



# Development Layout Design

General Design Considerations for  
Adoptable Highways

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Transportation, Waste and Environment Service

**Issue and Revisions Record**

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**Development Layout Design****General Design Considerations for Adoptable Highways**

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## 1 General Principles

'Manual for Streets' (MfS) emphasises the distinction between streets and roads. Roads are highways whose main function is accommodating the movement of motor traffic. Streets are typically lined with buildings and public spaces and while movement is a key function, the 'place' function is most important. MfS urges that designers move away from hierarchies of standard road types and apply a user hierarchy with pedestrians at the top. To achieve this on large residential sites a 'connected' network of streets (like a grid system) is recommended rather than the spine road/cul de sac arrangements of the recent past. The grid distributes traffic more evenly throughout the development.

In many Cornish sites because of the topography and the existing highway structure, this approach can be challenging, but the basic principles of MfS must be adhered to. If a limited number of accesses is available to a site or in the exceptional case that an existing busy road is to be taken through the site then it may be necessary to create a Local Distributor Road but pedestrian/cycle routes along and across the road must be provided with appropriate traffic calming to avoid severance of the community by the road traffic. Whilst traffic design speeds will generally be 20mph within estates, a limit of 30mph may be permitted in these exceptional circumstances.

### **The design of residential estate roads should aim to:**

- Create a safe and nuisance-free environment for all road users, including pedestrians and cyclists;
- Create an environment for residents that is safe, secure and is not adversely affected by vehicular traffic;
- Provide roads, footways and cycleways constructed to a high standard to enable adoption by Cornwall Council and minimise disruption to future residents through the need for maintenance;
- Reflect the speed of traffic appropriate to the location and use;
- Provide convenient and secure non-car links within the development and the existing public transport and community facilities;
- Provide easy access between dwellings, parking areas and footways and ensuring that the accessibility needs of people with disabilities are met;
- Provide car parking in a way that does not result in problems to road users, including cyclists and pedestrians, and does not result in the street scene being dominated by parked vehicles;

- Allow for the requirements of access by service and emergency vehicles and public transport, as necessary;

## **2 Estate Road Hierarchy**

### **2.1 Residential Distributor Road**

A Local Distributor road covers a broad range of road standards depending upon the nature of the development it serves and its relationship with the existing road network.

Direct frontage access will not be permitted on busy lengths of residential distributor roads, however direct frontage access may be permitted on quieter roads, subject to turning facilities being provided within the curtilage of the property to allow egress in forward gear. The prohibition of direct access on the busier lengths of distributor roads means that special design treatment has to be considered to obviate the possibility of bland and monotonous boundaries being exposed to the road.

Distributor road widths will be dependent on the number of dwellings served, but design must be such that the layout of such roads does not promote speeds above the speed limit, which will generally be 30 mph.

The provision of parking on residential distributor roads should be carefully considered. 90 degree or chevron parking will not be permitted however parallel parking may be appropriate. Where parallel parking is provided within laybys, these spaces shall not be allocated to individual properties but shall be adopted by the highway authority as public spaces.

### **2.2 Access Roads**

Access roads lead from distributor roads and into residential areas. Frontage access will normally be permitted and the design of the network will aim for a maximum of 300 dwellings.

Access roads should be designed to a maximum speed of 20mph. The use of the road layout and the integration of speed control features should be carefully considered at the design stage in order to achieve this. These roads will normally form loop roads, giving two points of vehicular access to any aggregated group of more than 100 dwellings.

Footways will be required on both sides of the road.

Junctions onto major roads will be laid out according to the nature of the major road, and consultation with the Highways Development Management Officer in respect of proposed junctions onto existing roads is essential.

Visitor parking bays shall be provided at appropriate locations along the road.

