2017

Objections to Priests Lane Development Plans

Priests Lane

Neighbourhood Residents

Association

INDEX

1 INTRODUCTION

This document has been prepared by the Priests Lane Neighbourhood Residents Association to highlight the residents' strong objections to the proposal to develop the land at the rear of Priests Lane as set out in the Draft Local Development Plan (sites 044 and 178).

There is considerable concern among the majority of the residents in Priests Lane and the surrounding area about the Council plan to build 130 dwellings on this site, with regard to the unacceptable impact it will have on our lives from the additional traffic and pollution, the safety risks from a badly sited new road and the loss to the community of a protected open urban space. Despite representations and meetings with the Council decision makers, we consider that our genuine fears and concerns have not been given sufficient attention nor been widely circulated among Council members.

Following our earlier submission, we have undertaken research on both the traffic conditions and the safety regulations that should apply to the proposed new road. We do not think that these have been fairly represented to the Council to date. We have also looked at other issues pertinent to this site.

This document includes the results of our analysis, and gives a fuller description of the reasons why the site is unsuitable for large scale development as proposed.

We understand that there are many competing needs within the borough and we are aware of the need for additional housing to be built in and around the Brentwood area. However, this need must be balanced against the wider needs of the community and the impact upon other stakeholders. The land has been considered for development before, and permission refused as the land has traditionally been considered of value to the community as an open urban space. Given the increasingly dense housing development in the town, such spaces will become increasingly rare. As such it is reasonable to conclude that such spaces warrant greater protection, not less, in case these assets are irrevocably lost to the community.

We would stress that the proposed development fails to meet a number of the criteria for development as set out in the LDP. **It will have a detrimental effect on traffic safety, congestion and pollution. The proposed housing does not fit in with the surrounding areas, and does not meet the sustainability criteria listed in the LDP. It is disappointing that the LDP identified this location and applied housing numbers on a standard basis, without undertaking a detailed assessment of the sites in question**.

Our original submission to the consultation paper, which sets our objections, can be found in Appendix 1.

This document provides a more detailed analysis of our objections, and why we consider that the site at Priests Lane is inappropriate and does not meet the Council's criteria as set out in the plan, together with supporting evidence.

2 Priests Lane Neighbourhood Residents Association (PLNRA)

Formation

A group of neighbours met to discuss forming an Association and identify issues that potential members might see as priorities.

A public meeting held on February 25, 2016, from which a steering group was formed who met to work out the aims of the Association and to draft a constitution.

On March 7, 2016 a second public meeting was held where the constitution was agreed and a committee elected, forming the PLNRA.

Objectives

The objectives of the PLNRA are: (i) 'to safeguard and promote the interests of residents in the area on matters concerning housing and the environment; and (ii) to help to improve living conditions, community facilities and services for residents living in the group's area'

Membership

Membership, as outlined in the constitution is open to all residents, irrespective of tenure, in Priests Lane, Bishop Walk, Glanthams Road, Worrin Road, Shenfield Crescent and residents of Shenfield that are affected by issues relating to the area.

From an initial membership of just 20+ individuals in March 2016, membership has now reached in excess of **150 residents** and is still on the increase.

We regularly contact all households within the membership area by issuing flyers and they are able to contact us by means of our email address which is constantly monitored.

priestlaneneighbourhoodresidents@outlook.com

Committee

Chair:	**Geoff Sanders**
Treasurer:	**David Gooderson**
Secretaries:	**Helen Pearson,**
	Cath Kenyon,
	Kate Webster
Document consultant	**Bob Payne**

3 SUMMARY OF FINDINGS AND CONCLUSION

1. The PLNRA believe that it is inappropriate to build 130 dwellings on the greenfield Priests Lane site, which is currently a Protected Open Urban Space, because it does not meet the development criteria laid out in the plan and will create unacceptable risks to the safety of residents.

2. The site has value to the community as a protected open urban space.

3. The proposed development would generate hundreds of additional vehicular movements using Priests Lane, and have an adverse effect on traffic conditions.

4. Priests Lane is historically a country lane, and was not intended to be used as a main artery between Shenfield and Brentwood. Indeed, it does not meet modern design standards for a main distributary road. The lane already suffers from heavy congestion and speeding.

5. The high volume of traffic currently using Priests Lane results in frequent large queues exiting onto Middleton Hall Lane at peak times, especially mornings, causing daily chaos at the junction, and often poor driving behaviour. This causes considerable difficulty for residents at the Brentwood end leaving and accessing their properties in the rush hours, both morning and evening, as well as creating considerable pollution for residents and pedestrians.

6. The number of traffic accidents has increased noticeably in recent years due to the volume of traffic combined with speeding and poor driving. We have recorded recent accidents and we are concerned that over time we are likely to see a fatality on the lane.

7. The prospective new road junction in Priests Lane is badly sited and we consider that it does not meet road design standards for safe junctions (Essex Highways has not looked at the proposed road).

8. The lane is winding, narrow in several places with only a single alternating pedestrian pathway along much of it. Pedestrians are at risk at present because of the volume and speed of traffic as well as the poorly sited crossing points where the pavements switch sides. Older people, mobility scooters, and pram users have particular difficulty in crossing the lane, and are at greater risk, as well as finding themselves intimidated by their proximity to passing traffic, often travelling at excessive speed, due to the narrow pavement.

9. We consider that it is possible that a high-density development with the associated increase in traffic could result in the legal pollution levels being exceeded at peak times. This would have an adverse effect on the health and enjoyment of residents from excessive noise and pollution.

10. The site provides a habitat for local wildlife which will be lost and is inconsistent with the Council objectives to maintain areas of open space and biodiversity.

11. The development is likely to place an unacceptable strain on the utilities.

12. The level of development on this site would not be in keeping with the surrounding areas.

4 EXTRACTS FROM LOCAL DEVELOPMENT PLAN

4.1 Sustainability Review

The Council's first draft of the sustainability review indicated that this site performed relatively poorly (compared to other sites) in terms of a number of sustainability objectives, marks were given from 1-5 (with 5 being the lowest) for each objective. These are shown, with comments where available in the table below:

Topic	Comment	Rating
Air Quality	None	4
Biodiversity	None	1
Climate Change Mitigation	This option would likely lead to significant negative effects in terms of air quality on the basis that car dependency would remain entrenched.	5
Community, Well-Being	None	1
Cultural Heritage	None	2
Economy and Employment	As a smaller development scheme this is less likely to be mixed use/facilitate investment in employment development.	5
Flooding	None	1
Housing	This option could not support affordable housing but could possibly deliver targeted specialised housing (eg: housing for elderly persons)	5
Landscape	None	1
Soil Contamination	None	3

LDP

The plan has a list of criteria, most notably:

"Policy 6.3: General Development Criteria:

Proposals for development will be expected to meet all of the following criteria:

a. have no unacceptable effect on visual amenity, the character appearance of the surrounding area;
b. provide satisfactory means of access to the site for vehicles, cyclists and pedestrians and parking and servicing arrangements;
c. ensure the transport network can satisfactorily accommodate the travel demand generated and traffic generation would not give rise to adverse highway conditions or highway safety concerns or unacceptable loss of amenity by reason of number or size of vehicles;
d. have no unacceptable effect on health, the environment or amenity due to the release of pollutants to land, water or air (light, noise pollution, vibration, odour, smoke, ash, dust and grit);

e. cause no unacceptable effects on adjoining sites, property or their occupiers through excessive noise, activity or vehicle movements; overlooking or visual intrusion; harm to or loss of outlook, privacy or daylight/sunlight enjoyed by occupiers of nearby properties;
f. take full account of opportunities to incorporate biodiversity in developments;
g. when considering the impact of development on the significance of a designated heritage asset, greater weight should be given to the asset's conservation and enhancement;
h. result in no net loss of residential units;
i. new development would be required to mitigate its impact on local services and community infrastructure.

Policy 7.3

Proposals for new residential development should take a design led approach to density which ensures schemes are sympathetic to local character

Residential densities will be expected to be 30 dwellings per hectare net.

4.2 Draft site assessment: 2015 – 2030 preferred options – supporting document:

Land at Priests Lane Site 044:

- Protected Urban Open Space;
- Underutilised: No;
- Minerals and Waste safeguarded area: Yes – part of site within sand and gravel area;
- Access: there is limited access from Bishop Walk. Access off Priests Lane opposite 74 Priests Lane is possible. There is concern over the capacity of the junction at Priests Lane/ Middleton Hall Lane;
- 1 mile to each train station. No direct bus links; no safe walking route to primary school;
- SHLAA Suitable: No – the Council's open space audit values the site's contribution to open space provision within the area."

Conclusions:

The PLNRA's objections to the development of sites 044 and 178 are well documented and can be found in Appendix 1. In summary, a high-density housing development on the Priests Lane sites does not meet the General Development Criteria a, b, c, d, e, f and i stated above, nor do the proposals fall within the density criteria, whilst the Draft Site Assessment itself concludes that there are serious negative factors associated with the sites' suitability for development.

5 URBAN SPACES FOR LOCAL COMMUNITIES

5.1 Urban planning and benefits of green space in towns and cities

Urban planning decisions have a key role to play in helping communities to function effectively and the wellbeing of residents. It is recognised that green and/or open spaces within towns and cities have a positive benefit on the community. Such spaces include not only parks and sports facilities, but general open spaces that contribute in ways not immediately obvious, that may or may not be in public ownership. There are numerous health benefits associated with green spaces. Green spaces within a town can:

- **reduce flooding risks;**
- **absorb pollution and improve air quality;**
- **encourage biodiversity by providing habitats for wildlife;**
- **improve the visual amenity for local residents.**

5.2 Extract from Brentwood Sports Leisure and Open Space Assessment August 2016.

Protected Urban Open Spaces

1.1.1 Description of Sites

Within the current Replacement Local Plan, there is a list of sites within the Borough with the designation Protected Open Spaces. These are sites which have special protection from development. The Plan text reads: -

"Within the built-up areas of the Brentwood Borough, permission will not be granted for development of land allocated on the proposals map as Protected Urban Open Space or other previously undeveloped land."

The Priests Lane site is listed in Appendix 12 of the report, which includes a quality rating.

1.1.2 Standard of Provision

The total of 52.2 hectares means that the current standard of provision is 0.68 hectares per 1,000 population in addition to the other categories of open spaces.

1.1.3 Quality Assessment

Appendix 12 lists the quality rating for each site. This is based on accessibility to the public, the quality of the site for its recreational value and its amenity value. This acknowledges that, for example, a playing field has a wider purpose as a general amenity site.

For these reasons, we consider that the site at Priests Lane has continued value as open urban space. This piece of land has been recognised in previous public audits and by previous planning inspectors as having value to the community as an open space. The site is not suitable for a housing development due to its location and poor accessibility. Given the difficult access to the site for traffic, we consider that the site should either wholly or largely remain as protected open urban space.

6 LOCAL AREA AND HISTORY

6.1 Shenfield

Shenfield was a village dating back to Edward the Confessor. While Shenfield may be a village suburb of Brentwood, it remains an area distinct from Brentwood. The area of Old Shenfield is characterised by houses predominantly built in the second half of the nineteenth century and first half of last century. The area has a distinctive style and character, which is important to local residents and lends to the prestige of the area. This distinctive style is due to the wide variation and individuality in architectural styles, and a feeling of space due to the houses not being crowded together and the provision of trees and greenery.

6.2 Priests Lane

Priests Lane was originally a country lane that linked the village of Shenfield to Brentwood along which houses were built over a long period of time, and as such was not designed to be a major road. It has developed into a main distributary route through Shenfield and Brentwood, but is ill-designed to deal with the level of traffic it now takes. Its history as a country link road explains why there is only a single narrow pavement along much of the road, which switches sides.

Historic Priests Lane

Concerns about the volume of traffic go back as far as 1972 when Brentwood School was advised that it would not get planning permission to build six houses along Priests Lane because the lane was, even then, thought to be too busy.

The Brentwood Borough Council traffic survey in 1988 found that “Brentwood currently suffers from traffic problems and these will be greatly exacerbated by future traffic”. They “proposed traffic calming measures” in the form of speed humps as a response to this in Priests Lane, Worrin Road and Friars Avenue in 1994, although this was not implemented.

The Ursuline Playing Field was the school sports field. Planning permission to develop the Playing Field in 2004 was refused, and it retained the status of a Protected Urban Open Space. Requests to develop the field again in 2011 were denied, the reason given was that

“the Council’s Open Space Audit vales the site’s contribution to the provision within the area.”

