

# Technical Note

**Project:** Latton Priory Design Code

**Subject:** Consultation Comments Technical Review

<b>Client:</b>	Epping Forest District Council	<b>Version:</b>	P1 <b>DRAFT</b>
<b>Project No:</b>	05784/01	<b>Author:</b>	DR
<b>Date:</b>	22/12/23	<b>Approved:</b>	JT

## I Introduction

1.1.1 This Technical Note considers verbal comments made by ECC at a meeting dated 11/12/23 as part of the Latton Priory Design Code consultation process. This technical note should be read in conjunction with the draft Design Code.

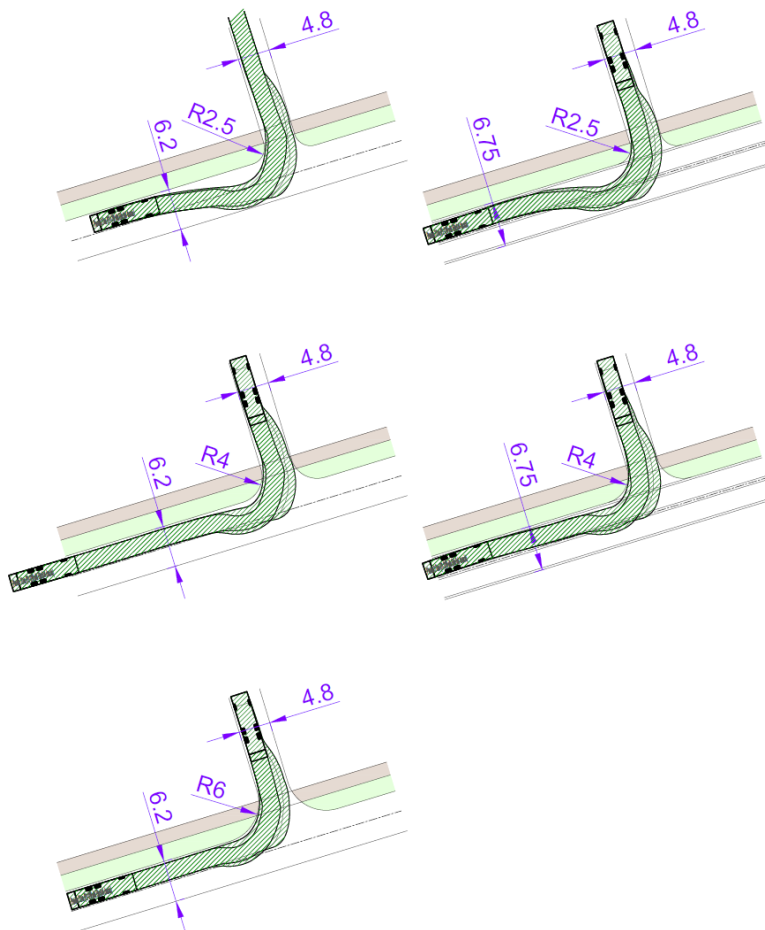
1.1.2 Analysis has been carried out on the following items to test the layout and provide further guidance on the proposals.

- Vehicle Tracking – testing refuse vehicle access requirements
- ‘Copenhagen’ Crossings – suitability and detailed design
- Carriageway Narrowing’s – technical requirements
- Latton Priory Street design typology proposals – Comparison with Essex Design Guide
- Relevant adopted street examples.

## 2 Tracking Analysis – Refuse Vehicle

### 2.1 Latton Avenue (S1) – left turn onto S2 Local / S3 Neighbourhood streets

2.1.1 The following swept paths consider the impact on vehicle turning and the detailing of pedestrian crossings at side street junctions off Latton Avenue. Current proposals show the Latton Avenue carriageway as 6.2m wide, side street carriageways as 4.8m wide, and a 2.5m turning radius. Edge buffers between the side street carriageway and private frontages have been ignored for purposes of the analysis.