### 2.3 Shared Surface Roads

A shared surface road is a residential street with shared use of highway surface by vehicles and pedestrians and is primarily used by residents of the street. They may be a level surface or incorporate kerb lines. In either case the design should reflect that vehicular traffic does not have priority. Where level surfaces are used then the provision of comfort space within the shared surface area should always be considered. Comfort space is defined as 'an area of the street predominately for pedestrian use where vehicles are unlikely to be present'. On small sites where vehicle movements are low then the whole of the street may be considered to be a comfort zone however on larger sites there may be a need for additional comfort zones to be provided. Where comfort space is required this should be provided continuously between junctions and connect to suitable crossing points along the street. Comfort space may or may not be delineated depending upon the situation.

Manual for streets states that shared surface roads may be appropriate for vehicle movements up to 100vph, however in Cornwall this is not felt to be appropriate in areas where pedestrian activity is low. In addition the type of shared space needs to be carefully considered so as to achieve a layout which balances the needs of users along with the scale of the site. Although a fully shared surface road may serve a maximum of 50 dwellings if the road forms a loop, giving two points of vehicular access to the group of dwellings, or 25 where only once access is present, where comfort zones are provided the maximum number of dwellings may be increased. It should be noted however, that in all cases this will depend upon a number of factors including the proposed layout, levels of parking provision and topographical layout of the site. Generally shared surface roads should not consist of one road serving a maximum number of properties but instead be broken up into smaller lengths offering a variety of routes through the development.

Parking provision is an important factor within a successful shared surface street. If adequate parking facilities are not provided either in the form of off road parking or within parking courts then indiscriminate on road parking occurs which can lead to reduced safety for pedestrians. Parking needs should be taken into account within the development and where on road parking is likely the shared space design should allow for this whilst ensuring that adequate facilities are available to pedestrians. Where service strips are provided the design should also take into account the need to reduce the likelihood of inappropriate parking and potential damage to the service strips. Service corridors are further discussed in Section 4

## 2.4 Private Drives

Private drives may generally, serve up to 5 residential units, where a unit is a single dwelling house or a block of residential apartments.

Adequate turning space should be provided to ensure that vehicles can enter and leave the highway in forward gear and the design should ensure that residents are not inconvenienced by awkward substandard layouts which would result in excessive reversing.

Additional parking spaces may be required for visitors.

## 3 General Design Parameters

### 3.1 Residential

Table 1 sets out the general arrangements for residential roads. It should be noted that service corridors are in addition to the carriageway widths.

ROAD TYPE		RESIDENTIAL DISTRIBUTOR ROAD	BUS ACCESS ROAD	ACCESS ROAD	SHARED SURFACE ROAD (inc comfort zones)	SHARED SURFACE ROAD	HOME ZONE STYLE ROAD	PRIVATE DRIVES & PARKING COURTS
Maximum no. of dwellings Served	Loop	N/A	300	300	50 *1	50	50	5 houses or separate blocks of flats
	Cul-de-sac	N/A	N/A	100	25 *1	25	25	
Minimum Carriageway Width		6.5m	6.0m	5.5m	5.5m required for more than 10 dwellings or where there are accesses off that part of the road. 4.1m permitted elsewhere *2	5.5m required for more than 10 dwellings or where there are accesses off that part of the road. 4.1m permitted elsewhere *2	4.8m required for more than 10 dwellings or where there are accesses off that part of the road. 4.1m permitted elsewhere *2	3.7m min. For single driveways less than 40m in length. 4.1m for up to 10 flats/houses. 4.8m min. For more than 10.
Minimum Footway Width		1.8m (3.0m for cycleways)	Both sides 1.8m	Both sides 1.8m	N/A	N/A	N/A	N/A
Service Corridor		Services to be accommodated in footways.			1.8m both sides*3			N/A
Target Maximum Speed		30mph	20mph				10mph	<10mph
Junction spacing	Same side	80m	50m	At least 30m				
	Opposite side	40m	25m	At least 15m				
Gradient		1:12 *4						
Forward visibility		90m	70m	33m			15m	N/A

**Table 1**

\*1 Maximum numbers may be increased where it can be clearly demonstrated that adequate levels of parking are provided.