6.3 Limitations and risks of Priests Lane

6.3.1 Narrow Width of the road

The Essex Design Guide recommends that the width of a main distributary road should be 6m wide, however Priests Lane is in many places much narrower than this, being less than 5.5m in some places. Some parts of Priests Lane are so narrow that vehicles sometime struggle to pass, for example the area between numbers 44 and 17 Priests Lane where there are no white lines in the middle of the road. Indeed, Essex County Council told us that it was not possible to paint white lines along this section of road, “due to the fact that on roads below 5.5m in width, over-running of the carriageway edge can occur if centre line markings are provided”. The road at the proposed access point to plot 044 is less than 6m wide, being nearer 5.5m wide. The narrowness of the road at this point results in cars frequently driving over the centre point of the road. Parts of wing mirrors and hubcaps are often found along the roadside where wing mirrors have collided and cars have been forced to drive against the curb.

6.3.2 Pedestrian access

Similarly, the Design Guide states that there should be two pavements each 2m wide, however the pavements along Priest Lane are frequently much narrower than 2m, and in places only about 1m wide. In addition, along much of the road there are not pavements on both sides and pedestrians have to cross at hazardous places, such as at the bend near St. Andrew’s Place. Pedestrians feel unsafe due to the narrow pavements and close proximity of cars, which are literally inches away. This creates difficulties for those with mobility scooters, pushchairs and wheel chairs.

6.3.3 Cyclists

The road is also hazardous for cyclists. The Council are aware of this as can be seen in their reply to a suggestion of a cycle route between Shenfield and Brentwood to avoid cyclists using Priests Lane and the Chelmsford Road: “Noted and agreed in principle. However, local highways constraints and lack of alternative options make this difficult to achieve. Traffic calming measures on these roads may help improve safety of cyclists”. [Preferred Option Consultation Statement 2015 -30]

6.3.4 Traffic volumes

Priests Lane suffers from heavy traffic, in excess of 6,000 vehicles per week day (per recent traffic surveys - further analysis can be found in Section 8). This causes congestion at the

junction with Middleton Hall Lane at peak times where the traffic often queues down Priests Lane up to, and sometimes beyond, Glanthams Road, which is diagonally opposite the proposed site entrance. A recent traffic survey on 15/3/17 showed that between 7.30 am and 9am there were 981 vehicle journeys along Priests Lane.

This congestion (at Middleton Hall Lane and Friars Avenue/Hutton Road junction) creates a safety issue. Residents along this stretch of road already have difficulty in exiting their driveways safely due to the persistent stream of traffic and poor visibility caused by the bends in the road (for both car drivers and pedestrians, particularly for those on the side with no pavement). Many residents face this problem, and we have seen an increasing number of accidents along the road.

This volume of traffic results in some residents leaving homes extremely early or taking circuitous routes at peak times to leave Priests Lane.

6.3.5 Risk and Accidents

Traffic surveys have shown that cars driving along Priests Lane frequently exceed the speed limit. The narrow road combined the many bends creates significant risk for drivers, and there have been many accidents along the road.

The majority of accidents that occur along Priests Lane are not recorded; we are informed by Essex Police that this is not necessary unless there has been an injury. Further, accidents are not reported as they are commonly caused by poor driving or speeding. However, this failure to keep records hide the risks associated with this road.

Such is the concern about the hazards of the road here at present that 750 local Residents signed a petition objecting to the development of 130 houses here in Priests Lane. A recent meeting held by our local Councillors was attended by many residents objecting to the risks associated with this development, and many more residents were excluded from the meeting as the venue was too small to cope.

6.4 Impact on road of the proposed development

All the following points were raised in a previous submission to the council and are relevant to the overall case being put forward in this document.

6.4.1 Safety of road users

The proposed development will generate significant numbers of extra car journeys, and all of the new traffic will directly access Priests Lane.

The Priests Lane infrastructure is already under significant stress through volume of traffic and physically could not cope with the implied number of extra cars (residents plus visitors) using Priests Lane to access sites 044 and 178.

6.4.2 Safety of pedestrians

As has already been stated, Priests Lane is very narrow in places with provision of pavement along only one side for much of its length. The need to cross the road at points with poor visibility when walking between Brentwood and Shenfield is a significant hazard. Some of our elderly residents are very concerned about their safety. Pedestrians can feel very vulnerable when walking along the road particularly where the pathway and the road narrows, especially where cars are passing in different directions along the narrow stretches. This can mean that cars pass inches from pedestrians walking along the road. In particular, the sharp bend at St Andrews Place is a key crossing point as a result of the pavement switching sides, but it is also a very unsafe crossing point with very poor visibility.

Extra traffic using this section of the road will likely result in accidents (only recently a car misjudged the corner and drove into a garden just next to a public footpath).

6.4.3 Provision of parking

Cars, delivery vehicles and work vehicles already park directly on Priests Lane, often mounting the pavement to reduce the obstruction to traffic along narrow stretches of road. However, this aggravates the situation for pedestrians when vehicles block the already restricted pedestrian access. One resident with a pregnant wife noted that she regularly had to walk in the road to circumnavigate these cars. This illustrates the concerns about inadequate provision for safe parking on this road, together with the need in places to park on the pavement to aid, to an extent, traffic flows. This, when combined with a single pavement of narrow width and large numbers of vehicles sometimes travelling over the speed limit, creates risk for pedestrians.

We have seen a number of large scale developments in Brentwood that fail to provide adequate parking facilities in order to maximise profits from building large numbers of dwellings, with considerable adverse consequences for the surrounding roads. In particular, increased parking along Priests Lane would create considerable difficulty for the flow of

traffic over one of the main distributary roads in Brentwood, and potentially further safety hazards for pedestrians.

6.4.4 Lack of public or sustainable transport options

Priests Lane does not have any public transport, and the road is not sufficiently wide to accommodate a bus service. Development of this site would be directly at odds with the Council policies 7.3, 10.1, 10.6 and 10.7 as stated in the LDP with regard to accessibility. Further, it is too narrow to accommodate a cycle lane. Indeed, many cyclists use the pavement as the narrowness of the road combined with volume and speed of traffic make cycling on the road hazardous, exacerbating the problems for pedestrians.

The lack of public transport, viable cycle routes and the problems with pedestrian access combined with a walking distance of 20 minutes to town centres/stations or more for schools/doctors etc mean that new residents will most likely drive. This will increase congestion and safety concerns particularly at rush hour periods.

We therefore do not think that the road can support a development anywhere near the proposed size of 130 dwellings, as it does not meet the objectives of building developments with sustainable transport links.

The development on Priests Lane would not conform to Policy 6.3 which requires:

- satisfactory access to the site for vehicles, cyclists and pedestrians and parking and servicing arrangements;
- ensure the transport network can satisfactorily accommodate the traffic generated and would not give raise to adverse highway conditions or safety concerns.

6.4.5 Development of valuable open greenfield space

This is one of the last remaining open spaces, and the Inspector noted in the 2004 report that the area has very few open spaces. The Inspector previously rejected removing the Protected Urban Space designation and allowing development for this reason, and noted that once developed, the loss is permanent. Future generations should not be deprived of the flexibility for alternative uses in the future, such as for recreation or wildlife, and the provision of a healthy environment. An unsustainability dense residential development is at odds with Council policy 9.1 and 9.2 as set out in the LDP.

For these reasons, we consider that the proposed site does not meet the LDP Criteria in Policy 6.3: ie
“provide satisfactory means of access to the site for vehicles, cyclists and pedestrians and parking and servicing arrangements”

6.5 Pictures


SLOW

7 PROPOSED PRIESTS LANE SITE

7.1 Site location

0 100 m

Site ref: 044 178
Site Name: Land at Priests Lane, Brentwood
Area (ha): 4.45 0.9
Proposed use: Housing with open space/sport
Approximate Number of Dwellings: 130

Date: February 2016

BRENTWOOD BOROUGH COUNCIL

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The site in question is to a large degree land-locked behind the private properties of St Andrews Place, Priests Lane and Bishop Walk all of which have much lower density housing than the proposed density per the LDP. The combined site is bordered on the other side by the railway lines and school grounds. The LDP has proposed 130 dwellings, and this number has been calculated using standard densities, but with no regard to the existing standards in this area.

Looking around Brentwood and Shenfield, it can be seen that car ownership is generally more than one car per household. More housing will inevitably create significant additional car journeys per day.

The current proposed access is at number 61a Priests Lane, ie directly onto Priests Lane, but even if the access was via St Andrews Place or Bishop Walk the additional traffic would need to turn onto Priests Lane. This proposal is unrealistic for all the points set out in this paper. While the land may appear to the suitable for development it should be acknowledged that the lack of appropriate and safe access for large traffic movements means that logistically the development is fraught with difficulties.

In addition to this problem, it should be recognised that the land values in Shenfield are generally of higher value than many other areas in the Borough making development scheme very attractive from an investment perspective. We consider it likely that a developer would seek to maximise the profit by increasing the housing density, and would probably not address the problem of low cost housing.

7.2 Infrastructure and utilities

The residents have had reports from utility operators that the utilities such as sewerage, water, electricity are already operating at capacity. We have real concerns that a development of this size will stretch these services beyond capacity and result in a reduced service for all residents.

Of particular concern is drainage. This land absorbs a great deal of water. Many of the gardens that border the site suffer from very wet conditions during the winter. The concreting over of this site will result in considerable water run-off, and residents are concerned that drainage would be inadequate, since any diversion of water from the site into existing drains may result in potential flooding problems elsewhere in the Priests Lane drain system.

7.3 Construction difficulties and safety risks

The construction period is likely to be over several years. This will involve considerable noise and pollution for the residents. However, the main concern is over the problems relating to construction traffic. Priests Lane at the site suggested access point is less than 6m wide. In addition, the proposed road access will be only 5.5m wide with narrow road splays, suitable for domestic vehicles, not large vehicles or lorries. It is likely that the construction traffic will cause chaos with HGVs trying to turn in a very tight area. It is likely

that the disruption to Brentwood traffic will be considerable as well as damage to the existing road and environs.

It is common practice for developers to sell completed dwellings while the whole site is still being developed. This raises significant concerns that the access road would be used for both constructions traffic and residential traffic for a considerable time, but the road would not meet recommended design standards for such usage. This will again create safety risks and potential damage to the surrounding roadways.

7.4 Potential site access – failure to meet road design safety guidelines

The current proposed access to sites 178 and 044 appears to be via the strip of land at 61a Priests Lane, and the proposal is for a single two-directional road. However, the design and location poses significant concerns for the safety of residents and road users due to its position on Priests Lane and the narrowness of both roads. Essex Highways have not reviewed the site access with regard to a new road junction, nor has there been an independent survey performed. The residents' association has spent considerable time reviewing the regulations for road design, and in our opinion, the proposed new road access does not meet local and national design standards and regulations. Our reasoning is summarised below, but a fuller analysis and supporting evidence can be found in Appendix 2 (page 44).

- The recommended width of a carriageway is 6m although this may be reduced in some circumstances to 5.5m. The land is just wide enough to meet road design requirements of 5.5m with two 2m pavements. There is room only for road splays appropriate to domestic vehicles, and may pose difficulties for large vehicles such as rubbish collection vehicles, fire engines, construction traffic.

- The Essex Design Guide indicates that there should be minimum visibility distance appropriate to the speed of traffic on Priests Lane, which relates to the top speed recorded at the 85th percentile rather than merely the official speed limit. Priests Lane has a speed limit of 30mph, although previous traffic surveys indicate that most traffic regularly exceeds this, and so *visibility of 60m should be required. However, this is not achievable at this point*.

- Although Manual for Streets may indicate that the for some residential roads a stopping distance of 43m is sufficient, a deeper analysis shows that this may not be appropriate in this case, and the minimum visibility requirements are unlikely to be met. It should not be assumed that a new junction at this point would be approved, particularly for a development of this size.

- We consider that the developers may have applied a sight stopping distance of 43m in looking at the viability of a new road, which is a distance appropriate to 20mph traffic zones, and a longer distance is appropriate here. Even so we consider it very dubious that a visibility distance of even 43m can be achieved.

- There is restricted visibility due to the curvature of Priests Lane and obstructions from street furniture and vegetation. *These obstructions could cause safety problems.* Priests Lane is narrow at this point, less than 6m wide and has private driveways immediately next to it and opposite it (again not in line with recommended road geometry).

A person standing on road edge at approximately 40m (just seen behind second lamppost) from mid-point of site access shows the poor visibility, photo taken at approximately 2.4 m back from edge of road

- The access road would be very close to another turning (Glanthams Road) which would create *a left-right staggered junction; design guides advise that such junctions increase the risk of traffic problems and are to be avoided*. It should be noted that Glanthams Road has similar visibility restrictions and waiting vehicles commonly protrude into Priests Lane which causes vehicles on Priests Lane to veer towards and across the centreline.

- Site 178 has an access onto Bishop Walk, however this road is very narrow. It is 4.8m wide with two pavements each 1.5m wide. The Essex Design Guide would usually require a 5.5m carriageway and 2m wide pavements. Although in some circumstances the carriageway could be reduced in width, the pavements would not meet the design standards. This road was clearly designed to meet the needs of a small cul-de-sac, and is not suitable for the amount of traffic that a large development would create.

- This site does not have good pedestrian or vehicular access for a sustainable development of a significant number of dwellings, especially as this would be the sole access point to the development.