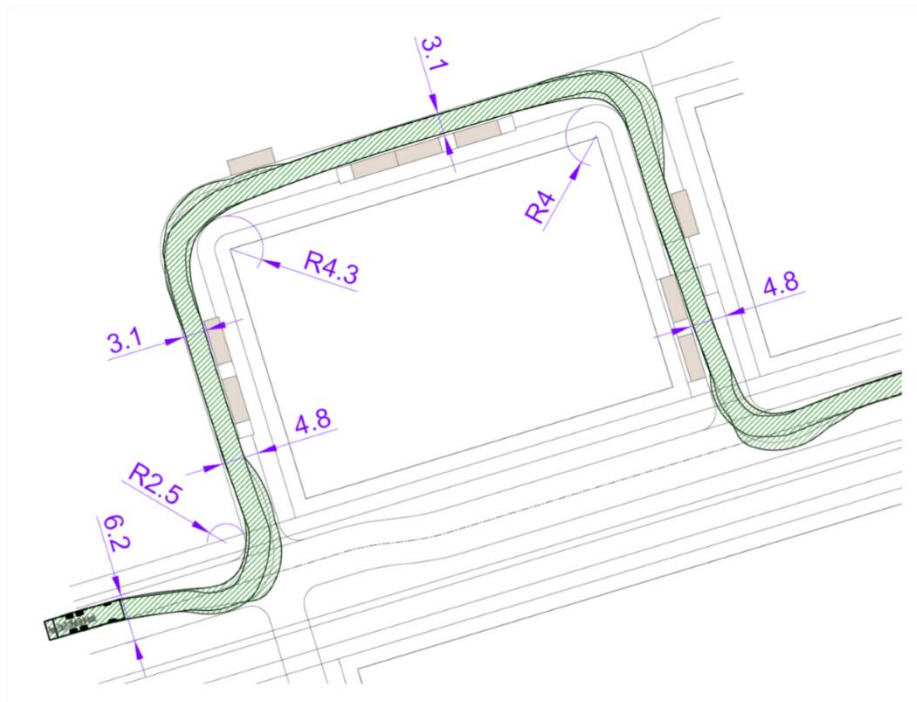


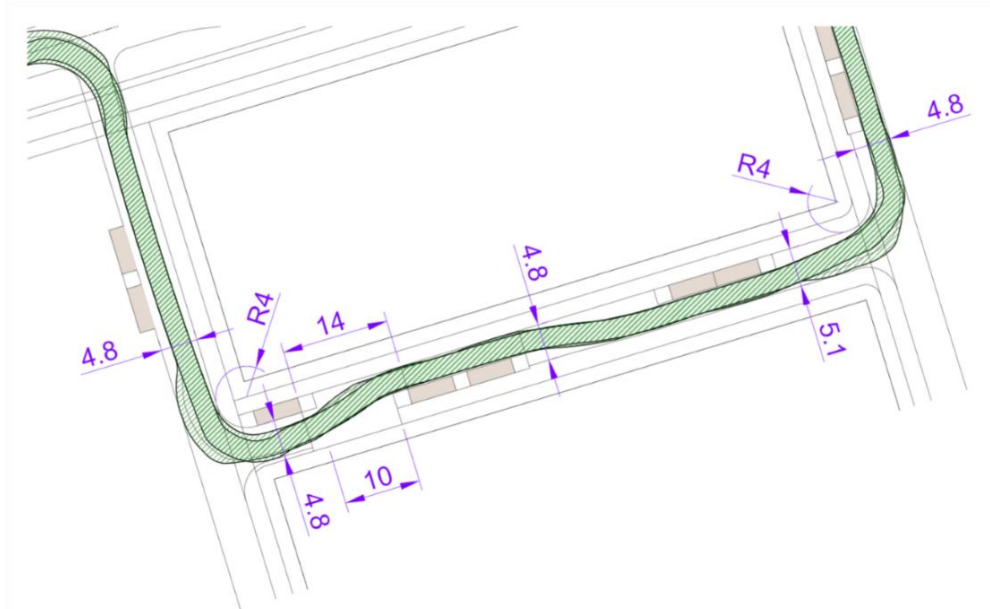
2.1.2 The analysis indicates that a refuse vehicle is able to manage the turn under all the geometric options tested. As is normal practise the vehicle uses the whole carriageway width where required but avoids encroachment onto the footway. This is consistent with the approach adopted in manual for streets. Para 6.8.1 states.

*...The design of local roads should accommodate service vehicles without allowing their requirements to dominate the layout. On the streets with low traffic flows and speeds it may be assumed that they will be able to use the full width of carriage way to manoeuvre...*

## 2.2 S3 Neighbourhood Street

2.2.1 Analysis of the neighbourhood street shows a minimum requirement of 10m between features at chicanes that use the full carriageway and parking bay width (6.8m total) (see bottom diagram). This separation distance will need to increase where the street is narrower (where only the 4.8m wide carriageway width is available for the manoeuvre) and would be subject to further swept path analysis.



