



the ukpms user manual



UNCONTROL

Volume 2

Visual Data Collection for
UKPMS
Chapter 6: Cross Sectional
Position (XSP)





Document Information

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Description	This chapter describes how UKPMS provides a convention to locate items across the carriageway using cross sectional position.

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1 Cross Section Positions

In addition to locating defects, inventory items and the treatment proposals that are generated by UKPMS processing by section, and by the start and end chainages within the section, UKPMS provides a convention to locate items across the carriageway, using Cross Section Positions (XSP). There are two alternative levels of detail for defining the transverse location of a defect:

- Minimal (Simple) Cross-Section Positions
- Full (Detailed) Cross-Section Positions

The level of detail to be used will be predetermined prior to surveying for each section, separately for the carriageway and for the off-carriageway features. Both the Minimal and Full options are provided to permit the user flexibility in application, according to the available resources, the requirements of a particular road hierarchy and survey type. For example, the Minimal method, which allocates information to the carriageway or to the "left" or "right", would be sufficient for a little used street, where treatment of individual lanes is unlikely. The Full method must be used where lane-specific surveys are required or machine surveys are carried out, and would be appropriate where treatment of an individual lane is a possibility. Table 1 *Relationship between Minimal and Full referencing methods* shows the relationship between the two levels of cross section position referencing, and shows the available codes.

For the Minimal method, the transverse location of a defect will be defined broadly by features:

- Carriageway
- Left and Right Kerb
- Left and Right Footway/Cycletrack/Verge.

In the case of remote Footways and Cycletracks, they should be recorded on the left.

For the Full method, the cross section position is a code representing a physical band across the highway, e.g. a traffic lane, a footway or a verge.

For each section on the UKPMS network, the XSP method that should be used is recorded, separately for the Carriageway and for the Off-Carriageway Features. All surveys that are carried out on that section/feature must use the nominated XSP method, with the exception of CVI surveys, which can always be carried out using the minimal method.



2 Remembering the codes

At first glance, the sheer number of XSP codes that are available in UKPMS can be intimidating. (In fact, there are in theory an infinite number of UKPMS Full XSPs, since there is no reason why they should stop at 9 or 99 or 999 (see Table 2). By remembering a few simple rules, the codes can always be simply derived.

The Minimal XSPs are derived as follows:

- L for the Left Kerb, Footway, Cycletrack and Paved Verge
- R for the Right Kerb, Footway, Cycletrack and Paved Verge
- C for the Carriageway

The Full XSPs are derived as follows:

- The Main Carriageway Lanes (*the Main (or permanent) carriageway lanes are defined as those that carry through traffic*) are numbered CL1 to 9 or CR1 to 9 from the edge toward the centre of the carriageway. (*The centre is defined as the point between opposing directions of traffic flow, which may not be the geometric centre of the carriageway. Indeed on dual carriageways there is no "centre" since all traffic flows in the same directions, and all carriageway XSPs will be "Left"*) for the left and right respectively.
- Additional Lanes (*An Additional Lane is a lane which normally does not carry 'through traffic' or which runs for only a short distance. Examples are: hard shoulders, dedicated bus lanes, acceleration lanes, parking bays, lay-bys*) are prefixed "-" if they are on the Nearside (i.e. inside the Main Lanes) or "+" if they are on the Offside (i.e. outside the Main Lanes) and are numbered away from the main carriageway lanes from L1 to 9 or R1 to 9. Examples of cross-section position referencing are given in Table 1 *Relationship between Minimal and Full referencing methods* and in section 4 *Specific examples* of this chapter 6.
- The off carriageway features are numbered sequentially upward from L1 or R1 for the left or right respectively, away from the Carriageway.
- Kerbs and Kerb defects are referenced to LE ("Left Edge") or RE ("Right Edge").



3 Definitions and General Principles

The **carriageway** is defined as the main pavement used by vehicular traffic.

Off carriageway means all areas within the highway boundary not classed as carriageway, e.g. kerb, footway, cycle track and verge. Where a footway or cycle track exists separately, this should be considered as an off carriageway item with no carriageway feature present, and recorded using the "Left" Cross Section Positions.