It should be noted that if Priests Lane were subject to current design standards, it would fail to meet guidelines for safe road design. It does not seem appropriate that the road should be made worse by adding more potentially unsafe road features. The residents would be extremely anxious that increasing traffic and introducing unsafe junctions should not compromise their safety.

These pictures show that the strip of land where the road will be sited. It can be seen that the road is narrow with limited room for road splays.

7.5 Wider impact of the development

Essex Highways has no considered the effect on traffic of any particular site, nor the viability of new roads. They have only done an analysis of the impact of the housing developments on the critical junctions around Brentwood, one of which is the crossroads at Middleton Hall Lane and Ingrave Road. This junction (number 8 in the table below) is close to being over capacity at the moment, and the analysis shows that the additional traffic will result in the junction exceeding capacity, which will result in increased congestion at peak times along Priests Lane.

The junction at Middleton Hall Lane and Ingrave Road is listed as Junction 8. This junction is fed by traffic queuing along Priests Lane. As can be seen by the table below, this junction is expected to exceed capacity to deal with the traffic flows resulting from these developments. The development of the site at Priests Lane will be a large contributing factor and so the traffic situation along Priests Lane will definitely worsen, and likely have knock-on consequences on surrounding roads.

The draft report notes:

“11.2.5 The following junctions are close to or overcapacity in all (or nearly) all scenarios and time periods:

- Junction 7 - A128 Ingrave Road/B186 Queens Road;
- **Junction 8 - Ingrave Road/Middleton Hall Lane/Seven Arches Road;** “

As can be seen from the table junction 8, Middleton Hall Lane and Ingrave Road is one of the worst performing junctions.

Extract:

11.1 Introduction

11.1.1 This section sets out an overall comparison of each option against the baseline

11.2 Summary Junction Capacity Assessment

11.2.1 A summary comparison of the results for the AM peak is provided in Table 11-1, with similar results for the PM peak shown in Table 11-2. This indicates the highest RFC or degree of saturation for each junction in each peak and can be used to inform which junctions are most likely to require some form of mitigation, dependent on the option taken forward.

11.2.2 Where he highest value is below 0.85 or 85%, this is shown in **Green**, for junctions approaching capacity (i.e. between o.85/85% and 1.00/100%), these are shown in **Orange** and where over capacity (1.00/100% or above), these are shown in **Red**.

Table 11-1: Junction Modelling Summary Results – AM Peak

Junction No.	Type	Baseline	Option 1	Option 2	Option 3	Option 4
1	Signalised	80%	83%	83%	86%	83%
2	Rbt	1.03	1.06	1.05	1.07	1.12
3	Rbt	1.23	1.40	1.40	2.14	1.42
4	Priority	0.65	0.67	0.67	0.73	0.67
5	Rbt	0.50	0.55	0.55	0.66	0.59
6	Double Mini-Rbt	0.82	0.85	0.85	0.89	0.89
7	Rbt	1.19	1.34	1.35	1.27	1.36
8	Signalised	118%	122%	122%	122%	122%
9	Rbt	0.79	0.82	0.82	0.84	0.81
10	Signalised	82%	84%	84%	90%	90%
11	Rbt	0.50	0.51	0.51	0.55	0.52
12	Rbt	0.65	0.66	0.66	0.70	0.97
13	Rbt	0.63	0.84	0.86	0.72	0.72

8 TRAFFIC CONDITIONS

8.1 Analysis of traffic concerns

The PLNRA has spent considerable time accurately monitoring and recording traffic conditions on many separate days, and at differing times of the day to establish the facts of the problems we are facing. It is fair to say that because many members of the association had taken the time to record and understand the survey results, they now realise the difficulties are worse than originally believed.

Each resident in Priests Lane endures a variety of traffic problems on a daily basis, and our survey has helped to provide a more complete picture of the total traffic problems that affect our life on a daily basis. While the residents have accepted worsening road conditions as a consequence of modern life in Brentwood, they do not expect the Council actively to make decisions that will have a significantly detrimental effect on road traffic and the safety of local residents.

To reiterate the problems along this road:

- Heavy congestion in the peak morning period, including heavy queues;
- Speeding traffic at non-peak times and at areas when traffic is not queued, and traffic veering into the centre of the roads
  around corners;
- Poor visibility for residents trying to access the road from driveways and other junctions;
- Poor visibility for pedestrians crossing the road, where the pedestrian path crosses sides of the road;
- Increasing number of accidents
- Heavy pollution due to queuing traffic, especially near the Middleton Hall Lane junction

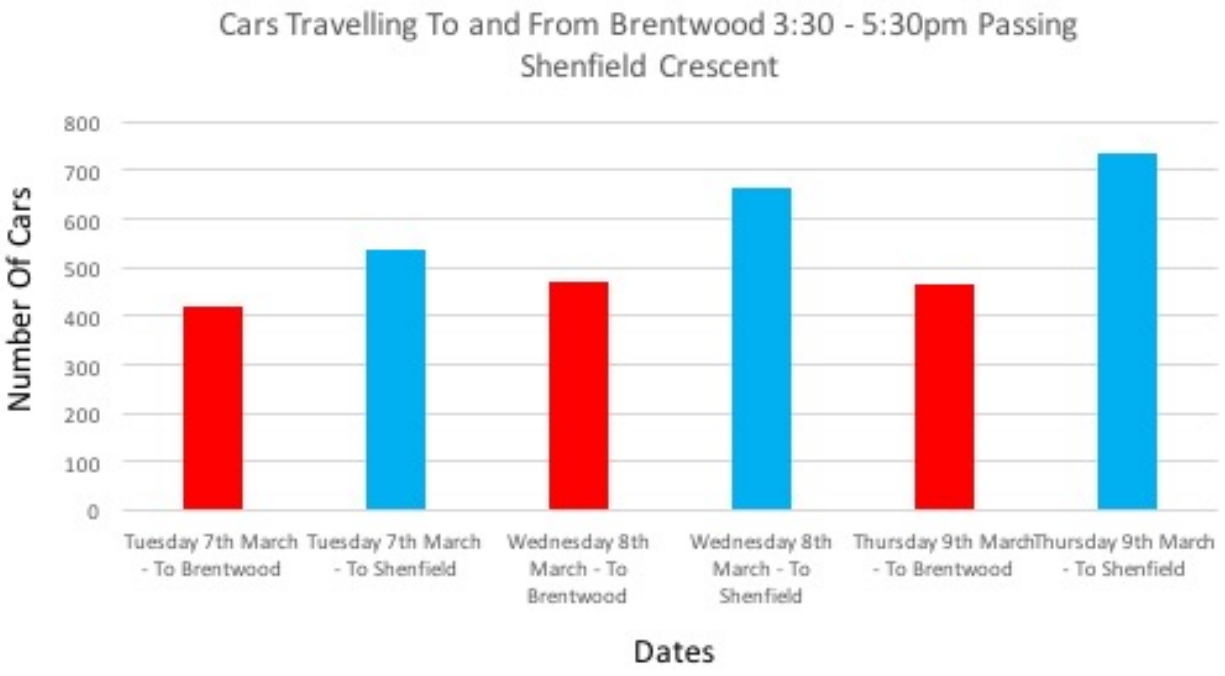
The local residents undertook a traffic watch during the week of 20 February 2017, during the peak traffic periods.

The longest queue from the junction with Middleton Hall Lane was measured in the morning peak traffic times during this period, as well as volumes of traffic, and were as follows:

Monday 20/2	360m
Tuesday 21/2	480m
Wednesday 23/2	In excess of 725m
Thursday 24/2	535m
Friday 25/2	250m

The following pictures were taken during this time

The following graphic shows the number of cars measured during this period during peak afternoon traffic flows.



Traffic data taken from official traffic surveys performed for Brentwood Borough Council.

Traffic surveys taken in the past along Priests Lane show how heavily used the road is. The following information is taken from those surveys.

Survey undertaken 8 January 2008 on Priests Lane near Shenfield Crescent	
Total vehicles	**6,283**
Vehicles exceeding the speed limit	**39%**

Survey undertaken Fri 16/9/2011 on Friars Ave	
Total vehicles	**5,893**
Vehicles exceeding the speed limit	**1,375**
% speeding traffic	**23%**

Survey undertaken March 2012 Priests Lane 281m NE of St Andrew's Place

	Wed 7/3/12	Thur 8/3/12	Fri 9/3/12	Average
Total vehicles	6,556	5,887	5,823	**6,089**
No >30mph	2,963	2,013	1,902	**2,293**
% speeding traffic	45%	34%	33%	**38%**

Survey undertaken March 2015 adjacent to no 146 Priests Lane

	Tue 24/3	Wed 25/3	Thur 26/3	Fri 27/3	Average
Total vehicles	5,979	6,672	6,136	6,204	**6,248**
No > 30mph	2,533	2,878	2,844	3,084	**2,835**
% speeding	42%	43%	46%	49%	**45%**

In all the surveys, it can be seen that the proportion of speeding traffic was greatest on the south-west bound channel (Brentwood bound), and this direction also had the highest mean speeds. In the 2012 survey the 85th percentile in this channel was generally in the region of 40mph. This speed is important as it is the speed that should be used in gauging visibility for junctions.

A traffic counter was stationed at the proposed site in 2016, however we have not been given this data.

The work group also undertook a review of the junction between Glanthams Road and Priests Lane. The reason for this analysis is that this is a very busy junction, particularly early in the morning. This junction is very close to where the proposed new road will be

which would create a left-right staggered junction. Manual for Streets advises against left-right staggered junctions as they are associated with greater safety risks. In this case both roads would also suffer from restricted visibility which will result in vehicles waiting at the junction to jut into the Priests Lane, which is less than 6m wide at this point, and means cars swerve into the road.

This picture illustrates how traffic waiting at Glanthams Road juts out into Priests Lane due to poor visibility, causing vehicles in the vehicles in the main channel to veer towards the centre of the roadway.

A new junction with the same difficulties built in close proximity, will create a safety risk with vehicles swerving

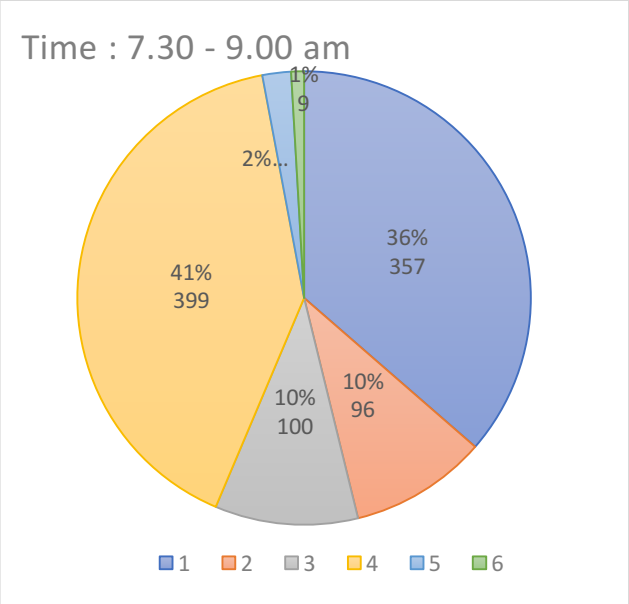
This picture is the view from Glanthams Road of cars trying to pull in and out of the road while traffic is queuing along Priests Lane.

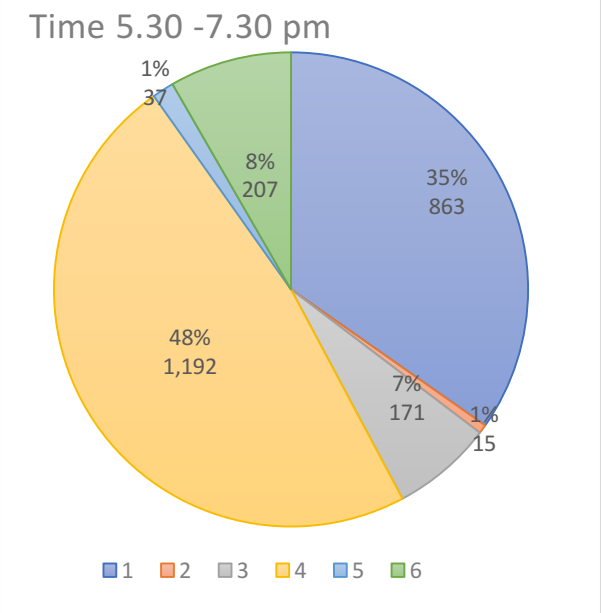
A second junction potentially sited close to the farthest tree in the picture will only exacerbate the traffic problems and cause additional health and safety issues for the residents.

The following charts show the traffic movements around the Priests Lane/Glanthams Road junction, recorded 16 March 2017.