\*2 Minimum road widths may be reduced to a minimum of 3.5 or 2.75m over short lengths at the discretion of the council subject to vehicle tracking, adequate parking provision/restriction and provision of passing bays where appropriate.

\*3 Unless no existing or future service requirement can be demonstrated in which case this may be reduced to 0.5m. See Section 4 for further advice.

\*4 a gradient of 1:10 may be acceptable in some instances but only where it can be demonstrated that 1:12 is not reasonably achievable.

### 3.2 Commercial

Table 2 gives the general geometry for internal employment and commercial roads. In general terms, both major industrial access roads and the minor industrial roads are conventional cross-section roads with separated provision for vehicles and pedestrians, but their designs vary depending on likely levels of heavy-goods vehicles.

	Type of internal development road	
	Major industrial access road	Minor industrial access road
Planning use class	B2 to B8	B1
Development limit	Normally no more than 8 hectares for a single point of access	
85 <sup>th</sup> %ile design speed	30mph	25mph
Shared surface	No	
Widths for two-way traffic	Carriageway width 7.3m	Carriageway width: 6m for offices 6.5m shared use 6.75m for other B1 uses
Centre-line radius	50m	Defined by tracking
Longitudinal gradient	Minimum 1:100 Maximum 1:12 At junctions: not to exceed 1:20 for first 10m of the side road	
Vertical curves	30m minimum	
Visibility distance at junctions, bends and vertical crests	70m	43m
Footways	1.8m wide both sides	

Table 2

### 3.3 Road Layouts and widths

Where appropriate, proposals should demonstrate whether the designs of street widths are adequate for the type and flow of traffic they would be expected to accommodate. In order for the Council to consider the acceptability of such proposals, both preliminary and detailed designs must include vehicle tracking assessments that provide an analysis of the swept paths. The largest vehicle that is likely to use the road is the refuse vehicle of which the largest vehicle in use is currently 11.6m long. On sites where space is constrained and traffic levels are low the vehicle used for the swept path analysis may be reduced to an absolute minimum of 10m long.

The requirement for vehicle access for a fire appliance within 45m of every dwelling relates to the distance measured from the fire appliance to the overall dwelling area and not between the fire appliance and the entrance

of the dwelling. (Approved Document B (Fire Safety) 2006 Edition) or later updates where applicable.

A fire appliance should not need to reverse over distances greater than 25m. Therefore on no-through-vehicular routes over this distance, turning facilities should be provided.

Where a proposed building fronts directly onto the highway, that is it has no front garden, it should be set back at least 0.5m behind the proposed highway boundary to provide a defensible space to allow for opening of windows, drainage downpipes, overhanging eaves.

### 3.4 **Traffic Calming**

Wherever possible, traffic speeds on new developments should be managed by the alignment and width of the carriageway and supported by the proximity of buildings or landscaping and the use of materials. Speed reducing features should be an integral part of the design process, taking into account the traffic that will use the road and not added as an afterthought. Physical traffic calming measures such as road humps or chicanes should be used if other measures are unlikely to reduce vehicle speed.

Where vertical traffic calming measures are proposed on an existing public highway then the scheme will require statutory consultation.

### 3.5 **Turning Heads**

A turning head must be provided at the end of all cul-de-sacs or wherever vehicles would otherwise have to reverse over long distances – normally anything over 25m.

Careful consideration should be given to the design of the development surrounding the turning head to make sure that its use is not reduced by on-street parking. This can be achieved by the careful use of accesses and parking bays adjacent to the turning head. Where on-street parking is likely to cause problems, we will expect measures to control it.

Swept path analysis will be required for turning heads. This should allow for a 11.6m long refuse vehicle. On sites where space is constrained and traffic levels are low the vehicle used for the swept path analysis may be reduced to an absolute minimum of 10m long.

