



To: **Planning Reps**
From **Highways Development Management Officer**

Date 13th July 2022

Your Ref 20220255

Location Old Perry Street consideration of sight lines

When considering sight line requirements for an access or junction there are a few documents that give guidance, but none are applicable in all instances.

There is the Design Manual for Roads and Bridges which is intended for trunk roads, where generally traffic volumes and speeds would be high. It can sometimes be used on other roads where published guidance is limited. This is not the case here and has not even been used in the consideration process.

Secondly Kent County Council have issued guidance via there carriage crossover team, this has not be adopted as supplementary planning guidance, but its contents need to be noted and applied where necessary.

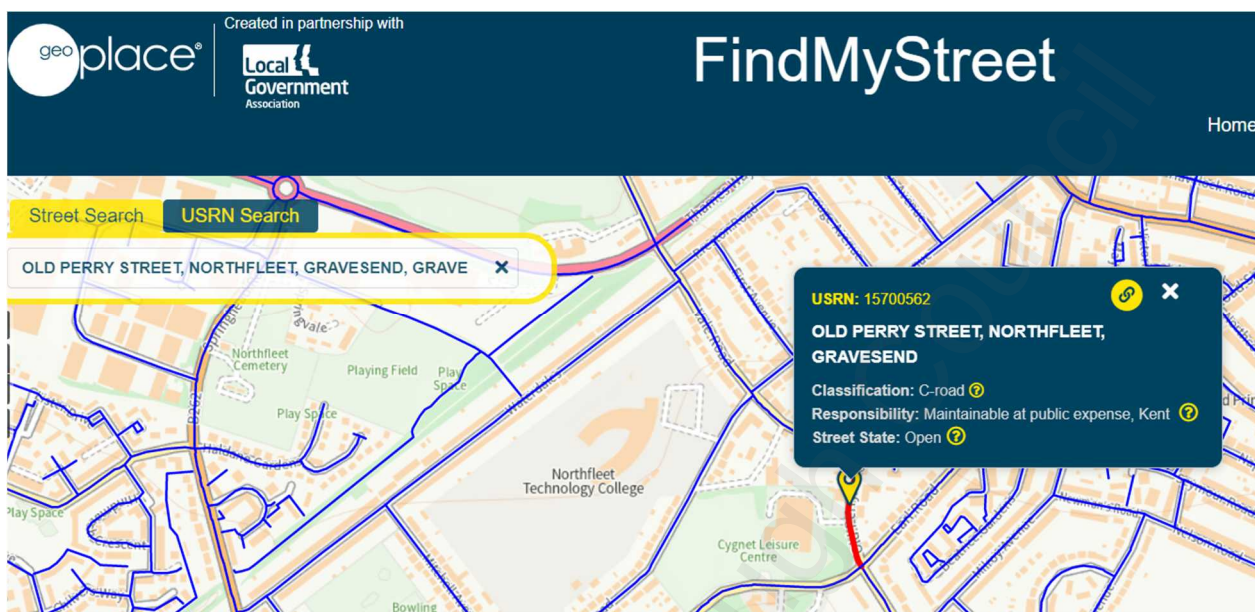
Finally there is the Kent County Council Kent Design Guide, this is adopted supplementary planning guidance and was updated to reflect the requirements of Manual for Streets via The Kent Design Review: Interim Guidance Note 2, 27th October 2008, "VISIBILITY" Manual for Streets having been published in March 2007.

Manual for Streets clearly states;

"MfS focuses on lightly-trafficked residential streets, but many of its key principles may be applicable to other types of street, for example high streets and lightly-trafficked lanes in rural areas. It is the responsibility of users of MfS to ensure that its application to the design of streets not specifically covered is appropriate"

So strictly speaking the application of Manual for Streets for Old Perry Street should only be applied with careful consideration as it is not a lightly trafficked residential street, it is a 'C' classified highway, and serves as a through link in the wider highway network. There follows a screen shot from the FindMyStreet web site that details the road classifications and adoption status of roads in England and Wales.





Considering the requirements of the Kent County Council carriage crossover guidance contained in their Vehicle Crossing:- Guidance and Self-Assessment dated October 2018 and viewable on the County's web site;

https://www.kent.gov.uk/data/assets/pdf_file/0004/27688/Vehicle-crossing-pre-application-guidance.pdf

Carriageway visibility

X-dimension: 2.0m from the kerb line

Y-dimension: based upon the following table:-

Speed Limit	40mph	30mph	30mph	30mph	20mph
Road Classification	"A" Road	"A" or "B" Road	Local Access road	Local Access road with Traffic Calming	20mph Zone
Y- distance	120m	90m	60m	43m	33m

Together, the x and y-dimensions define an area in which there should be unobstructed visibility between a height of 1.0m and 2.0m above carriageway level. Street furniture and parked cars will often lie within the visibility splay and the impact of such obstacles will be assessed. In general though, obstacles that are not large enough to fully obscure a whole vehicle or pedestrian will be acceptable.