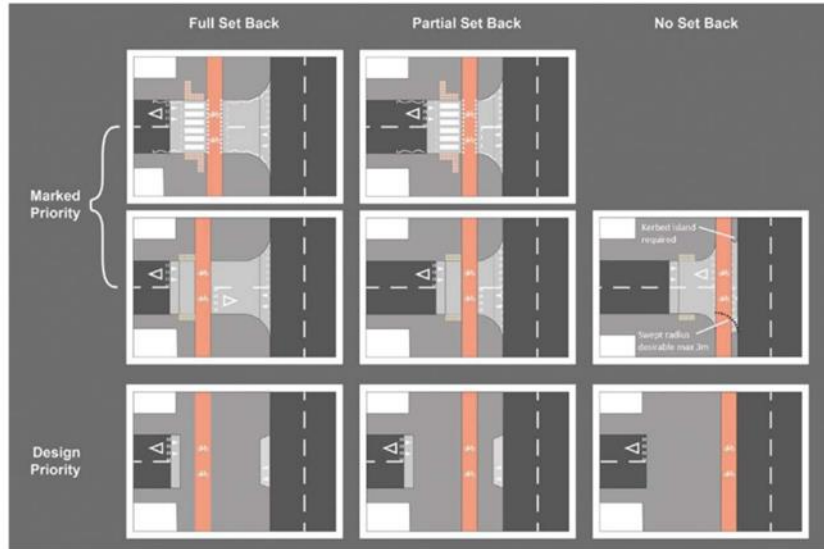


### 3 'Copenhagen' Crossings (also referred to as Continuous Footways) & Street Usage

#### 3.1 Layout & Suitability

- 3.1.1 Two types of pedestrian / cycle crossing are typically used at side street junctions: Raised entry treatments and continuous footways (also referred to as continuous pavements or continuous crossings). Whilst a continuous footway may incorporate features found at a raised entry treatment, a continuous footway must provide continuity of the footway material over the junction, whilst being robust enough to cater for vehicle movements.
- 3.1.2 LTN 1/20 although focused on cycle requirements, recognises that a cycle crossing at a side junction will typically be combined with a pedestrian crossing. Where a partial setback arrangement is proposed as below (which is similar to the proposals along the Southern side of Latton Avenue), item 10.5.22 states that this arrangement 'should only be considered where traffic flows on the minor arm are very light, typically less than 2,000 PCU/day, and where there are frequent gaps in traffic on the major arm so that there is minimal queuing on the side road.
- 3.1.3 Note that the examples below show a combination of 'raised entry' and continuous footway treatments.

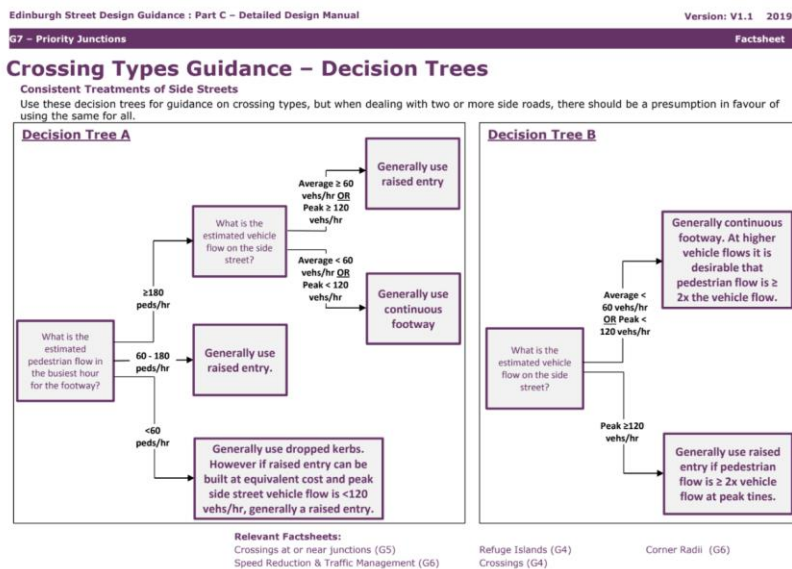
Figure 10.13: Priority crossings of cycle tracks at side roads\*



3.1.4 With reference to the Latton Priory layout, assuming some worst-case scenarios / rough estimations, one side street off Latton Avenue will serve up to approximately 75 dwellings. The masterplan extracts show an approximation of unit numbers based on the block testing carried out in the Southwest corner of the site by EFDC. It also assumes a proportion will be served by the Latton Avenue frontage. 75 dwellings equate to approx. 53 vehicle movements per hour assuming a 0.7 veh trip rate. This falls well within the suggested maximum of 2000 units per day.