The **highway boundary** is the legal limit of the highway. The highway boundaries are denoted 'LB' and 'RB' for the full cross section position method.

The **edge** is the line dividing carriageway from off carriageway, typically the kerb line.

Opposite sides of dual carriageways are defined as separate sections.

The **nominated section** is the section to which shared items located within the central reserve (including the central reserve itself) are referenced.

"Left" and **"Right"** are implied by direction of referencing (as defined by start and end nodes or by section description).

However, during a survey "Left" and "Right" are determined by the direction in which the survey is being carried out. If a survey has been carried out in the reverse direction, the software will automatically convert the data to the referenced direction when up-loading into the UKPMS database.

It should be noted that **UKPMS XSPs** are not the same as those used for RMMS inventory and inspections.

It is recommended that **bus lanes**, **bus bays** and **lay-bys** should be regarded as part of the carriageway with extra carriageway widths at these locations, using the Minimal XSP method, or as Additional Lanes using the Full XSP method. Hammerheads should be considered as widened carriageways.

A **common set** of cross section positions has been agreed by Local Authorities and by the Highways Agency to be suitable for both local roads and Trunk Roads and Motorways.



Minimal XSP Referencing Method		Full XSP Referencing Method	
Abbreviation	Description	Abbreviation	Description
<i>C</i>	<i>Carriageway</i>	LH	Left Hard Shoulder
		-L9	Left Additional Nearside Lane 9
		-L3	Left Additional Nearside Lane 3
		-L2	Left Additional Nearside Lane 2
		-L1	Left Additional Nearside Lane 1
		CL1	Permanent Left Lane 1
		CL2	Permanent Left Lane 2
		CL3	Permanent Left Lane 3
		CL9	Permanent Left Lane 9
		+L1	Left Additional Offside Lane 1
		+L2	Left Additional Offside Lane 2
		+L3	Left Additional Offside Lane 3
		+L9	Left Additional Offside Lane 9
		CC	Centre Line
		+R9	Right Additional Offside Lane 9
		+R3	Right Additional Offside Lane 3
		+R2	Right Additional Offside Lane 2
		+R1	Right Additional Offside Lane 1
		CR9	Permanent Right Lane 9
		CR3	Permanent Right Lane 3
		CR2	Permanent Right Lane 2
		CR1	Permanent Right Lane 1
		-R1	Right Additional Nearside Lane 1
		-R2	Right Additional Nearside Lane 2
		-R3	Right Additional Nearside Lane 3
		-R9	Right Additional Nearside Lane 9
RH	Right Hard Shoulder		
RE	Right Edge		
<i>L</i>	<i>Left</i>	LB	Left Boundary
		LA	Left Boundary Area
		L9	Left Off Carriageway Position 9
		L3	Left Off Carriageway Position 3
		L2	Left Off Carriageway Position 2
		L1	Left Off Carriageway Position 1
		LE	Left Edge
<i>R</i>	<i>Right</i>	RB	Right Boundary
		RA	Right Boundary Area
		R9	Right Off Carriageway Position 9
		R3	Right Off Carriageway Position 3
		R2	Right Off Carriageway Position 2
		R1	Right Off Carriageway Position 1
		RE	Right Edge

Table 1 Relationship between Minimal and Full referencing methods.



	<i>Left Boundary</i>	
	<i>Left Boundary Area</i>	
		<i>n</i>
		↑
		2
	<i>Left Off Carriageway</i>	1
	<i>Left Edge</i>	
	<i>Left Hard Shoulder</i>	
		<i>n</i>
		↑
		2
	<i>Left Additional Nearside Lane</i>	1
	<i>Left Permanent Lane</i>	1
		2
		↓
		<i>n</i>
	<i>Left Additional Offside Lane</i>	1
		2
		↓
		<i>n</i>
	<i>Centre Line</i>	
		<i>n</i>
		↑
		2
	<i>Right Additional Offside Lane</i>	1
		<i>n</i>
		↑
		2
	<i>Right Permanent Lane</i>	1
	<i>Right Additional Nearside Lane</i>	1
		2
		↓
		<i>n</i>
	<i>Right Hard Shoulder</i>	
	<i>Right Edge</i>	
	<i>Right Off Carriageway</i>	1
		2
		↓
		<i>n</i>
	<i>Right Boundary Area</i>	
	<i>Right Boundary</i>	