Here as is industry standard practice the 'y' distance is measured along the kerb face and it is noted that there is only a requirement for a 2m 'x' distance instead of the standard 2.4m in Manual for Streets that can be reduced to 2metres in certain instances. The details in section 5 should also be noted although this may seem to conflict with Manual for Streets

5. "Visibility requirements

Will you be able to see pedestrians and vehicles clearly enough to drive out of the driveway without causing danger to yourself or other road users?

Probably the most important contribution to road safety is the provision of adequate visibility. Adequate visibility enables road users to see a potential hazard in time to slow down or stop comfortably before reaching it.

The application will be refused if the crossing does not meet visibility requirements set within published industry standards. Greater visibility may be required on faster, busier roads.

Kent County Council considers each request on its own merits.

Consideration will be given to the driver's line of vision in both the vertical and horizontal planes.

In order to determine the exact level of visibility required, a site inspection will be needed from an experienced officer."

So applying this guidance, although the 'x' distance may be reduced to 2m, the y distance would increase to 60 metres as Old Perry Street can be considered to be a Local Access Road.

The Governments Statutory guidance, Guidance on road classification and the primary route network, published 13 March 2012 gives the following information.

<https://www.gov.uk/government/publications/guidance-on-road-classification-and-the-primary-route-network/guidance-on-road-classification-and-the-primary-route-network>

1.13 "All UK roads (excluding motorways) fall into the following 4 categories[footnote 2]:

A roads – major roads intended to provide large-scale transport links within or between areas

B roads – roads intended to connect different areas, and to feed traffic between A roads and smaller roads on the network

classified unnumbered – smaller roads intended to connect together unclassified roads with A and B roads, and often linking a housing estate or a village to the rest of the network. Similar to 'minor roads' on an Ordnance Survey map and sometimes known unofficially as C roads

unclassified – local roads intended for local traffic. The vast majority (60%) of roads in the UK fall within this category"

It goes on to say in 3.5

3.5 "Any standards must therefore be relative:

an A road will generally be among the widest, most direct roads in an area, and will be of the greatest significance to through traffic

A B road will still be of significance to traffic (including through traffic), but less so than an A road

*a classified unnumbered road will be of lower significance and be of primarily local importance, but will perform a more important function than an unclassified road
an unclassified road will generally have very low significance to traffic, and be of only very local importance.”*

In this instance, it was considered that whilst Old Perry Street, is a 'C' class road, it primarily serves cars with limited HGV/coach traffic, is of limited length and has a slight curve all of which should have a slight speed control function and this has been evidenced by the speed survey carried out by the applicants consultant. The road also has a limited number of property frontages it was therefore considered that the requirements of Manual for Streets could be used.

Considering the requirements of Manual for Streets

'X' distance;

7.7.6 “An X distance of 2.4 m should normally be used in most built-up situations, as this represents a reasonable maximum distance between the front of the car and the driver’s eye.

7.7.7 A minimum figure of 2 m may be considered in some very lightly-trafficked and slow-speed situations, but using this value will mean that the front of some vehicles will protrude slightly into the running carriageway of the major arm. The ability of drivers and cyclists to see this overhang from a reasonable distance, and to manoeuvre around it without undue difficulty, should be considered.”

It was therefore considered appropriate to require the 2.4 metre 'x' distance initially, but given the County Council's own guidance of 2m in their carriage crossover self-assessment document it may be difficult to sustain at appeal, although the Kent Design Guide offers a more robust defence of the 2.4m requirement.

“SSD is the ‘major road distance’ for junction visibility. The ‘minor road distance’, based on drivers being able to see along the street without their vehicles intruding into the trackway, does not need to be greater than 2.4m for the kind of environments to which MfS applies. In certain constrained situations, 2.0m will be acceptable subject to an assessment of the risks associated with longer bonnet vehicles using the junction (- for example, road debris will show how close to the channel line traffic normally passes). The key is to let the built form and placemaking lead the design: these distances will allow junctions to be tighter, in terms of appearance and use.”