3.1.5 Although a detailed analysis has not been carried out, 53 vehicle movements per hour also appears to be within the suggested parameters for continuous footway use within the Edinburgh Street Design Guide - less than 60v/h average or 120v/h peak – see below:



3.1.6 Additionally, the Surrey Healthy Streets Guide states that:

*‘Continuous crossings must be used whenever a lower order street, such as a local street connects to a higher order street, such as a primary street.’*

## 3.2 Radii

3.2.1 UK guidance from other Authorities states that ‘tight’ radii should be used. Where actual dimensions are provided, 6m is cited as a maximum, with 3m being the preferred maximum (sometimes reducing to 1m). Examples include ‘Active Travel Act Guidance (Welsh Government) and ‘Edinburgh Street Design Guidance’.

3.2.2 The London Cycling Design Standards provides guidance on corner radii (item 5.1.4), although does highlight that the use of continuous footways in the UK is relatively untested:

Designers should start from the assumption that corner radii should be minimised to benefit vulnerable road users, and then test whether this raises any issues. Junction design and the size of corner radii need to support calming and speed reduction measures, as described in section 3.3. Indicative ranges of corner radii to support speed limits on the street in question are:

- 0-3 metres for 20mph speed limit
- 2-6 metres for 30mph
- 3-10 metres for more than 30mph

### 3.3 Tactile Paving

- 3.3.1 Continuous footways, in Holland for example, do not typically incorporate tactile paving. UK research / guidance however suggests that this should be provided, unless vehicle flows are 'very' low.
- 3.3.2 Edinburgh Street Design Guidance – Fact Sheet G7 – page 8.

#### **Tactile Paving**

There is a presumption in favour of the use of tactile paving at continuous footway crossings. However, where the two way traffic flow is less than 20 veh./hr and the carriageway width over the ramp is less than 5m, tactile paving can be omitted.

## 4 Carriageway Narrowing's

- 4.1.1 Street narrowing / one way carriageway workings have been considered based on fire tender access and user comfort.
- 4.1.2 Lower order streets, such as the Neighbourhood Street proposes carriageway narrowing's of 3.1m for up to a maximum of approximately 30m to provide zones for landscaping, car parking, street furniture, and to provide inherent traffic calming.

## 4.2 Fire Tender Access:

- 4.2.1 Building Regulations (part B1 – Section B5 – Table 13.1) states a required minimum operating road width between kerbs of 3.7m.
- 4.2.2 Item 6.7.3 in Manual for Streets clarifies that this 3.7m width requirement is for the operating space at the scene of the fire and that the access route can be reduced to 2.75m over short distances providing the pump appliance can get to within 45m of the dwelling entrance.
- 4.2.3 It should be noted that the 45m requirement within the Building Regulations states that this should be to all points within a dwelling – not just to the front entrance.

## 4.3 User Comfort:

- 4.3.1 LTN 1/20 states that carriageway narrowing’s with widths between 3.2m and 3.9m should be avoided due to cyclist safety.

**7.2.9** Chicanes and pinch-points should be designed in such a way that cyclists are neither squeezed nor intimidated by motor vehicles trying to overtake. The preferred option is to provide a bypass or alternatively sufficient lane width (more than 3.9m) so that the cyclist can remain in the secondary position and be overtaken safely. Where the lane or cycle bypass is bounded by fixed objects such as full height kerbs, the additional widths given in Table 5-3 should be provided.

**7.2.10** When width is insufficient for a bypass, the carriageway width is restricted to prevent overtaking. This will not be desirable over long lengths unless motor traffic volumes are also very low, as cyclists will feel intimidated by vehicles waiting to overtake. Gaps between kerbs (or kerb and solid white centre line) should be a maximum of 3.2m. As noted above, widths between 3.2m and 3.9m may encourage close overtaking by motor traffic at pinch points and should not be used.

## 5. EDG Street Type Comparison

- 4.3.2 This section compares the draft Design Code Main Street types with the array of options presented in the EDG.