This schematic plan demonstrates the numbering and juxtaposition of the XSPs across the highway. The implied direction of positive chainage in the plan is 'left to right across the page'. The shaded XSPs correspond to longitudinal lines, the unshaded ones to longitudinal strips.

Table 2 Derivation of an infinite number of XSPs for the Full method



4 Specific examples

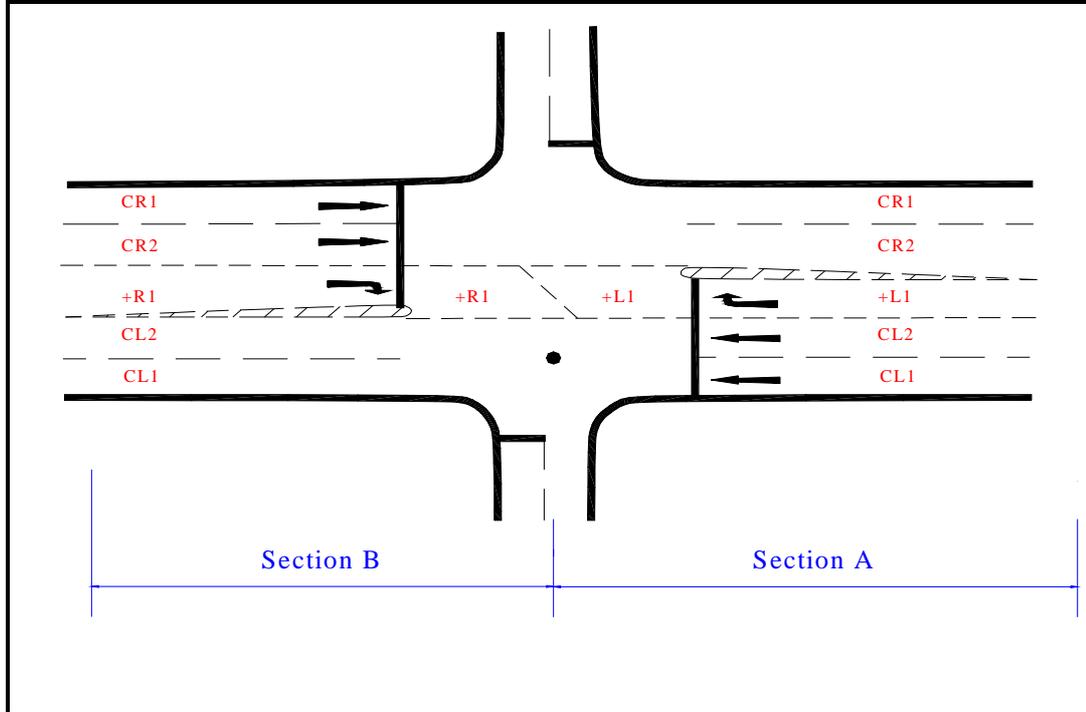