So the first relaxation is an 'x' distance of 2 metres instead of 2.4metres in the adopted guidance. I note in paragraph 17 of the consultant's report it states that an 'x' distance of 2m can be considered in slow-speed situations when flows on the minor arm are low. But I have no idea where they have extracted this from in Manual for Streets. The actual guidance in the document is

7.7.7 “ A minimum figure of 2 m may be considered in some very lightly-trafficked and slow-speed situations, but using this value will mean that the front of some vehicles will protrude slightly into the running carriageway of the major arm. The ability of drivers and cyclists to see this overhang from a reasonable distance, and to manoeuvre around it without undue difficulty, should be considered.”

No reference is made to the traffic on the minor arm, and why should there be, it is the major arm that vehicles will be protruding into. Nor can a speed of 30mph be considered to be low speed. It is only the conflicting guidance issued by the Kent County Council and the fact that the carriage crossover guidance postdates Kent Design, that the reduction to 2 metres is being considered.

'Y' distance

In Manual for Streets the SSD (Stopping Sight Distance) is determined by a formula, and is considered appropriate for speeds up to 37mph, above this Manual for Streets 2 suggests the formula may still be used, but some of the constants will change. In addition the constants may need to be modified if there is a significant HGV traffic content.

The basic formula in Manual for Streets is $SSD = vt + v^2/2d$

Where: v is the speed in m/s

t is the driver perception-reaction time in seconds taken as 1.5 seconds

d is deceleration in m/s^2 taken as $4.41m/s^2$

An accepted adjustment has to be made to the formula by adding 2.4 metres to allow for the distance between the driver and the front of the vehicle, so all SSD's calculated are increased by 2.4 metres

Manual for Streets

7.6.4 "The SSD figure relates to the position of the driver. However, the distance between the driver and the front of the vehicle is typically up to 2.4 m, which is a significant proportion of shorter stopping distances. It is therefore recommended that an allowance is made by adding 2.4 m to the SSD"

Manual for Streets gives guidance on the Highway Code stopping distances, which are based on a driver reaction time of 0.67 seconds and a deceleration of $6.57m/s^2$. However, driving to these requirements would not be a sustainable or comfortable driving experience.

Considering the information submitted the speed to be considered is 26.7mph or 11.94 metres per second. Which gives a sight line requirement of 36.6 metres allowing for the bonnet length of a vehicle. This is the minimum that would be considered acceptable and is based on level ground, gradients alter stopping distances, as it takes a vehicle further to stop going downhill and they can stop in a shorter distance whilst travelling uphill. Manual for Streets 2 provides the necessary adjustments to the formula to allow for this, if it is deemed necessary, no such adjustment has been requested as whilst there is a gradient it is not considered significant enough to warrant an adjustment.

Reference is made by the consultant to Manual for Streets for arguing the sight line can extend into the street and not be kerb side, he provides the extract but fails to identify where it can be found, for clarity this is paragraph 7.7.3. So the second relaxation is to accept the sight line can be measured to a point 1 metre away from the kerb edge and not the standard practice of along the kerb.

7.7.3 "The Y distance represents the distance that a driver who is about to exit from the minor arm can see to his left and right along the main alignment. For simplicity it is measured along the nearside kerb line of the main arm, although vehicles will normally be travelling a distance from the kerb line. The measurement is taken from the point where this line intersects the centreline of the minor arm (unless, as above, there is a splitter island in the minor arm)."

In terms of the other arguments made by the consultants

20. "In line with the above, a y distance measurement has been made to an offset of 1m from the kerblines. It should be noted that this still assumes that there is a requirement for drivers exiting the site to see a vehicle in the nearside lane. In this case, this would presumably

represent a vehicle overtaking the inside of a bend. In practice, this is very unlikely to happen.” (This is repeated in paragraph 25) Old Perry Street is near two secondary schools, a leisure centre and not far from the Cyclopark near the A2. The Highway Code suggests cyclist should be riding 0.5 metres minimum away from the kerb edge and drivers should pass by leaving at least a 1.5 metre gap, so the driver’s eye position of an overtaking vehicle would be in the south bound lane whilst travelling north. Given the desire to increase cycling on the roads, this should be taken into account when considering new proposals and so overtaking may be and become more common than currently anticipated.