Street Type D Feeder (EDG P133) vs Latton Priory S1 Latton Avenue			
Design Feature	EDG Standard	Latton Priority Design Code	Notes
Dwellings Served	Up to 700 units	Latton Avenue serves approx. 1400 units via a through route	(to be checked / confirmed by EFDC)



Widths	c/w/ width 6.75m bus, footway 2m, Foot/cycle way 3.5m	c/w width 6.2m f/w x 2 @ 2m each Separated cycleway 3m	
Max Driver Speed	20mph	20mph	
Gradient	6% on bus route	TBC	
Centreline Radius	20m	TBC	
Kerb Radii	6m (10m on bus route)	2.5m (6m at STC)	
Use	Resi / non resi	Resi / non resi	* Type C Mixed Use Street features may be suitable for Latton Avenue at Local Centres
Verge Width	3m	2.5m	
Parking	Parking permitted where additional off c/w parking provided	Ok	
Accesses	No frontage access within 15m from side junctions	Ok	Design code states no frontage access along Latton Avenue
Reversing	Egress in forward gear only within 15 – 30m from a junction	Ok	
Alignment	Straight c/w 22m from all junctions	TBC	Confirm distance and add rule

4.3.3 \* Whilst Latton Avenue is considered a type D (Feeder) street based on the EDG – as this can serve both resi and non resi uses – design features of a type C (Mixed-use) street could be considered suitable for parts of Latton Avenue – at Local Centres for instance.

4.3.4 As per EDG type C Mixed Use Street – if 6.75m wide carriageway preferred, consider providing overrun-able central median and kerb line buffer strips to local centre.

Street Type E Access (P134) vs Latton Priory S2 Local Street			
Design Feature	EDG Standard	Latton Priority Design Code	Notes
Dwellings Served	Purpose – up to 400 units. 200 units on Cul-de-Sac	LP Local Street serves 100 - 300 units approx	(to be checked / confirmed by EFDC)
Widths	c/w 5.5m + 2 x 2m f/w	12.8m overall 4.8m c/w	

		2 x 2m f/w	
Max Driver Speed	20mph	OK	
Gradient	Max Gradient 8%	TBC	
Centreline Radius	13.6 – 30m	TBC	
Kerb Radii	6m	2.5m	
Accesses	No frontage access within 15m from side junctions	OK	Add rule
Alignment	Straight c/w 15m from all junctions	TBC	Confirm distance and add rule

4.3.5 Latton Priory incorporates S3 Neighbourhood Streets that do not align directly with the EDG type E or F streets. A hybrid has therefore been proposed using the EDG Minor Access type F street as a guide and to show similarities where relevant:

Latton Priory S3 Neighbourhood Streets (using EDG type F as guide)			
Ref	EDG Standard	Latton Priority Design Code	Notes
Dwellings Served	Up to 25 units in a cul-de-sac	Serves up to 100 dwellings	(to be checked / confirmed by EFDC)
Widths	Combined shared surface 6m	9.3m overall shared surface. 4.8m carriageway Min 0.5m buffer to private frontages. At least 1 x 2m min width footway.	
Length	Max length 125m	TBC	
Narrowing	Localised narrowing permitted	Narrowing up to max 30m for parking / soft landscaping. 2.75m wide carriageway min / 3.1m max	Potential for narrowing length will depend on overall street length, and fire tender dwelling access requirements
Max Driver Speed	20mph	20mph	Layout designed to encourage lower speeds
Gradient	Max Gradient 8%	TBC	
Centreline Radius	Radii 13.6 – 30m	TBC	

Kerb radii	-	4m min S3 to S3	
Accesses	Direct access to dwellings	Direct access to dwellings allowable	
Junction Treatment	Tabled entrance	OK	Add continuous crossing rule
Alignment	Straight c/w 15m from all junctions	TBC	Confirm distance and add rule

Street Type G Access vs Latton Priory S4 Spur Street			
Ref	Standard	Latton Priority Design Code	Notes
Dwellings Served	20 units		
Widths	Combined shared surface 6m	Combined shared surface 7.1m	
Length	50m approx	75m approx	(to be checked / confirmed by EFDC)
Narrowing	Localised narrowing permitted	Narrowing up to max 12m for parking / soft landscaping. 2.75m wide carriageway min / 3.1m max 4.1m min c/w where car can pass cycle or cars pass. 0.5m buffers to private frontage	
Gradient	Max Gradient 8%	TBC	
Centreline Radius	Radii 13.6 – 30m	TBC	
Kerb radii	-	1m max	
Junction Treatment	Special junction detail featuring entrance ramp/table.  Priority for pedestrians and cyclists across junctions.	OK	