		07:00 – 09:00	17:30 – 19:30
1	SW along Priests Lane	**357**	**863**
2	SW along Priests Lane turning right into Glanthams Rd	**96**	**15**
3	From Glanthams Rd turning right into SW Priests Lane	**100**	**171**
4	NE along Priests Lane	**399**	**1,192**
5	NE along Priests Lane turning left into Priests Lane	**20**	**37**
6	From Glanthams Road turning left into NE Priests Lane	**9**	**207**
	Total	**972**	**2,314**

This data demonstrates that a significant number of vehicles and a large proportion of the traffic movements along Priests Lane use this junction. The proportions of traffic movements can be illustrated in the diagrams below.





A large-scale development with an access road at 61a Priests Lane would create a significant increase in traffic movements at an already busy and low visibility junction. We consider that this would have a considerable and detrimental effect on safety.

8.2 Historic Brentwood traffic studies

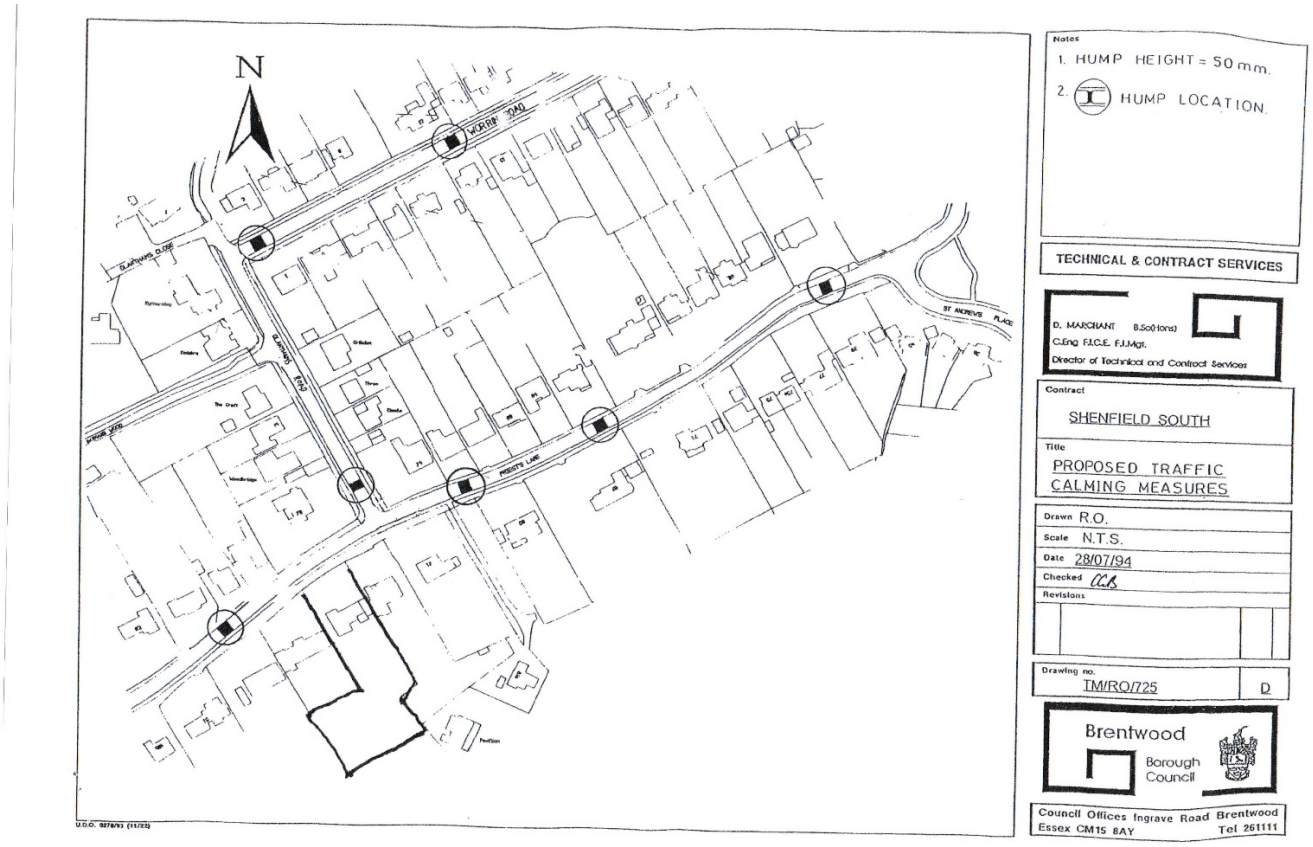
There have been number of studies that have taken place regarding traffic problems not only in Priests Lane, but surrounding areas over a number of years. The traffic volumes have been steadily increasing through Priests Lane in recent times.

In the 1990's a Shenfield Community Traffic Action Group was set up to tackle the problems and traffic calming measures were considered to slow down speeding vehicles, reduce accidents and discourage the use of the road as a rat run. Brentwood District Council and Essex County Council carried out a traffic study and consultation.

A copy of the newsletter of the action group is below, and a layout of the proposed humps is shown on the following page.

It shows that the Council recognised the traffic problems on Priests Lane and considered ways of reducing the problem. The scheme was not put into effect, and we are aware that traffic humps are no longer deemed an appropriate solution.

However, while the residents appreciate that traffic calming measures may be difficult to put in place, we consider that the Council should not take decisions that exacerbate an already difficult problem.



BRENTWOOD TRAFFIC STUDY

BACKGROUND

In 1985 Brentwood District Council and Essex County Council agreed to carry out a traffic study in Brentwood to be undertaken by consultants. The study was set up to work out the best way of dealing with the traffic problems in the area.

PHASE 1 OF THE STUDY

The first phase of the study, produced in 1986, generated a number of potential options to be considered in Phase 2.

THE OPTIONS

(i) An Inner Relief Road north of the High Street.

(ii) An Inner Relief Road south of the High Street.

(iii) A link between the A12 and A1023 Shenfield Road.

(iv) A combination of (iii) with either (i) or (ii).

PHASE 2 OF THE STUDY

In order to assess the options, extensive surveys of traffic movements were carried out during April 1988. These and other data were subsequently analysed and the consultants' findings and recommendations have now been made.

THE FINDINGS

(1) Brentwood currently suffers from traffic problems, and these will be greatly exacerbated by future traffic growth.

(2) The traffic problems can only effectively be tackled by the construction of new highways.

(3) Any proposals are constrained by the compact nature of the Town Centre and the proximity of residential streets.

(4) Comparison between the northern and southern Relief Road shows that the northern is preferable.

(5) The benefits from an Inner Relief Road would be greatly enhanced by an A12/Shenfield Road link.

THE CONSULTANTS' RECOMMENDATIONS

(1) The Northern Relief Road should be pursued, the alignment being to the north of the superstore site and Thermos factory.

(2) Should the opportunity arise, the route of the Northern Inner Relief Road should pass through the telephone exchange site. Alternatively Ongar Road should be widened to an improved junction at Wilsons Corner.

(3) The road link from Shenfield Road to the A12, with connection to Ongar Road, should be pursued.

(4) The Southern Relief Road should be dropped from further consideration.

(5) Public consultation should be undertaken.

(6) Other more minor improvements to the road network should be made.

8.3 Accidents on Priests Lane

Historic

If you were to search 'historic accidents' along Priests Lane very few, if any, would come up. This is because accidents where the police have not been involved are not recorded. This is evidenced by an exchange between Councillors in June 2016 as follows:

'From: Helen Pearson <helenpearson59@hotmail.com>
Sent: 10 December 2016
To: John Newberry
Cc: Gareth Barrett; Julie Morrissey; Andrew Wiles; Karen Chilvers; Will Russell; rogermccheyne@brentwood.gov.uk; Keith Parker; Cliff Poppy
Subject: Re: Accident in Priests Lane 4 pm

Dear John
Thank you very much for your help. Since March there have been 4 accidents that I know about in Priests Lane. After one accident, I did contact the police. However, they told me that as no one was hurt they would not record it or take any action.
Kind regards
Helen

From: John Newberry <john.newberry@brentwood.gov.uk>
Date: 12 December 2016
To: Cliff Poppy <cliff.poppy@brentwood.gov.uk>, Helen Pearson <helenpearson59@hotmail.com>
Cc: Andrew Wiles <andrew.wiles@brentwood.gov.uk>, Will Russell <will.russell@brentwood.gov.uk>, Karen Chilvers <karen.chilvers@brentwood.gov.uk>
Subject: Re: Accident in Priests Lane 4 pm

Cliff,

Whilst I agree with you on minor bumps and scrape's, I do not accept that the Police have no interest.

I served with Essex Police for 31 years, half of that on Traffic Division, I know from my experience that a single vehicle collision, was often caused by a driver who had been drinking.

So, if nobody is hurt, the driver can walk away?

How do we know that a Drink Driving offence has not been committed, if Police do not attend?

Road Safety is a paramount issue and we should not take for granted that our Police will not be interested, unless we accept the view that they are not.

Regards John'

Accidents that occurred before we recorded dates include (but are not limited to:)

- A car skidded into number 49a (on the corner of Bishop Walk).
- A car drove into the hedge outside number 61.
- A car hit the BT box outside number 59.
- A car crashed into the wall at number 57, partly demolishing it.
- A number of accidents and collisions at the junction with St Andrew's Place.
- In April 2007 a car overturned at the bottom of Priests Lane near the junction of Woodway. (Photograph attached - the upturned Fiesta was pulling out of Brickfield Cottages and was struck by the BMW. Both cars in the driveway at 151 were damaged too. See photo below)

Since 1 March 2016 there have been a number of accidents which the residents have photographed and recorded even though they may not have been reported to the police. These include:

March 13, 2016 - There was an accident with a car coming down Priests Lane from Brentwood direction about 6.45 in the morning. It hit the rocks outside no 64, probably at speed from the sound, lost control, spun, braked, skidded backwards down and across the road to hit the kerb at number 57. There was no serious injury, although it was fortunate no car was coming the opposite way. The driver was very shaken, and the car was a write-off.

July 12, 2016 - A young girl was hit and seriously hurt while trying to cross the road at a blind spot and where there is no pavement on one side of the road from Brentwood playing fields to Shenfield Crescent.

December 1, 2016 - A car mounted a wall crossing the pavement close to the junction of Friars Avenue.

December 9, 2016 - Someone drove into a car at speed outside number 57 and drove off.

December 21, 2016 - A horrendous accident Tuesday night 20th December in Friars Avenue (yards from the accident on the 1st December) where an alleged drunk driver cleaned off a telegraph pole and smashed into the fence surrounding the electrical sub-station there and then tried to drive off but only got as far as Woodway. Anyone walking on the path at that time would certainly been killed.

March 25, 2017 – A car left the road going too fast on the bend on the way down to Shenfield. It went straight through a hedge on the opposite side of the road, ending up in the garden next to the entrance to the footpath at the corner with St Andrew's Place.

These are all accidents where vehicles were too damaged/injured to be moved. At the top of the Lane, close to Middleton Hall Lane, where Priests Lane narrows, wing mirrors are lost on a regular basis.

8.4 Comments from local people

Local residents prepared a petition objecting to the development of these sites, gaining 750 signatures. The most common concern mentioned by residents was the high volume and speed of traffic along a narrow and bendy residential road.

The residents of number 23 confirmed that they collect at least 1 and sometimes 2 wing mirrors a week from the hedge on the opposite side of the road. We have received the following comments:

'My wing mirror was hit by a car passing too close on top section of Priest's Lane near Shenfield Crescent, whilst I was driving towards Shenfield common. Luckily my wing mirrors have the capacity to flip back 90degrees so it didn't actually smash it. We who live here, know that the road is basically too narrow for two cars to pass safely, unless you pull right over to the side of the road, but other drivers are less aware of the potential issue or are not concerned about the impact their own driving has upon others.'

The narrowness of the road is further supported by the following email our County Councillor received from Essex Highways in response to our request for white lines to be painted along the lane:

From: Member Enquiries <member.enquiries@essex.gov.uk>
Sent: 22 February 2017 12:07
To: Cllr David Kendall, Member CC
Cc: David Kendall
Subject: RE: White Lining - Priests Lane, Brentwood - ECC2027622 02 17

Dear Cllr Kendall
Thank you for your enquiry received this morning requesting for white lines to be painted down the centre of Priests Lane in Shenfield.
Unfortunately this request is something that we can not complete.
The reason that there are sections of Priests Lane without the centre white markings, is due to the fact that on roads below 5.5m in width, overrunning of the carriageway edge can occur if centre line markings are provided, causing maintenance problems.
Drivers might also expect a road marked with a white centre line to be wide enough for opposing lanes of traffic to pass. In these circumstances, the centre line should be omitted, however edge of carriageway markings are used.
Driver behaviour is unfortunately not something we can control and if drivers are passing by expecting the carriageway to be wide enough to pass, then unfortunately this is beyond our jurisdiction.
Thank you for contacting us.
Kind regards
Laura Martin
Member Enquiries Corporate and Customer Services
Essex County Council | telephone: 03330 139938

From: David Kendall [mailto:david.kendall@brentwood.gov.uk]
Sent: 22 February 2017 05:44
To: Member Enquiries
Subject: White Lining - Priests Lane, Brentwood

Good Morning
Please could Priests Lane in Brentwood / Shenfield have white lines installed in the middle of the road? This is definitely needed because cars are often straying over to the wrong side of the road and clipping wing mirrors and causing damage to other vehicles. Thank you
Regards
Cllr David Kendall
Essex County Councillor Brentwood South Division

These are some of the other comments we have received:

Michael Large, of St Andrews Place, said: "Priests Lane is now verging on a one-way motorway. We know we have houses to build but they should be put up where they fit."

