clearly marked, and mesh protection provided to physically separate pedestrians and vehicles.
- v. Prior to any work commencing on site, the applicant shall discuss the arrangements they propose to put in place with the Shire. The Shire may require additional or alternative protective measures to be put in place prior to commencement of work. The applicant shall comply with the Shire's requirements.

It must be stressed that the protection of both pedestrian and vehicular traffic is of prime importance throughout the construction of the work, and it will remain the obligation of the applicant to ensure this objective is met at all times.

7. Survey

The applicant shall take all necessary precautions not to disturb or destroy any boundary pegs, survey marks or stakes. Any boundary pegs, survey marks or stakes disturbed or destroyed during the works shall be re-established at the cost of the applicant. Survey pegs



shall be clearly marked so as not to present a hazard to the public. The applicant shall remove all of their setout pegs as soon as possible following completion of the works.

8. Location

Crossovers shall be constructed at 90 degrees (right angles) to the kerb line between the edge of seal (or carriageway) and the front property boundary.

Crossovers shall be positioned a minimum of 1.0m from the property side boundary.

Crossovers to all corner properties (including commercial developments) are to have no portion of the crossover (including splays) constructed closer than 6.0m from the tangent point of the kerb return. In the case that there are no kerbs the measurement shall be taken from the extended property boundary line from the adjacent street.

Should the proposed crossover cross a Shire concrete footpath, the applicant shall replace the section of footpath in accordance with Section 5 of this specification unless otherwise noted on the approval.

Crossovers shall be located at a minimum distance to obstructions as follows:

- i. Side-entry pits: 1.0m
- ii. Street trees: 1.5m
- iii. Utility boxes: 1.0m
- iv. Street Lights: 1.0m

9. Principle Requirements for Crossovers

9.1 Concrete Crossovers

	Concrete Strength	Slab Thickness	Reinforcing
Residential crossovers	25 MPa	150 mm	SL82
Rural crossovers	25 MPa	200 mm	SL82
Commercial and Industrial crossovers	25 MPa	200 mm	SL82

- i. Finish:
 - Non-slip broomed finish, free of depressions
- ii. Contraction Joints:
 - Minimum depth of 10mm located at splay junctions or at spacing's not exceeding 1.80m
- iii. Expansion Joints:-
 - 12mm wide canite material full depth of crossing with spacing not exceeding 3.60m and around any obstructions. Jointing with road and kerb must be neat, matched and free of sharp edges, corners and spillage. An expansion joint is required at the boundary line and at the back of the kerb, to allow for the expansion and contraction of the concrete.



9.2 Bitumen Crossovers

Minimum pavement thickness	Residential	125mm compacted CBR 80 crushed gravel
	Commercial & Industrial	200mm compacted CBR 80 crushed gravel
C170 hot bitumen binder application rate	Prime	1.0 Lts / m ²
	First coat	0.19 ALD
	Second coat	0.19 ALD + 0.4
Aggregate spread rate	First coat – 14mm	150-250m ³ / m ²
	Second coat – 7mm	100-120m ³ / m ²

10. General Dimensions

Minimum width at roadside (excluding splay)	
Residential	2.8m
Commercial & Industrial	6.0m
Rural	4.0m
Maximum width at roadside (excluding splay)	
Residential	6.0m
Commercial & Industrial	To be assessed by the Shire's Engineer
Minimum Splay Size	1.0m x 3.0m

Any reduction of the dimensions in this specification requires written approval from the Shire.

11. Levels and Shape

i. Mountable Kerbed Roads

The crossover shall commence at the top of the kerb and rise 50mm to a point 2.0m behind the kerb. Beyond that point the crossover may be graded to match the level of the property boundary or internal driveway.

ii. Barrier Kerbed Roads

The crossover shall commence at the top of the kerb and rise 50mm to a point 2.0m behind the kerb. Beyond that point the crossover may be graded to match the level of the property boundary or internal driveway.

The kerbing shall be removed to a width sufficient to accommodate the crossing and splays. The drainage channel along the kerb face must be maintained. The crossover shall be 'bull nosed' to rise to the same level as the top of the kerb at a point 450mm behind the kerb.



iii. Un-kerbed Roads

The crossover shall commence at the edge of seal and shall be 'bull nosed' to rise 120mm at a point 450mm behind the road edge. The crossover shall then rise 50mm to a point 2.0m behind the road edge. Beyond that point the crossover may be graded to match the level of the property boundary or internal driveway.

iv. Rural

The crossover shall commence at the edge of seal and shall be 'bull nosed' to rise 120mm at a point 450mm behind the road edge. The crossover shall then rise 50mm to a point 2.0m behind the road edge. Beyond that point the crossover may be graded to match the level of the property boundary or internal driveway.

v. Trip Hazards

No edging or kerbs are to protrude above ground level between boundary and road to avoid possible trip hazards.

The crossover shall be constructed to a profile that best suits the natural ground levels such that there is no significant change in levels.

All rural developments require a sealed and drained crossover where they front a sealed road frontage exists. The crossover is to be constructed to a minimum standard C170 Hot bitumen 14mm / 7mm two coat seal.

12. Damage to Road Pavement

The applicant shall take all necessary precautions to avoid damage to the abutting road pavement, and shall finish the crossover not more than 25mm above the level of the adjacent road surface.

Any kerbing or road pavement works damaged during the works shall be repaired by the applicant at their expense to satisfaction of the Shire Engineer.

13. Over Open Drains

Should it be necessary for the crossover to traverse an existing open drain within the road reserve, the Shire shall advise the applicant of the size of pipe or box culvert required at the drain, and shall provide details of the invert levels of the culvert. The pipe or box culvert shall nominally be a 450mm diameter class 4 Reinforced Concrete Pipe or a 900mm x 450mm Reinforced Concrete Box Culvert.

Culverts shall be not less than 1.5m wider than the approved crossover width.

Crossover culverts shall be bedded on compacted sand, and set to the correct level at each end. They shall be set straight along their length and the backfill brought up in 150mm layers and compacted around the barrel of the pipe or box section without disturbing the pipe or box section. The ends of the pipe or box section shall be fitted with a precast concrete end head walls, and the backfilling completed in layers to the subgrade level. The end walls shall be set vertically, and perpendicular to the line of the culvert.

The cost of culvert works shall be borne entirely by the applicant.

14. Inspection

The applicant shall notify the Shire to arrange an inspection at the following stages:

- i. The suitability of the finished subgrade to gain the Shire's Engineer approval to proceed;



- ii. Immediately prior to pouring concrete or prior to applying the binder coat, and
- iii. Following completion of the works.

15. Crossovers on Main Roads

Where the applicant requires the construction of a crossover on a Main Road, written approval of the geometry, width, and drainage provisions proposed must be gained from Main Roads WA.

The applicant will also be required to provide traffic management provisions during the works to the satisfaction of Main Roads WA.

The applicant shall attach a copy of the Main Road's terms and conditions that are required to be observed to their application.

No approval will be given by the Shire for a crossover on a Main Road without the applicant first obtaining the written approval of Main Roads WA and submitting this with the Application Form.

16. Clean Up of Site

At the completion of the works, the applicant shall clean up the site, remove all debris, spoil, rubbish and the like and leave the verge and drain (if any) clean and tidy. The applicant shall advise the Shire that the completed work and cleaned site is ready for final inspection.

The applicant shall take further actions as required by the Shire in order that the site, verge and surrounds are neat, tidy and free from debris, and dangers to the public.

17. Maintenance

Ongoing maintenance of the crossover is the responsibility of the land owner.