	A constricted entrance enclosed by buildings or walls for the first 8m back from the approach street	OK	
Alignment	Straight c/w 10m from entrance junctions	TBC	

## 5 Relevant Adopted Street Examples

5.1.1 This section presents 10 good examples of typical adopted street designs, found in the UK to highlight some of the common arrangements and typical dimensions.

### 5.2 Whitmore Drive, Colchester



- Main street serving around 1500 homes and mixed-use facilities.
- Adopted Essex CC
- Carriageway width 6.5m, verge (with trees) 2.85m, footway 2.0m (source - Streets for Healthy Life)
- Designed as bus route
- Side Road radii est 6m

### 5.3 The Chase, Newhall Harlow



- Main street serving around 2500 homes and mixed-use facilities.
- Adopted Essex CC
- Carriageway width 7.6m (effective width due to parking 5.5m), verge (with trees) 3-4m, footway 2.0m (source - Streets for Healthy Life)
- Designed as bus route.
- Side Road radii est 6m

## 5.4 High Street Upton



- Main street serving around 2200 homes and mixed-use facilities.
- Adopted Northamptonshire CC
- Carriageway width 6.75m (estimated), 2m parking bays, footways 3.0- 5.0m
- Designed as bus route
- Side Road radii est 6m

## 5.5 Mulberry Way, Bath



- Main street serving around 700 homes.
- Adopted BANES
- Carriageway width 6.5m, 2m parking bays, footways 2.0m (estimated)
- Designed as bus route
- Side Road radii est 2m inset square format

## 5.6 Stret Euther Penndragon, Nansledan



- The Nansledan development near Newquay, Cornwall, is a large-scale project designed to create a sustainable community. It is planned to eventually comprise around 4,000 homes, integrating a diverse mix of residential properties, businesses, and community facilities
- Adopted Cornwall Council
- Carriageway width 6.5m, 2m parking bay inset, footways 2.0m – 5.0m (estimated)
- Designed as bus route
- Side Road radii est 2m inset square format



## 5.7 Derwent Way, York



- The Derwenthorpe development in York is planned to include a total of 481 homes
- Adopted - TBC
- Carriageway width 5.5m, 2m parking bay inset, footways 2.0m (estimated), some narrowing's to force shuttle working
- Designed as bus route
- Side Road radii est 5m

**5.8 Fedden Street, Brabazon, Bristol**



- Tertiary Street providing access to sub 25 units but forming part of wider loop.
- Adopted South Gloucestershire Council (except landscape)
- Carriageway Width – 4.5m, 2m landscape margins, 2.0m footways
- Flush – 25mm kerb
- Restricted zone, yet to be enforced

## 5.9 Navigation Street, Nottingham



- Tertiary Street providing access to sub 25 units, but forming part of wider loop.
- Adopted – Nottingham City Council
- Carriageway Width – 3.5m to 4.8m, 2m parking / landscape margins, 2.0m footways
- Flush kerbs
- Resident Parking Zone

## 5.10 Stret Lugan, Nanslegan



- Tertiary Street providing access to circa 100 units, but forming part of wider loop.
- Adopted – Cornwall Council
- Carriageway Width – 4.8m (inc parking on street), 2.0m footways
- 100mm kerbs
- Unrestricted Parking

## 6 Conclusions

- 6.1.1 Following stakeholder comments and further additional technical guidance, we recommend the following general changes are made to the draft Design Code.
- 6.1.2 **Latton Avenue** - increase carriageway width from 6.2m to 6.75m. Retain principles of Copenhagen crossings to side roads but consider increasing side road radii to 4.0 metres in conjunction with further discussion with ECC. This approach recognises at Copenhagen crossings will require special agreement with the highway authority.
- 6.1.3 **Local Streets** - increase carriageway width from 4.8 metres to 5.5 metres. All other design features remain unchanged.

- 6.1.4 Neighbourhood Streets - retain principle of 4.8 metre width and 3.1 metre narrowing's but add additional rules governing the use of narrowing's. To include, offset from junctions, length of narrowing, and widening on corners.

end