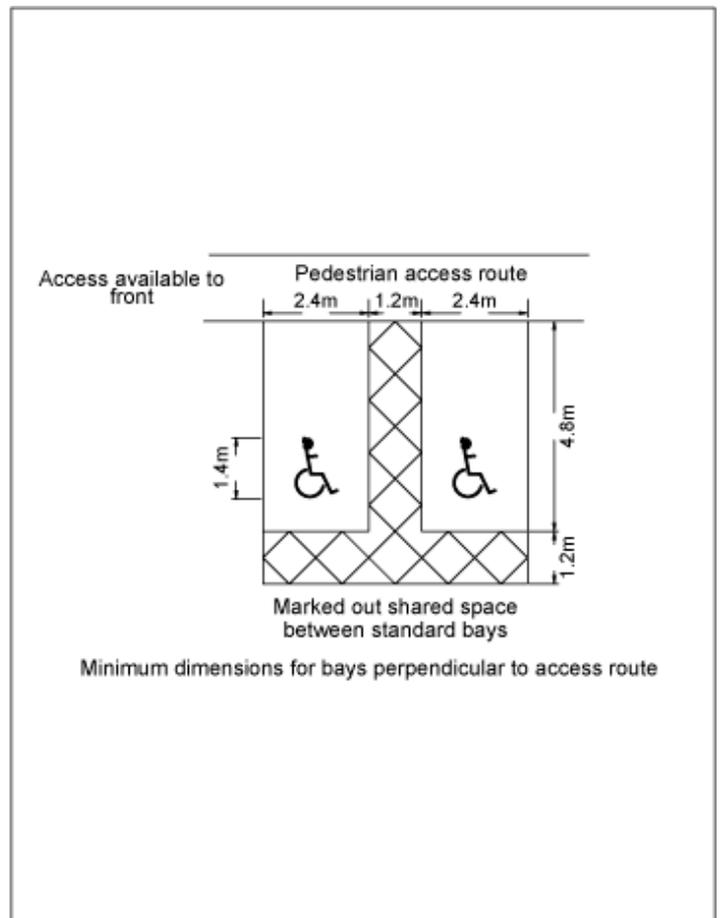
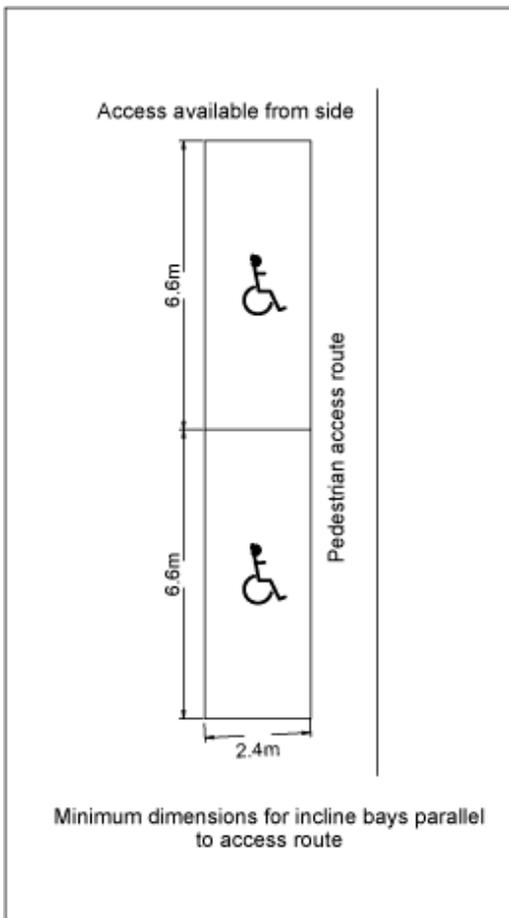
### 3.6 Parking Provision

MfS advises parking standards be established on a scheme by scheme basis. Furthermore parking provision should be in accordance with the current policies put in place by the council.

Where garages are provided a minimum of 6 m should be provided in front of the garage if a parking space is to be provided within the curtilage of the property. Where no such parking space is provided then the layout must be carefully considered so as to prevent inappropriate parking which may block the service strip/footway and which may cause inconvenience to other users.