“I absolutely agree that we feel vulnerable as pedestrians on Priests Lane. There is a lack of paving and the paving that does exist is too narrow. Furthermore, we live on the side of the road where there is no paving & my 12 year old daughter has real trouble crossing the road every morning in order to walk to school - the traffic is often fast and frequent. I have watched her stand there nervously, very hesitant to cross at times. It doesn't feel very safe at all.” (Resident at no 64 Priests Lane).

“I have to say even where I live at 161a Priests Lane I struggle to get out of my drive sometimes.

There is quite a distance for me to see up the road both ways but due to the present volume and speed of vehicles coming over the hill just past Woodway and flying round the corner at Friars Avenue I have to be very vigilant as can only reverse out.

As we know there have been several accidents near my driveway in recent months.”

“The traffic is queued down Priests Lane past Bishop Walk in the mornings already without the added traffic from new homes.
Lisa Aspinall. Bishop Walk”

As well as accidents involving cars, the heavy traffic takes a toll on the wildlife that lives on this site and we have received the following pictures from local residents (see section 9).

9 ENVIRONMENTAL IMPACT

9.1 Vehicle Pollution

- Inhaling air pollutants take away at least 1-2 years of a typical life.
- Pollutants released into the air, as opposed to land and water pollutants are the most harmful.
- According to the Lancet journal, air pollution caused by waiting traffic increases the chances of death due to heart attack.
- Toxic air pollution poses a greater threat to children due their smaller size and lung capacity.
- 80% of lung diseases are due to pollution from vehicles.
- People who live near roads with high traffic volumes face greater risk of cancer, heart disease, asthma and bronchitis.

9.2 Shenfield air quality

Brentwood Borough Council is required by law to assess the quality of air to determine if it is likely to meet the standards set out in the Government's Air Quality Objectives in relation to seven pollutants:

- Carbon monoxide
- Benzene
- 1,3 – butadine
- lead
- nitrogen dioxide
- sulphur dioxide
- particulate matter

Local air quality has a been monitored for a number of years and the Council is satisfied that air quality is satisfactory except in the case of nitrogen dioxide, which is largely linked to traffic pollutants.

The junction at Wilson's Corner is predicted to exceed air quality objectives, and the junctions between Priests Lane and Middleton Hall Lane have similar levels of traffic at peak times.

It should also be noted that significant numbers of children walk to and from school along the roads near this junction during peak traffic times.

We therefore consider that the proposed development of the site does not meet the Council's criterion that it should: "have no unacceptable effect on health, the environment or amenity due to the release of pollutants to land, water or air (light, noise pollution, vibration, odour, smoke, ash, dust and grit".

10 WILDLIFE

LDP Policy 9, Environmental Protection and Enhancement.

Policy 9.1 states that the Council is committed to safeguarding the diversity and local distinctiveness of the Borough including biodiversity and habitats, and recognises the importance of retaining the individual identity of separate settlements**. Policy 9.8** states that greenbelt land will be maintained in order to preserve the Borough's special character and to "prevent the coalescence of settlements". Development of this site is not therefore in keeping with either of these policy objectives.

Policy 9.3 states that areas of landscape, biodiversity and geodiversity interest and local distinctiveness within the borough will be protected from harm and their retention, enhancement and restoration will be encouraged. **The sites have been visited by Essex Wildlife who have noted they provide a habitat to flora and fauna. A number of birds such as owls, robins, wrens, goldcrests, starlings, blackbirds, herons, black caps, green woodpeckers, lesser spotted woodpeckers, three types of tit and skylarks have been seen on the sites and in the gardens of homes around the area. The sites have been strategically mown to provide a flowering meadow in the springtime. There is significant evidence that they are used by badgers and that these animals together with muntjac deer, foxes, shrews, voles, hedgehogs, grass snakes and bats regularly visit the sites together with houses along the Lane.** There are a number of mature trees and a good variety of flora, including flowering meadow plants, which we think may include some rare species. Development on this land would have an adverse effect on this wildlife. **Policy 9.1e states that the Council should be "conserving and enhancing biodiversity and habitats, including through the creation of new habitats". I cannot see how development of this greenfield site would meet these policy objectives.**

LDP Policy 9.6 states that buildings or parts of buildings, open spaces, trees, vistas or other features which make a positive contribution to the character, appearance or significance of the area should be retained or enhanced. Clearly any development of this Greenfield site can only be contrary to these policy objectives as the positive contribution the open space makes to Brentwood as a whole and the appearance of the meadow and significant habitats for the local flora and fauna will be lost.

The Ursuline Playing Field was the school's sports field. Planning permission to develop the Playing Field in 2004 was refused, and it retained the status of a Protected Urban Open Space. Requests to develop the Playing field again in 2011 were denied the reason given that "the Council's open space audit values the sites contribution to open space provision within the area".

We consider that the development of these sites is not in accordance with these policies

Appendix 1

OBJECTIONS SUBMITTED DURING CONSULTATION

This is the summary from the residents' submission, more extracts can be found in appendix 1 (page 41).

Brentwood Borough Council Local Development Plan, February 2016

Objections to the proposed Housing Development Plan, Site references 044 and 178.

SUMMARY

We feel very strongly that the above site should not be included in the development plan. There are several objections that arise for this particular site:

1. the site has value to the community as a protected open urban space and this designation should not be removed; if the urban population is increasing such sites will have greater value and to concrete over them is short-sighted planning;

2. it will result in an unacceptable increase of traffic on an already busy road, at a site which has seen a number of accidents due to the layout of the road and speeding traffic. A further junction will create further safety issues;

3. it will have an adverse effect on traffic conditions at the junction with Middleton Hall Lane, which already has safety issues due to the level of traffic at peak times;

4. it will have an adverse effect on the health and enjoyment of residents due to excessive noise and vehicular movements and damage to the environment;

5. it will increase pollution (nitrogen oxide, nitrogen dioxide, carbon monoxide, hydrocarbons and particulate matter), and this area already has high levels of nitrogen dioxide near the junction with Middleton Hall Lane;

6. a high-density development in this area will have an unacceptable effect on the visual amenity of the area, and will not be in keeping with the area as a whole;

7. it will not be sympathetic to the current fauna and flora on the site, and will reduce biodiversity in this area;

8. it will place an unacceptable strain on utilities such as sewerage, water supply and electricity, which are already struggling to meet the area's needs;

9. the development at this site fails to meet several of the Council's objectives as set out in the Draft Plan.

We consider that the proposed development does not meet the criteria laid down by the Brentwood Borough Council, nor does it meet relevant sustainability conditions, and therefore the proposed sites 044 and 178 should be removed from the list of proposed development sites.

PROTECTED OPEN URBAN SITE DESIGNATION

The site was designated as a protected open urban. It is one of the few greenbelt sites within the urban area separating Brentwood from Shenfield. It is important to retain it as such to maintain the quality of life within Brentwood, as green areas near the town centre are essential for health and well-being. Such areas also benefit the town by acting as a combatant against the increase in air pollution, which itself is exacerbated by the increase in vehicular traffic. The site is currently protected from development as it has been previously recognised as having value to the community in retaining open spaces with the Brentwood and Shenfield area. Indeed, this is one of the few remaining open greenbelt sites within the urban community, and forms part of a series of undeveloped plots of land that separate Brentwood from Shenfield, so preventing it becoming one sprawling conurbation. including biodiversity and habitats, and recognises the importance of retaining the individual identity of separate settlements and parts thereof. **Policy 9.8** states that greenbelt land will be maintained in order to preserve the Borough's special character and to "prevent the coalescence of settlements". Therefore, retaining this site as a protected open space is in keeping with this policy objective.

It is not sufficient that greenbelt land is only protected at the edges of the community or in the villages; it is important the few greenfield spaces within the town continue to be protected to sustain the quality of life within the town.

The Strategic Housing Land Availability Assessment from October 2011 discarded this greenbelt site as unsuitable for development stating "the Council's open space audit values the site's contribution to open space provision within the area". We are not aware of any changes in circumstances that would make this open space no longer of value, especially given the increasing development of the town.

When publishing the Natural Environment White Paper, Communities and Local Government Secretary Eric Pickles said: "Green spaces are incredibly important to local life which is why this government is committed to protecting them. These are special areas that invigorate communities like local beauty spots, wildlife habitats or even local playing fields so important for healthy activities." If the designation is removed, we will be contacting our local MP and the Secretary of State to review the decision of the council as we consider it detrimental to the community.

We consider that the designation of this site in the table (figure 7.2: Housing Land Allocation) as an "Urban Area" is misrepresentative, as it implies it is not undeveloped green belt land, and as a result there is an understatement of the amount of dwellings being built on greenfield/greenbelt sites.

TRAFFIC CONCERNS

The proposal is for 130 dwellings plus sports facilities or some sort of open space amenity.

The housing will be approximately a mile from the local amenities, being Brentwood and Shenfield high street shops, and about a mile from the local train stations. Priests Lane is not on any bus route. Further, the lack of pedestrian pathways along the road gives many pedestrians concerns over safety, particularly at the crossing points, which are on bends in the road.

Therefore, it is to be expected then that the people living in this new development will have at least one car per household (and in Brentwood this will often be more than one car per household), and will drive regularly.

In addition, there may be traffic associated with a sports facility built on the site.

It is therefore clear that a housing development of this size on the site will have a significant impact on traffic.

Priests Lane is already well known for its traffic problems:

- heavy congestion in the mornings, with traffic often queuing from the junction with Middleton Hall Lane at least as far as Glanthams Roads, and sometimes further;
- speeding traffic at off-peak times;
- poor visibility for residents trying to access the roadway from junctions or side roads;
- heavy traffic and poor visibility for pedestrians crossing, often on bends where the pedestrian path swaps from one side to another;
- traffic accidents due to speeding and/or errors from difficulties with visability; and
- heavy pollution due to queuing traffic, especially at the junction with Middleton Hall Road, but also along the road during morning rush hour.

Increasing the traffic volumes will worsen these problems, and so have an adverse effect on both the residents and other users of the road, in particular with relation to safety and air quality.

The access onto the proposed site is unclear. Both Bishop Walk and St Andrews Place were designed to be cul-de-sacs, and do not appear to be of sufficient size to accommodate the new traffic. The Council's Draft Site Assessment acknowledges that the current access is limited, and so may require road-widening works. A potential access to the site from the land opposite number 74 would be blind, likely to be dangerous, and may struggle to cope with the volume of traffic as it may be the only access point to and from the development. The position of these turnings, together with the heavy volume and fast travelling traffic, could make access from the site difficult for residents, as many residents already have problems turning onto the road. In addition, there have been a number of traffic accidents over the last few years along this particular stretch of road, for example:

- a car skidded into number 49a (on the corner of Bishop Walk);
- a car drove into the hedge outside number 61;
- a car hit the BT box outside number 59;
- a car crashed into the wall at number 57, partly demolishing it;
- a car hit the side of the road between number 62 and number 64, spinning across the road and crashing at number 57 (happened 13 March 2016);
- a number of accidents and collisions at the junction with St Andrew's Place.

The number of accidents along the stretch of road where the site will be accessed indicate that there is already a road safety problem that will only be worsened by this development.

POLICY 6.3: GENERAL DEVELOPMENT CRITERIA

The proposal for the site in question is for 130 dwellings, at a suggested density of 96 dwelling per hectare. This is the third highest density In the plan. The surrounding area has a much lower density, probably less than half this density. The SHLAA indicates that such as level of density would be achieved through flats and terraced housing. This would be a very different type of housing from that which currently exists in this area and is entirely inappropriate. The

plan suggests that this level of development is required only where there are good transport links, but we would argue that this site has limited transport links, in particular there could be access problems for disabled or elderly residents unless the road problem on Priests Lane can be solved.

Policy 6.3 states: Proposals for development will be expected to meet all of the following criteria:

a. have no unacceptable effect on visual amenity, the character or appearance of the surrounding area;
The development will have an unacceptable effect on visual amenity for the residents. The area around the site has not been densely developed and is notable for the individual design of the housing, which provides a distinct aesthetic identity, which adds to the character not only of the road, but for the whole Borough. One of the charms of this area is the feeling of space and the varying nature of the houses, which attracts people to the area. A development of the nature proposed would not be in keeping with this character and so would not meet this objective.

b. provide satisfactory means of access to the site for vehicles, cyclists and pedestrians and parking and servicing arrangements;
The existing roads of Bishop Walk and St Andrews Place were designed as cul-de-sacs, Bishop Walk is particularly ill suited to heavy traffic. The site map shows a possible access point directly from the road at 61a, but a junction at this point would be blind. The area already has a number of junctions onto Priests Lane, site 61a is very close to the junction with Glanthams Road. Another road junction will add to the problems not only for access to and from the site, but also for residents turning onto the road safely, who struggle with poor visibility of oncoming traffic especially given that traffic often travels well in excess of 30mph.