Figure 1 XSP's at adjoining intersections

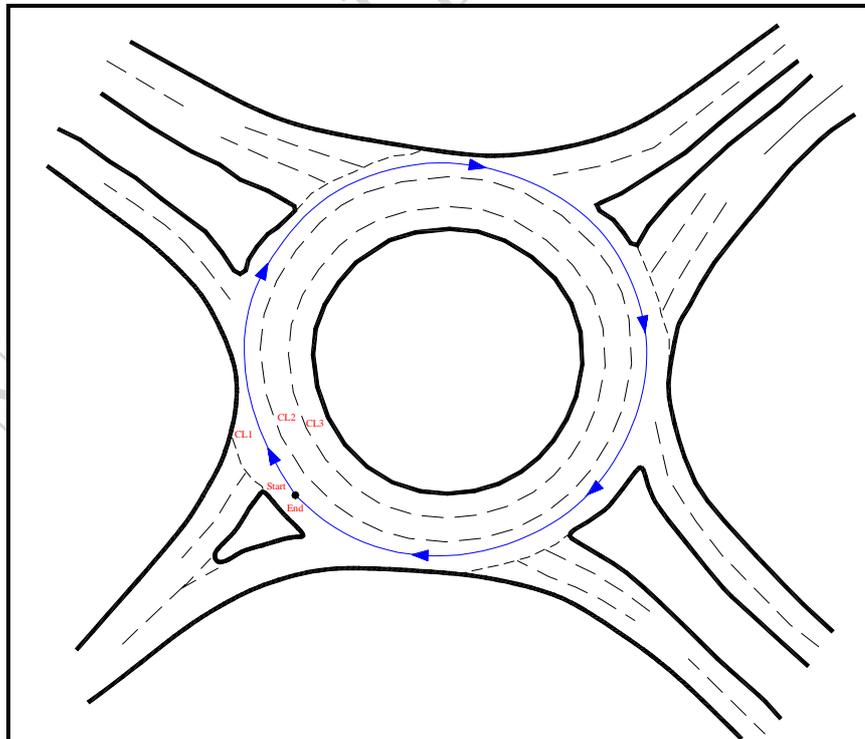


Figure 2 XSP's at Roundabouts

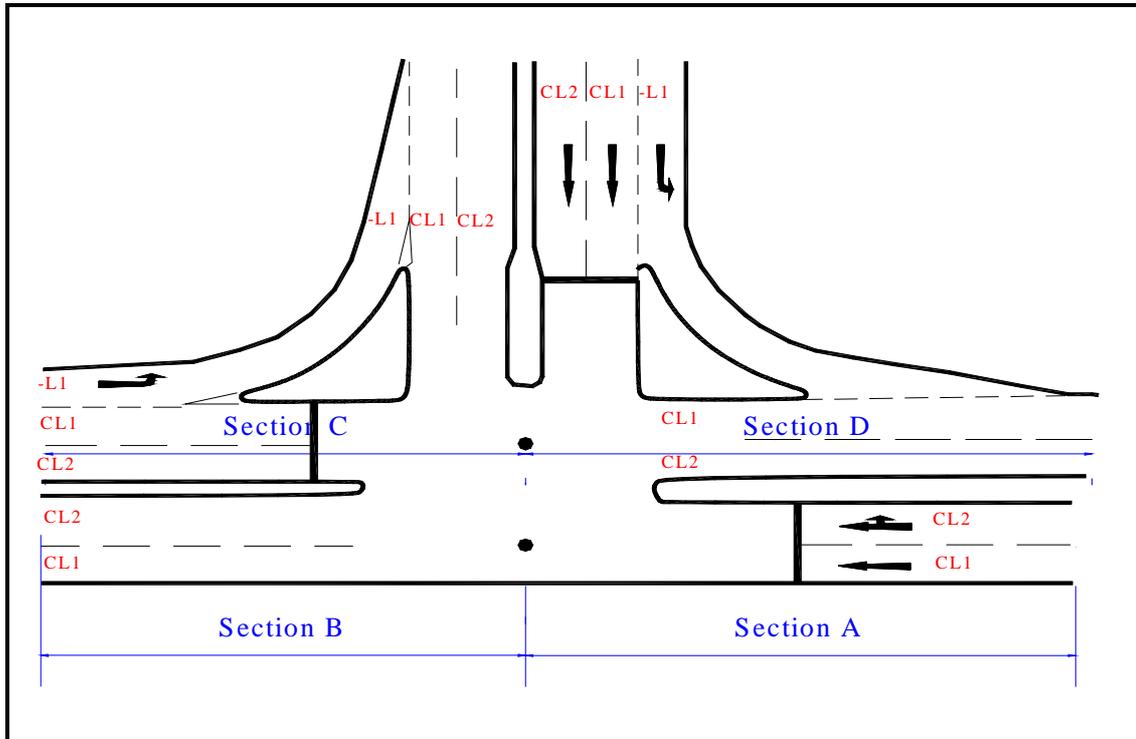


Figure 3 XSP's at complicated intersection