Private parking spaces should be clearly identifiable either within the curtilage of the property, within private parking courts or clearly outside of the adopted highway.

Parking spaces which are provided between the adopted road and a footway which will also be offered for adoption are to be included within the adoptable area and will therefore be available to the public. These spaces must not be allocated to individual properties.



Disabled parking spaces layout

### 3.7 Parking for disabled people

For many disabled people and others with limited mobility, the private car is their only means of travel; it is therefore very important that adequate provision is made both in terms of the type and position of parking spaces.

The provision of disabled parking spaces will be considered on a case by case basis. Although these will not normally be required for residential developments, as private parking is available for each individual property, they may be appropriate for mixed use development. Any parking provision should be made within 50m of the destination.

Spaces should be 3.6m wide or have a transfer area of 1.2m to one side of a standard size space. 3.2m wide spaces may be acceptable where space is limited. Parking spaces should be clearly marked with the British Standard "Disabled" symbol in accordance with B.S. 3262 Part 1 and any parking fee concessions should be stated clearly at the parking space. Where disabled parking bays are installed upon the adopted highway a traffic regulation order will also be required.

## 4 Statutory Undertakers

Utility companies have a Statutory Right to place apparatus in the highway. Service corridors therefore tend to follow the routes taken by roads and footpaths.

Services should be carefully considered at the design stage to ensure that the impact of future maintenance is reduced. Services should be placed outside of the carriageway in service corridors. These will usually be within the footway where this is provided however on shared surface roads careful consideration will be required to accommodate services so as to minimise future disruption to the public when maintenance is required. Within shared surfaces, service corridors should normally be placed outside of the running carriageway. They may be placed within pedestrian comfort areas or within service strips located at the edge of the carriageway. Services may be allowed within the carriageway but only where a specific corridor has been provided. The design of the service corridor will need to ensure that adequate working space, safety zones, running carriageway and safe pedestrian routes can be provided during future maintenance works. Services will not be permitted within any area of permeable paving which is offered for adoption.

Service corridors should generally be provided on both sides of the road, so that connections to individual properties can be made without the need to place apparatus within the carriageway. Where services need to cross the road this should be through suitable placed service crossings. These should be provided across the carriageway at suitable locations in order to minimise the number of cross connections that are required. Where it can

be demonstrated that services are not required on both sides of the carriageway the requirements for service corridors may be reduced as set out in Table 1.

Services should, wherever possible, be placed within a verge or footway in order to minimise future disruption to the public when maintenance is required.

## **5 Public Rights of Way**

At a very early stage in the planning process, a prospective developer must ascertain whether any public rights of way would be affected. Rights of way that cross new development sites should instead provide direct, secure and visually attractive routes. Once identified, they should be properly integrated into the design of the site and if possible, preserved on their existing alignment.

## **6 Landscaping**

Soft or hard landscaping within highway areas can be as important in determining the character of the development and integrating it into its surroundings as landscaping elsewhere within the site.

You should prepare landscaping proposals at the pre-planning application stage so we can consider their suitability.

While planting and trees can enhance the street scene, you must take care when you are selecting and positioning trees, shrubs and so on to make sure that building frontages and parking areas can still enjoy good natural observations from areas of potential activity such as roads and footways. The placement of trees and shrubs can also affect levels of lighting around the site. Trees can obscure streetlights causing shaded areas. Care should therefore be taken at the planning stage to consider the lighting layout and how the landscaping will interact with this. Where trees cause shading additional lighting may be required in order to provide the required lighting levels.

## **7 Adoption**

Adoption of roads will be undertaken in accordance with the councils current adoption policy. You are advised to consult the adoptions team as to the suitability of your development at an early stage. Where a development does not meet the requirements of the adoption policy and/or the development layout design guide then the road will not be adopted by the council. In these cases it will be necessary for the

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developer to set up a management company or make other arrangements for the ongoing and routine maintenance of the roads.

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