Although it may be possible to provide pedestrian and cycle ways on the site, the residents only access to and from the development is by using Priests Lane which does has limited pedestrian footpaths and no safe cycle paths.

Parking would be of significant concern, as any parking overspill onto Priests Lane would cause significant traffic problems.

c. ensure the transport network can satisfactorily accommodate the travel demand generated and traffic generation would not give rise to adverse highway conditions or highway safety concerns or unacceptable loss of amenity by reason of number or size of vehicles;
This point has already been addressed, and we consider that the development would give rise to adverse traffic conditions.

d. have no unacceptable effect on health, the environment or amenity due to the release of pollutants to land, water or air (light, noise pollution, vibration, odour, smoke, ash, dust and grit);
e. cause no unacceptable effects on adjoining sites, property or their occupiers through excessive noise, activity or vehicle movements; overlooking or visual intrusion; harm to or loss of outlook, privacy or daylight/sunlight enjoyed by occupiers of nearby properties;
Heavy construction work will create pollution, and traffic concerns as already outlined will also give rise to an increase in pollution. The area around junction of Priests Lane and Middleton Hall Lane has one of the highest pollution levels in Brentwood, and we are aware that some sites already exceed the legal level of 40 micrograms of nitrogen dioxide per cubic metre of air. This means that increasing traffic in this area could mean unacceptable levels of pollution both at the junction and along the road. Given that the site is an undeveloped open space, the adjoining properties will inevitably have a loss of outlook and reduced enjoyment from increased light and noise.

f. take full account of opportunities to incorporate biodiversity in developments;
The site is used by a variety of animal and birdlife, development will inevitably reduce biodiversity in this case, see comments above.

g. when considering the impact of development on the significance of a designated heritage asset, greater weight should be given to the assets conservation and enhancement;

h. result in no net loss of residential units; and

i. new development would be required to mitigate its impact on local services and community infrastructure.

Development should not harm the amenities of occupiers in nearby properties. Therefore, protecting the privacy and amenity space of nearby properties by avoiding excessive overlooking or loss of light resulting from new development are key considerations. New development should be sympathetic to the character and form of neighbouring properties and surroundings ensuring they are not overbearing and do not look out of place. New development is likely to result in some impact or change, but this should be limited wherever possible and not be unacceptable

In view of the existing nature of the site and the difficulties that will arise from development, it is difficult to see how this proposal meets the policy guidelines. It is unlikely that the development as proposed would be in keeping with the existing housing in the area, as this would indicate a development of 40-50 houses. Further, the information in the appendices to the plan indicates a density of 96 dwellings per hectare, suggesting only half the site will be utilised, which raises concerns about the future development of more houses on the remaining land.

As the development of the site does not meet the Councils policy standards, we consider that the site should be rejected as set out in the plan.

SUSTAINABLE TRANSPORT

Policy 10.1 states that “future developments will be located in accessible locations to help reduce the need to travel. Where travel is necessary public transport, walking, and cycling will be promoted as alternative means on transport”. Although the sites may appear to be close to the town centre and to train links, as residents, we know that walking is often not easy or convenient. There are no bus links, and a new development will result in increases in car travel. The design of the road combined with traffic volumes makes cycling unattractive for many, and there is no space for the provision of cycle lanes. Frequently cyclists and pedestrians share the same single pavement.

Similarly, access would be limited for elderly or disabled residents. The pedestrian route to Shenfield High Street requires residents to cross a busy road on a bend. In addition, the pedestrian routes to both Shenfield and Brentwood have a single pedestrian pathway, which itself can be very narrow and could cause difficulties for users of wheelchairs and mobility scooters.

GENERAL INFRASTRUCTURE CONCERNS

The land in this area can be very wet, as it is clay based and has poor drainage. Indeed, development of this site was discussed a number of years ago, and but not taken forward due to

advice that the land was too wet to develop. The open site currently absorbs water that would otherwise drain onto the back gardens on Priests Lane or onto the railway. We are concerned that building across this land could have an adverse effect on the properties backing onto this site if drainage is not properly managed. In addition, there are a number of places along the road that suffer surface flooding after heavy rainfall, indicating that drainage in this area is struggling to cope.

We have been advised that sewerage in the area is operating at maximum capacity, and may already be exceeding capacity (Sustainability Appraisal 2015). The development will put further strain on these facilities.

In addition, the area is well known for problems with gas leaks, and fluctuations with electricity supply, and poor water pressure. In addition, residents have been advised by the utilities that the supply lines are in some disrepair, notwithstanding the regular maintenance work undertaken. Developing this site will put further strain on these utilities, compromising the service that residents receive.

The plan refers to this site having open space or a sports facility. The lack of specifics is unhelpful. While open space is to be welcomed, any sports facility that would increase traffic, noise or light pollution would be detrimental to the area.

It is clear that the infrastructure in this part of Brentwood is struggling to cope with our current demands. As noted in the Plan, primary schools are at capacity, as are GP surgeries. Hogarth Primary School is already planning to extend, but that is to meet existing needs and may not be able to cope with additional increased demands on resources. We would also point out that this extension is planned on the existing school site, so diminishing further the green spaces in this area. If the population of Brentwood is expected to increase, then schools will likely need to increase with a corresponding need for playing fields. To remove this asset at this time appears to be short-term opportunism.

An increase in the population in this area will put more strain on already overstretched services.

Appendix 2 Technical information regarding road safety design for new access

Detailed analysis supporting objection to new road access.

Basis of Analysis

Essex Highways Development Construction Manual 2016 adopts the Design Manual for Roads and Bridges (DRMB): "where a new estate road joins the existing wider highway network, or within an industrial estate visibility will be required to be in accordance with TD41/95 and TD42/95 and any succeeding technical directives", although reference is also made to Manual for Streets.

The Essex Design Guide 2005 sets out a number of criteria for the design of roads and these have also been considered.
Extracts from these guidelines are provided in the Appendices to this analysis.

Manual for Streets (MfS) sets out national guidelines for the design of new housing developments in England and Wales, and addresses road design as part of the creation of housing developments. MfS "focuses on lightly-trafficked residential streets", where the primary purpose is not the movement of traffic.

Essex Highways have classified Priests Lane as a P2 distributary road within the county road network, ie a road that has an essential traffic management distributary function between the local road networks and the PR1 network. While MfS may be suitable for the design of streets within a new development, it is arguable whether it is appropriate to the design of an access junction onto Priests Lane.

The road in question will be a straight road linking Priests Lane with the development site, with no dwellings on the road due to insufficient width. Reviewing the Essex Design guide descriptions for roads, the proposed road into the housing development appears to best fit the category of "Type 3 Feeder Road", ie a road within a 20mph network serving a maximum of 700 dwellings and offering direct access out of a 20mph network onto a 30mph road. "Type 4 Access Road" does not seem to be an appropriate classification because it refers to minor roads within a 20mph network giving direct access to dwellings. This analysis has been done assuming the road is a Type 3 Feeder Road. More detailed description can be found in the extracts from the Essex Design Guide in Appendix 1.

Please note that any measurements given are approximate, and the site should be subject to a proper highways survey.

Two traffic surveys have been undertaken on Priests Lane in the last 10 years. This information has been used in this analysis as indicative of the traffic volumes and speed along the relevant stretch of Priests Lane. Although the reports are not current, there is no reason to believe that traffic volumes have reduced, or speeds reduced along the road. Further we understand that a traffic count was commissioned for the agents and landowner, which confirms that traffic volumes have not decreased.

Size of access

The site access is a strip of land 12.5m wide.

The Essex design Guide advises that a two-direction single carriageway road should be 6m, although this may be reduced to 5.5m depending on the number of dwellings, plus an additional 4m for two pedestrian side-paths. In addition, allowance should be made for road splay at the junction.

The recommended corner radii should be 6m, although this is on the expectation that there is no, or very little, large vehicle traffic. If this is not the case the corner radii should be larger, 10m is recommended.

The site width is just sufficient for a 5.5 m carriageway with a road splay with a radius of approximately 6m. Given that Priests Lane is only 6m wide at this point consideration should be given to whether this would provide a safe access to maintenance vehicles such as refuse vehicles, as well as emergency vehicles such as fire engines.

Visibility at junction

The regulations require that there should be a triangular area of visibility in each direction for cars approaching a junction. The visibility triangle is defined by the distance a driver sits back from the junction and the distance of clear line of sight along the road the junction joins. A diagram can be found in the extract from MfS (regulation 7) below that shows the layout of the visibility triangles and distances. The regulations give the minimum standard dimensions for the visibility triangles that depend upon the volume of traffic and speeds of traffic on the priority road, in this case Priests Lane. These measurements are based on safe stopping distances to reduce risk of collisions.

Historic traffic analysis indicates that traffic flows along Priest Lane exceed 5000 vehicles per day during the week. The road has a 30-mph speed limit but this is frequently exceeded. DRMB advises a design speed higher than the speed limit to allow for vehicles exceeding the speed limit: the design speed to be used for a 48kph (30mph) area is 60 kph (37mph). MfS allows for shorter distances to be used in residential areas, however again it is not sufficient to design in accordance with the speed limit, rather a speed survey is performed and the design speed based on the speed at the 85th percentile. The historic date indicates that the 85th percentile will exceed 30mph, potentially by at least 5mph.

Consideration should also be given to vehicles overtaking traffic turning left into Glanthams Road. In addition, Glanthams Road has poor visibility at the junction and vehicles wait at the junction with part of the bonnet emerging from the junction line. Due to the narrow width of Priests Lane at this point (6m wide), cars travelling the north-eastward channel of Priests Lane often drive across the centreline to avoid vehicles extruding from Glanthams Road.

The diagram (see page 53 below) shows a junction layout with X and Y distances required for the triangular area of visibility.

Based on the volume of traffic DRMB regulations state that visibility triangle should be measured from a point 6m back from the junction along the centre of the access road. In exceptional circumstances this may be reduced to 4.5m, but only where it can be shown that danger is unlikely to be caused. MfS provides that a distance as short as 2.4m from the junction may be used. Given the traffic volumes and significance of the road, MfS distances maybe inappropriate and dangerous and could be subject to challenge.

The minimum desirable length of visibility in each direction along Priests Lane is 90m per DRMB, although a relaxation may be permitted in difficult circumstances where danger is unlikely to be caused, however not below 70m. This assumes that the traffic on the new road will exceed 60 vehicles per day.

The Essex design guide indicates that a 60m distance is required.

MfS provides a table and formulae for calculating the distance. The distance for at 30pmh may be 43m, however the historic data indicates that this would be insufficient. At 31mph the distance increases to 45m, and at 35pmh the distances increase to 53m. (Note the Y distance of 60m in the Essex Design Guide equates to approximately 37mph). Given that the design speed should be greater than the speed limit it would appear that the distance should be significantly greater than 43m.

If the X-distance is required to be 4.5m, then the minimum Y distance cannot be met.

If the X- distance is 2.4m, then it is still unlikely that the minimum Y-distance can be met. Essex Design Guide advises that a 60m distance is needed. MfS has a minimum of 43m, but this is where the 85th percentile speeds meet the speed limit, which is unlikely to be the case. Even if this were so, rough calculations indicate that it may be difficult to meet 43m along the road.

Additional items that should be taken into account:

Proximity of Glanthams Road:

A new access road at number 61A Priests Lane will be within 35m of the junction, and will create a left-right stagger, an undesirable road feature as it creates greater hazards of accidents especially combined with limited visibility to the left of the site access. Depending on the categorisation of road types the distance between junctions along Priests Lane could be required to be 60m.

Further, as mentioned above eastward traffic frequently crosses the centreline at this point of the road especially when traffic is waiting to exit Glanthams Road, and such traffic would not be readily visible to traffic waiting a junction at 61A Priests Lane.

Private property access points:

There are two driveway accesses immediately opposite the site access and a private driveway immediately to the left. The regulations advise that there should be no private driveways within the minimum sight distances, however where that is difficult to achieve, this is reduced to within 2/3 of the distance. This cannot be met by the site access.

Road furniture:

Road furniture that may impair visibility should be taken into account. Along the left sightline from the junction are two lampposts and a tall telephone junction box that would impede the drivers view.