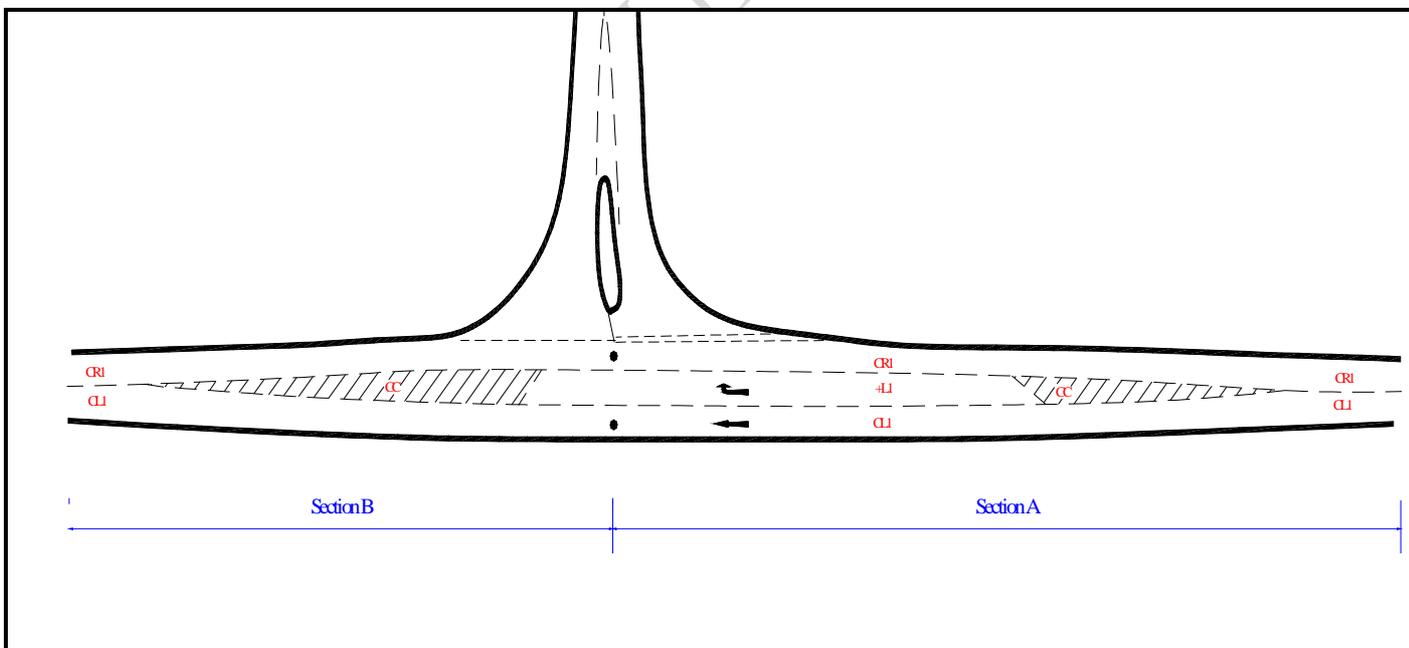


Figure 4 XSP's at Right Turn Junctions

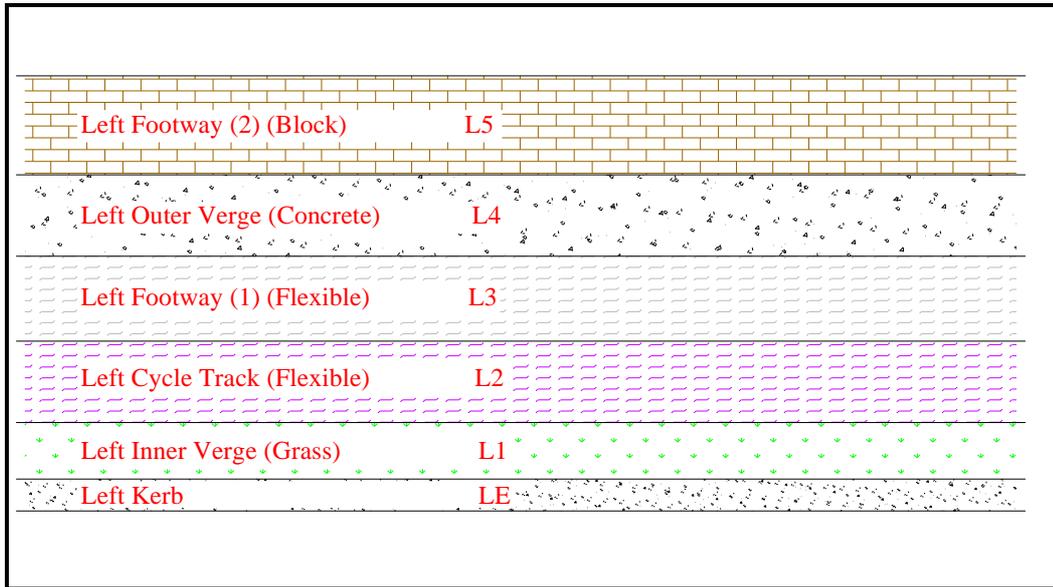


Figure 5 Off Carriageway XSP's

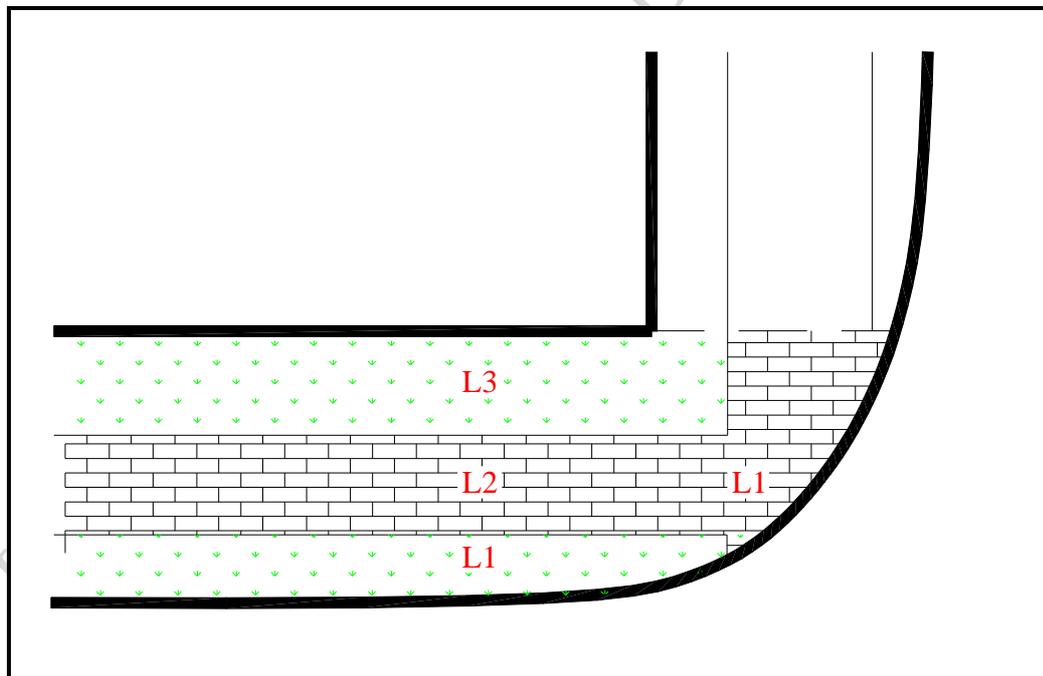


Figure 6 Off Carriageway XSP's