Referring to paragraph 26 of the consultant’s report

“26. For drivers travelling northbound on Old Perry Street in the correct lane, the y distance (when measured to the centreline) is 40.6m for the northern property and 31.6m for the southern property. Therefore, the northern property would (in practice) meet the MfS visibility splay requirements. Whilst this shows that the y distance for the southern property is below the 36.6m SSD calculated above, this does not reflect the practicalities of the road layout. In practice, if a driver is exiting from the site and turning right, they will wait until there is a gap in southbound traffic (and northbound traffic) and then be able to look south again when further into the carriageway. At this point, the driver would have a sightline in excess of 36.6m (or even 43m).” Here the whole issue of sight lines comes into question as they are based on a vehicle entering the highway in forward gear, it is not uncommon for vehicles to drive off the road in forward gear and then reverse back onto the highway despite the guidance in paragraph 201 of the Highway Code. *“Do not reverse from a side road into a main road. When using a driveway, reverse in and drive out if you can”*



Google Street View May 2012

To the best of my knowledge there is no way how a person enters and leaves the highway can be exactly controlled? The aim therefore has to be to provide the best opportunity to protect the public by applying appropriate but not excessive standards.

Relaxations have been given by reducing the bonnet length from 2.4 metres to 2metres because of the conflicting guidance by KCC in respect of the ‘x’ distance. There has been a one metre offset applied from the kerb for the ‘y’ distance to reflect the guidance in Manual for Streets. It is not considered appropriate to reduce the requirements of the Stopping Sight Distance as determined by Manual for Streets as to do so can result in a more uncomfortable ride

Finally the submitted ATC (automatic traffic count) data gives the following information

Traffic Flows	Northbound	Southbound	Total
5 day Average (24hr)	2851	2709	5559
7 day Average (24hr)	2624	2534	5158

These figures are significantly higher than can be considered appropriate for a simple residential street, where some 3000 vehicles a day may be considered appropriate for 400 dwellings.

“7.9.3 In the past, a relatively low limit on traffic flow (300 vehicles per peak hour or some 3,000 vehicles per day) has generally been used when deciding whether direct access was appropriate. This is equivalent to the traffic generated by around 400 houses. Above this level, many local-authority residential road guidelines required the provision of a ‘local distributor road’.

7.9.4 Such roads are often very unsuccessful in terms of placemaking and providing for pedestrians and cyclists. In many cases, buildings turn their backs onto local distributors, creating dead frontages and sterile environments. Separate service roads are another possible design response, but these are wasteful of land and reduce visual enclosure and quality.

7.9.5 It is recommended that the limit for providing direct access on roads with a 30 mph speed restriction is raised to at least 10,000 vehicles per day (see box).

Traffic flow and road safety for streets with direct frontage access

The relationship between traffic flow and road safety for streets with direct frontage access was researched for MfS. Data on recorded accidents and traffic flow for a total of 20 sites were obtained. All of the sites were similar in terms of land use (continuous houses with driveways), speed limit (30 mph) and geometry (single-carriageway roads with limited side-road junctions). Traffic flows at the sites varied from some 600 vehicles per day to some 23,000 vehicles per day, with an average traffic flow of some 4,000 vehicles per day.

It was found that very few accidents occurred involving vehicles turning into and out of driveways, even on heavily-trafficked roads.

Links with direct frontage access can be designed for significantly higher traffic flows than have been used in the past, and there is good evidence to raise this figure to 10,000 vehicles per day. It could be increased further, and it is suggested that local authorities review their standards with reference to their own traffic flows and personal injury accident records. The research indicated that a link carrying this volume of traffic, with characteristics similar to those studied, would experience around one driveway-related accident every five years per kilometre. Fewer accidents would be expected on links where the speed of traffic is limited to 20 mph or less, which should be the aim in residential areas.

It should be noted that here it refers to the design of the link and not the use of an existing link.

The Kent Design Guide suggests for a Local Distributor Road

Local Distributor Road

- 1 a busy road linking other distributor roads and residential access roads, distributing traffic within the primary residential districts of a town
- 2 a road type applicable to all sites on the outskirts of main towns or infill sites within existing suburban areas
- 3 generally serves over 300 dwellings
- 4 provides an opportunity for boulevard or avenue planting and cycleways.
- 5 for new developments, direct vehicular access to dwellings would not normally be provided, the exception being shared private drives with turning within the site

https://www.kent.gov.uk/_data/assets/pdf_file/0018/12096/design-guide-movement.pdf

Using the above analysis I consider appropriate relaxations have been applied where they can, but the developer has been unable to present an acceptable design. The compromise may be to use the existing access where sight lines are achievable and would comply with the requirements of the Kent Design Guide, where a shared drive may be possible preferably with onsite turning, but Gravesham Borough Council's own supplementary Guidance PGN6 would not require this. Although the design would need to accommodate vehicles reversing off the highway in one simple movement to comply with the carriage crossover guidance.

Les Seaborn

Highways Development Management Officer

Gravesham Borough Council