Sustainability of development

The Essex Design Guide provides guidance on sites for sustainable development:

Proximity

The location of dwellings, facilities and public transport in close proximity encourages walking and cycling instead of car use for local trips. Facilities, shops, employment, schools, etc should be clustered together on routes, pedestrian or vehicular, which lead directly into the cluster from surrounding, predominantly residential areas. Residential accommodation should be mixed in with these other uses. Such clusters, neighbourhood centres or core areas, should be on a bus route, and no part of a residential area should be farther than 600 metres from such a cluster Preferably no part of a residential area should be farther than:

- *400 metres from a regular bus route*
- *600 metres from a primary school*
- *1,500 metres from a secondary school.*

Within 300 metres of a regular bus route, neighbourhood centre, cluster of

facilities or town centre residential densities should be higher so as to place

a greater proportion of residents within closer walking distance of facilities.

Looking at the site, the nearest bus stops would be more than 800m from the residential area; the only nearby primary school is Hogarth School more than 900m away; and the nearby secondary school are Brentwood County High School (over 1,000m) and Brentwood Ursuline Convent High School, an all-girls faith school (over 1,200m). Brentwood School and Endeavour School have not been included as they are respectively a private school and a special needs school.

It should also be noted that there are no doctors' surgeries within 1km of the site.

Conclusion

- **It can be demonstrated that a junction at 61A Priests Lane is unlikely to meet minimum visibility requirements, and may fall significantly short of the regulatory requirements.**
- **A number of other factors exist that reduce safety and increase the risk of accidents or collisions at new junction.**
- **The site does not have good vehicular access to the main road.**
- **The site does not support a sustainable development of large size with regard to pedestrian and cycle access and proximity to services**.

Extract from: Essex Design Guide 2005

Type 3 Feeder Road

These are feeder roads within a 30 kph (20 mph) network serving a maximum of 700 dwellings. No part of a residential area should be farther than 0.4 km (a quarter of a mile) from a 3 or higher category road. These roads offer a direct route out of a 30 kph (20 mph) network.

Direct frontage access to dwellings is allowed, but within 30 metres of a junction egress to the road must be in forward gear only. 1.5m x 1.5m pedestrian/vehicle sight splays are required at egresses on to this road type, and 2m x 33m where the egress meets the carriageway.

A carriageway width of 6 metres is required. Where this road type serves fewer than 400 dwellings in the case of a link or loop or 200 dwellings in the case of a cul de sac the carriageway width may reduce to 5.5 metres.

A minimum 2m wide footway is required each side of the carriageway. If a verge for tree planting is desirable, this should be at least 3m wide and located between the footway and the carriageway.

The design speed is 30 kph (20 mph), and this is to be ensured by speed restraint measures, (see page 140). The minimum centreline bend radius is 20m unless a tighter speed restraint bend is being used. The maximum centreline bend radius is 70m. This road type may take access from an existing county road, a Type 1, Type 2 or Type 3 road. The design of a junction with an existing county road will be to the requirements of the highway authority. Other junctions require a minimum kerb radius of 6 metres.

The minimum length of minor road from the junction required to be straight is 22 metres from the channel of the main road. Sight lines of X distance 2.4m by Y distance 90m are required where the major road at the junction is a Type 1. Elsewhere a Y distance of 60m is required - reduced Y distances are possible where traffic speeds are below 25 kph (15 mph).

Type 4 Minor Access Road

These are minor roads within a 30 kph (20 mph) network giving direct access to dwellings. Cul de sac may serve as access to not more than 100 dwellings, whilst loops or links (the more usual case) may give access to not more than 200, subject to equal traffic distribution.

A carriageway width of 4.8 metres is required. A minimum 2m wide footway is required on one side of the carriageway and on the other side of the carriageway a 1.5 m minimum width of footway is required. If fewer than 25 dwellings are being served a single 2m (min) footway is required. If a verge for tree planting is desirable, this should be at least 3m wide and located between the footway and the carriageway. In the case of a single footway, a 500mm overhang strip is required alongside the opposite side of the carriageway. 1.5m x 1.5m vehicle/pedestrian sight splays are required at egresses on to this road type (see page 152) and 2m x 33m where the egress meets the carriageway.

A clear distance of 6m is required between a parking space abutting the highway and the opposite edge of the carriageway.

The design speed is 30 kph (20 mph), and this is to be ensured by speed restraint measures (see page 142). The minimum centre line bend radius is 13.6m unless a tighter restraint bend is being used. The maximum centreline bend radius is 30m.

This road type may take access from an existing county road, a Type 1, Type 2 Type 3 or Type 4 road. The design of a junction with an existing county road will be to the requirements of the highway authority. Other junctions require a minimum kerb radius of 6 metres.

The minimum length of minor road from the junction required to be straight is 15 metres from the channel of the main road. Sight lines of X distance 2.4m by Y distance 33m are required. Y distances may be reduced where traffic speeds are below 25 kph (15 mph), and the X distance may reduce to 2m if no more than six dwellings are served.

Junction Visibility

The normal 'Y' distances for sight lines at junctions are those given in the description of each road type, and these 'Y' distances are to be used in all cases where the speed of vehicles on the through road at the T-junction is not restricted by road alignment within this 'Y' distance. Where the main road at the T-junction contains, within the 'Y' distance, a bend with a deflection angle of over 30degrees and a centre line radius of less than 75m, it may be possible for the 'Y' distance to be reduced.

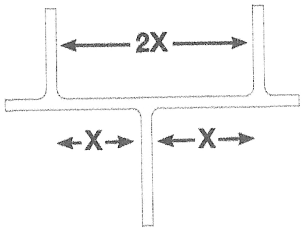
Staggered Junctions

These are possible on Type 4 and lower category roads within a 20 mph (30 kph) zone. The side roads should be staggered by one carriageway width, and right/left staggers are preferable to left/right as conflicting movements are reduced. Such a junction is possible notwithstanding the junction spacing requirements above.

Junctions-Junction Spacing

For junctions on to county roads, the County Transportation and Development Control Section should be consulted. In the case of residential roads minimum stagger between junctions on opposite sides of a road is X. Minimum stagger between junctions on the same side is 2X. X is to be determined from the following table:-

Side Road at Junct.	Main Road at Junction 1	2	3	4	5
1	60 m	-	-	-	-
2	60 m	30 m	-	-	-
3	60 m	30 m	20 m	-	No Restr.
4	60 m	30 m	20 m	15 m	
5	60 m	20 m	15 m	15 m	
6	60 m	20 m	15 m	15 m	
7	30 m	20 m			
8	30 m	20 m	No Restr.		



Side roads joining Type 1 or 2 roads should have no side junctions to other roads within 20 metres of the junction with the major road.

Extract from Manual for Streets

7.5 Stopping sight distance

7.5.1 This section provides guidance on stopping sight distances (SSDs) for streets where 85th percentile speeds are up to 60 km/h. At speeds above this, the recommended SSDs in the Design Manual for Roads and Bridges16 may be more appropriate.

7.5.2 The stopping sight distance (SSD) is the distance within which drivers need to be able to see ahead and stop from a given speed. It is calculated from the speed of the vehicle, the time required for a driver to identify a hazard and then begin to brake (the perception–reaction time), and the vehicle's rate of deceleration. For new streets, the design speed is set by the designer. For existing streets, the 85th percentile wet-weather speed is used.

7.5.3 The basic formula for calculating SSD (in metres) is:

$SSD = vt + v^2/2d$

where:

v= speed (m/s); t= driver perception–reaction time (seconds); d= deceleration (m/s^2)

7.5.4 The desirable minimum SSDs used in the Design Manual for Roads and Bridges are based on a driver perception–reaction time of 2 seconds and a deceleration rate of 2.45 m/s^2(equivalent to 0.25g where g is acceleration due to gravity (9.81 m/s^2)). Design Bulletin 32 adopted these values.

7.5.5 Drivers are normally able to stop much more quickly than this in response to an emergency. The stopping distances given in the Highway Code assume a driver reaction time of 0.67 seconds, and a deceleration rate of 6.57 m/s^2.

7.5.6 While it is not appropriate to design street geometry based on braking in an emergency, there is scope for using lower SSDs than those used in Design Bulletin 32.

This is based upon the following:

• a review of practice in other countries has shown that Design Bulletin 32 values are much more conservative than those used elsewhere;

• research which shows that the 90th percentile reaction time for drivers confronted with a side-road hazard in a driving simulator is 0.9 seconds (see TRL Report 33219);

• carriageway surfaces are normally able to develop a skidding resistance of at least 0.45g in wet weather conditions. Deceleration rates of 0.25g (the previously assumed value) are more typically associated with snow-covered roads; and

• of the sites studied in the preparation of this manual, no relationship was found between SSDs and casualties, regardless of whether the sites complied with Design Bulletin 32 or no.

7.5.7 The SSD values used in MfS are based on a perception–reaction time of 1.5 seconds and a deceleration rate of 0.45g(4.41 m/s^2). The table on page 8 uses these values to show the effect of speed on SSD.

7.5.8 Below around 20 m, shorter SSDs themselves will not achieve low vehicle speeds:

speed-reducing features will be needed. For higher speed roads, i.e. with an 85th percentile speed over 60 km/h, it may be appropriate to use longer SSDs, as set out in the Design Manual for Roads and Bridges.

7.6 Visibility requirements

7.6.1 Visibility should be checked at junctions and along the street. Visibility is measured horizontally and vertically.

7.6.2 Using plan views of proposed layouts, checks for visibility in the horizontal plane ensure that views are not obscured by vertical obstructions.

7.6.3 Checking visibility in the vertical plane is then carried out to ensure that views in the horizontal plane are not compromised by obstructions such as the crest of a hill, or a

bridge at a dip in the road ahead. It also takes into account the variation in driver eye height and the height range of obstructions. Eye height is assumed to range from 1.05 m (for car drivers) to 2 m (for lorry drivers). Drivers need to be able to see obstructions 2 m high down to a point 600 mm above the carriageway.

The latter dimension is used to ensure small children can be seen.

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.

7.7 Visibility splays at junctions

7.7.1 The visibility splay at a junction ensures there is adequate inter-visibility between vehicles on the major and minor arms.

7.7.2 The distance back along the minor arm from which visibility is measured is known as the X distance. It is generally measured back from the 'give way' line (or an imaginary 'give way' line if no such markings are provided). This distance is normally measured along the centreline of the minor arm for simplicity, but in some circumstances (for example where there is a wide splitter island on the minor arm) it will be more appropriate to measure it from the actual position of the driver.

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 0 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).

7.7.4 When the main alignment is curved and the minor arm joins on the outside of a bend, another check is necessary to make sure that an approaching vehicle on the main arm is visible over the whole of the Y distance.

This is done by drawing an additional sight line which meets the kerb line at a tangent.

7.7.5 Some circumstances make it unlikely that vehicles approaching from the left on the main arm will cross the centreline of the main arm – opposing flows may be physically segregated at that point, for example. If so, the visibility splay to the left can be measured to the centreline of the main arm.

X distance

7.7.6 An X distance of 2.4m 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.

7.7.8 Using an X distance in excess of 2.4 m is not generally required in built-up areas.

7.7.9 Longer X distances enable drivers to look for gaps as they approach the junction.

This increases junction capacity for the minor arm, and so may be justified in some circumstances, but it also increases the possibility that drivers on the minor approach will fail to take account of other road users, particularly pedestrians and cyclists. Longer X distances may also result in more shunt accidents on the minor arm. TRL Report No. 18420 found that accident risk increased with greater minor-road sight distance.

Y distance

7.7.10 The Y distance should be based on values for SSD :

Speed kph	16	20	24	25	30	32	40	56	48	50
Speed mph	10	12	15	16	19	20	25	28	30	31
SSD metres	9	12	15	16	20	22	31	36	40	43
SSD m, adjusted for bonnet length 2.4m	11	14	17	18	23	25	33	39	43	45

Extracts from: DRMB Volume 6 Section 2 Chapter 7 Part 6 TD 42/95 Geometric Design Features (January 1995) and Development Control Advice Note 15

Sections in Bold are mandatory requirements

Design Speed :

1.8 Urban Roads:

Low speed limits (30-40 mph) may be required due to the amount of frontage activity, but also where physical restrictions on the alignment make it impractical to achieve geometry relative to a higher Design Speed. Design Speeds shall be selected with reference to the speed limits envisaged for the road, so as to permit a small margin for speeds in excess of the speed limit, as shown in Table 2. The minimum Design Speed for a primary distributor shall be 70A kph.

Speed Limit MPH	Speed limit KPH	Design Speed KPH
30	48	60B
40	64	70A

Design Speed

7.2 Geometric standards for junctions are related to the traffic speed of the major road, and for new roads this is the design speed as defined in TD 9 (DMRB 6.1.1). Reference should be made to TD 9 in order to determine the appropriate design speed.

7.3 Minor road traffic has to join or cross the major road when there are gaps in the major road traffic streams. It is therefore essential that minor road drivers have adequate visibility in each direction to see the oncoming major road traffic in sufficient time to permit them to make their manoeuvres safely. This concept also applies to major road traffic turning right into the minor road. As well as having adverse safety implications, poor visibility reduces the capacity of turning movements. Visibility shall however, not be excessive as this can provide a distraction away from nearer opposing traffic.

7.4 Drivers approaching a major/minor priority junction from both the major road and the minor road shall have unobstructed visibility as indicated in the following sections. The envelope of visibility for driver's eye height is as set out in TD 9 (DMRB 6.1.1.2.2).

Major Road

7.5 Drivers approaching a major/minor priority junction along the major road approaches shall be able to see the minor road entry from a distance corresponding to the Desirable Minimum Stopping Sight Distance (SSD) for the design speed of the major road, as described in TD 9(DMRB 6.1.1). This visibility allows drivers on the major road to be aware of traffic entering from the minor road in time for them to be able to slow down and stop safely if necessary.

Minor Road

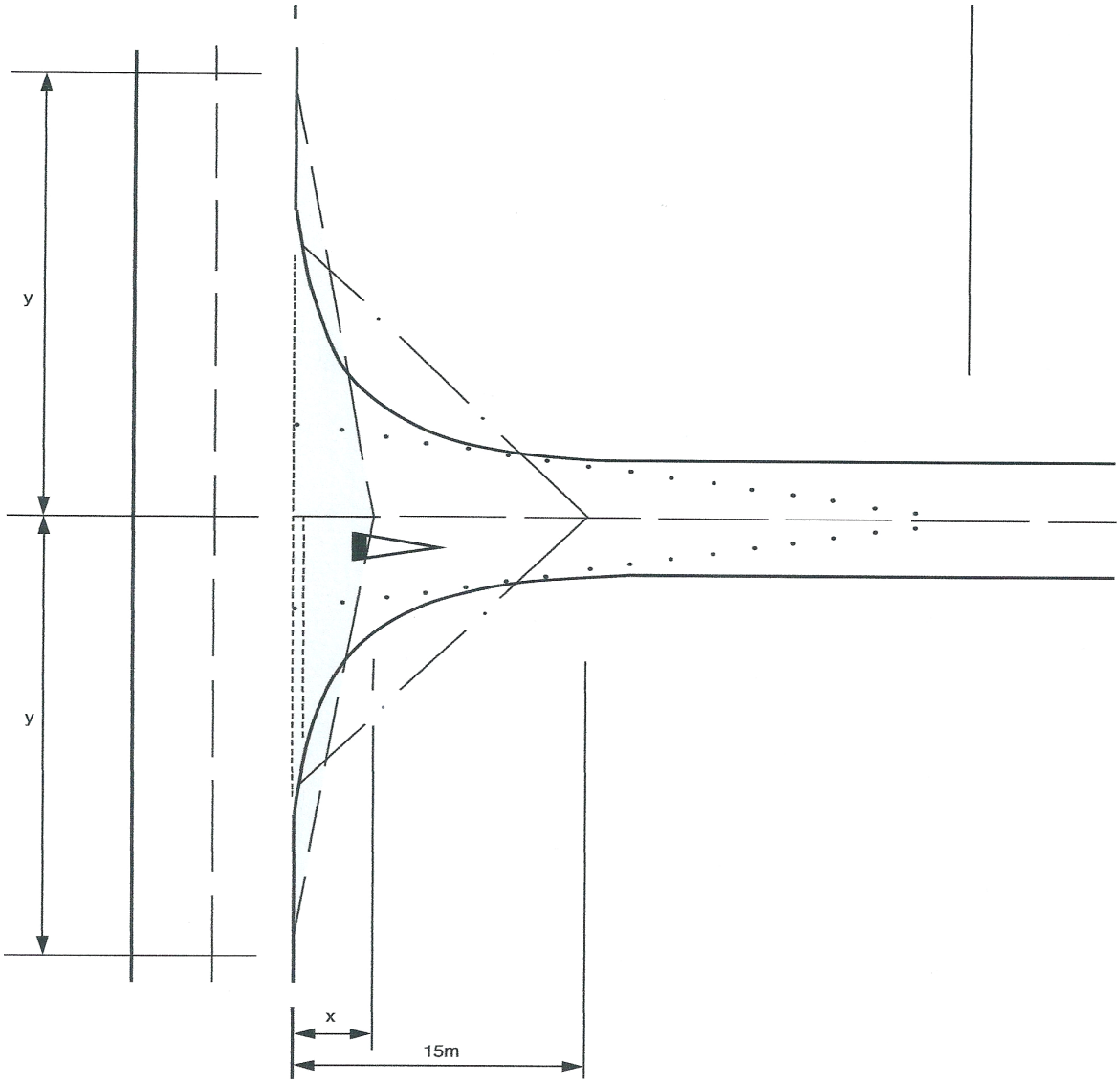
7.6 The principle of providing the required visibility for drivers approaching the junction from the minor road has three distinct features.

a. Approaching drivers shall have unobstructed visibility of the junction from a distance corresponding to the Desirable Minimum Stopping Sight Distance (SSD) for the design speed of the minor road, as described in TD 9 (DMRB 6.1.1). This allows drivers time to slow down safely at the junction, or stop, if this is necessary. Where a "Give Way" sign is proposed the visibility envelope shall be widened to include the sign.

b. From a point 15m back along the centreline of the minor road measured from the continuation of the line of the nearside edge of the running carriageway of the major road (not from the continuation of the back of the major road hardstrip if this is present), an approaching driver shall be able to see clearly the junction form, and those peripheral elements of the junction layout. This provides the driver with an idea of the junction form, possible movements and conflicts, and possible required action before reaching the major road.

c. The distance back along the minor road from which the full visibility is measured is known as the `x' distance. It is measured back along the centreline of the minor road from the continuation of the line of the nearside edge of the running carriageway of the major road. The `x' distance shall be desirably 9m (but see para 7.8). From this point an approaching driver shall be able to see clearly points to the left and right on the nearer edge of the major road running carriageway at a distance given in Table 7/1, measured from its intersection with the centreline of the minor road. This is called the `y' distance and is defined in Fig 7/1. Relaxations are not available for this distance.

Diagram showing the visibility triangles: See below



7.7 If the line of vision lies partially within the major road carriageway, it shall be made tangential to the nearer edge of the major road running carriageway.

Design Speed of major road (KPH)	**y-distance (m)**
50	**70**
60	**90**
70	**120**

Tables from Development Control Advice Note 15 showing possible relaxations.

In x distances and y distances. VPD = vehicles per day

Type of access	X – distance
Access with traffic flow of up to 60 vehicles per day	The minimum x-distance is normally 2.4m. Where traffic speeds on the priority road are blow 60 kph (37mph), the minimum distance is 2.0m. On other roads the x-distance may only be reduced to 2.0m where danger is unlikely to be caused.
Access with traffic flow between 60 and 1000 vehicles per day	The minimum x-distance is normally 4.5m. It may be reduced to 2.4m, but only if traffic speeds are below 60kph (37mph) and danger is unlikely to be caused.
Access with traffic flows over 1000 vehicles per day	The desirable minimum x-distance is 6.0m. It may be reduced to 4.5m, but only where danger is unlikely to be caused. In this case, developers may be required to demonstrate the adequacy of the access capacity using junction analysis techniques.

Notes:

Reduction in visibility standards will not be reduced simply because the applicant does not control the required visibility area or does not have a reasonable prospect of bringing it under control.

Traffic volumes are in vehicles per day and refer to the total combined flow in both directions. Volumes on the priority road include traffic generated by the development.

Where the minor road (access) is subject to peaks, an enhanced x-distance may be required.

The traffic speed to be used is a reasonable estimate of the 85%ile speed on the priority road.

Type of access	Traffic speed on priority road kph (mph)			
	70 (44)	60 (37)	50 (31)	40 (25)
Access other than those listed below	120 [90]	90 [70]	70 [45]	45 [33]
Access flow up to 60 vpd onto priority road >3000vpd	90	70	60	45
Access flows up to 60vpd on priority road <3000 vpd	90 [70]	70 [45]	60 [33]	45 [33]

Notes

In exceptional circumstances a reduction in the visibility standards may be permitted where, in the judgement of the Department, danger to road users is not likely to be caused. Where exceptional circumstances are considered to exist, it is highly unlikely that the Department will permit visibility standards which fall below the figures in the square brackets.

In the case of single or paired dwelling accesses a reduction in the visibility standards may be acceptable where, in the judgement of the Department, there is a slightly lower risk of conflict, particularly when traffic on the priority road is light.

Reductions in visibility standards will not be permitted simply because the applicant does not control the required visibility area or does not have a reasonable prospect of bringing it under his control.

Traffic volumes are in vehicles per day (vpd) and refer to the total combined flow in both directions. Volumes on the priority road include traffic generated by the development.

The traffic speed to be used is a reasonable estimate of the 85%ile speed on the priority road; for example, by use of following vehicle surveys or, in the case of a dispute, the measured 85%ile speed.

7.8 In difficult circumstances, the `x' distance may be taken as a Relaxation from 9.0m to 4.5m for lightly trafficked simple junctions, and in exceptionally difficult circumstances, to 2.4m back from the nearer edge of the major road running carriageway. The `x' distance, from which full `y' distance visibility is provided, shall not be more than 9m, as this induces high minor road approach speeds into the junction, and leads to excessive land take.

7.9 Similarly, although the `y' distance shall always be provided, there is little advantage in increasing it, as this too can induce high approach speeds and take the attention of the minor road driver away from the immediate junction conditions. Increased visibility shall not be provided to increase the capacities of various turning movements.

7.10 These visibility standards apply to new junctions and to improvements to existing junctions.

7.11 Where the major road is a dual carriageway with a central reserve of adequate width to shelter turning traffic, the standard visibility splay to the left is not required, but the central reserve to the left of the minor road shall be kept clear of obstructions for the appropriate `y' distance, when viewed from an `x' distance of 2.4m.

Design Vehicle

7.12 If the major road is one way, a single visibility splay in the direction of approaching traffic will suffice. If the minor road serves as a one-way exit from the major road, no visibility splays will be required, provided that forward visibility for turning vehicles is adequate.

7.13 Vehicles parked within splay lines may obstruct visibility. Where necessary, parking and access should be controlled to prevent this. Care should also be taken in the placing of signs, landscaping and street furniture within the visibility splay areas to ensure that their obstructive effect is minimal.

7.14 Allowance shall be made for the swept turning paths of long vehicles where they can reasonably be expected to use a junction.

Consideration shall also be given to the manoeuvring characteristics of these vehicles in the design of staggered junctions.

7.15 All of the geometric parameters used in the design of a major/minor priority junction have been developed to cater for a 16.5m long articulated vehicle, whose turning width is greater than for most other vehicles within the normal dimensions permitted in the existing Vehicle Construction and Use Regulations, or likely to be permitted in the near future. The turning requirements of an 18.35m long drawbar trailer combination are less onerous regarding road width. In cases where hardstrips are present, the design vehicle is assumed to use these on some turns, and at some simple junctions, it may encroach into opposing traffic lanes.

7.16 However, a 15.5m long articulated vehicle with a single rear axle has been shown to be more onerous than the 16.5m long vehicle, but the small numbers of this type of vehicle currently operating in Great Britain mean that designing all junctions for such vehicles could be economically unjustifiable. Hence, if the

major/minor priority junction being designed is in an area where there is likely to be regular use by such vehicles, the designer should take account of this either by amending the design to cater for such a vehicle, or by accepting that these vehicles may encroach into other traffic lanes, or overrun other areas. In such instances, consideration may be given to providing differential coloured or raised surfacing indicating the area of allowable overrun.

Corner Radii

7.17 Where no provision is made for large goods vehicles, it is recommended that the minimum circular corner radius at simple junctions should be 6m in urban areas and 10m in rural areas. Where provision is to be made for large goods vehicles, the recommended circular corner radius is:-

a. 10m at urban simple junctions, followed by a taper of 1:5 over a distance of 30m, measured from the edge of the major road carriageway up the minor road

in the case of the entry to the minor road, and followed by a similar taper measured from the centreline of the minor road along the major road for the entry to the major road.

b.15m at rural simple junctions, with tapers of 1:10 over a distance of 25m.

c. 15m at ghost island junctions, with tapers of 1:6 over a distance of 30m.

d. 15m at simple staggered junctions, with tapers of 1:8 over a distance of 32m.

e. 20m radius in all other circumstances.

These radii only apply where there are no nearside diverge tapers or lanes, or nearside merge tapers

Stagger Distances

7.63 The stagger distance of a junction is the distance along the major road between the centrelines of the two minor roads.

7.64 For simple major/minor priority junctions with a right/left stagger, the minimum stagger distance shall be 50m. For a ghost-island junction it shall also be 50m.

7.65 For simple left/right staggers, the minimum stagger distance shall be 50m.

(Note Development Control Advice Notice 15 advises that the minimum stagger distances for a right left-stagger junction may be reduced to 15m, however it does not give stagger distances for right-left stagger junctions stating that they are undesirable, and should be combined with features such as right turning lanes).