

## Appendix O Star Hill Road Transport Review

# TECHNICAL NOTE

**Job Name:** Fort Halstead  
**Job No:** 41290  
**Note No:** 002  
**Date:** 19/03/2019  
**Prepared By:** MMNejad / Jason Lewis / Robert Parker  
**Subject:** Star Hill Road Transport Review

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## 1. Introduction and Context

- 1.1. In 2015 Sevenoaks Planning Committee approved proposals for the regeneration of the Fort Halstead site with a mixed-use scheme. However, this was on the basis of a Condition that restricted vehicle access to the site to the main access onto A224 Polhill with the use of the existing secondary access onto Star Hill Road to be restricted to emergency use, buses and cycles. This Condition responded to concerns raised by residents and local politicians regarding the potential impact of development traffic on Star Hill Road including concerns regarding road safety.
- 1.2. At the time of the previous application, KCC supported the retention of the access onto Star Hill Road for all traffic but also agreed in principal proposals to introduce a 40 mph speed limit along a section of Star Hill Road between Knockholt Village and a location to the south of the sharp bend south of the Site access. These proposals, which also suggested the possible use of a Vehicle Actuated Sign (VAS) to warn drivers regarding speeds approaching the sharp bend, were set out in a Technical Note appended to the 2014 Transport Assessment report (TA). This is appended as Appendix A.
- 1.3. During current preapplication discussions, KCC have repeated their strong support for the retention of the access onto Star Hill Road to be available for the use of all development traffic (potentially excluding HGV's). However, they have referred the proposals for the new speed limit to their Local Schemes Team. Geoff Bineham of the Local Schemes Team has undertaken a preliminary review and the outcome is set out in his email of 25<sup>th</sup> February 2019 (Appendix B). In this email he queries the benefit for introducing the proposed 40 mph speed limit and also states that the use of a VAS on Star Hill Road would not meet Department for Transport Guidance.
- 1.4. This note provides an update on the information provided in previous TA Appendix re Star Hill Road and responds to the points raised by Geoff Bineham.

### DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
41290 / TN02	-	12/03/19	MMN	JSL	GC	GC

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### 2. Review Undertaken by KCC Local Schemes Team

- 2.1. Geoff Bineham suggests caution regarding the proposals to implement a 40 mph speed limit on Star Hill Road and also suggest that the DfT criteria for the use of VAS is not met.
- 2.2. His main points are as follows:
  - The current National Speed Limit (60mph) is consistent with most rural roads in Kent;
  - Provision of a 40 mph speed limit may be counterproductive, potentially encouraging drivers to drive up to the new speed limit;
  - There may be a compliance issue at the northern end of Star Hill Road where he estimates that cars are travelling at 50 mph;
  - Current accident data suggests that there are no accidents and therefore no accident problem along Star Hill Road;
  - The proposed improvements at the site access junction will involve visibility at that location; and
  - Based on a recent site visit there was no evidence of any use of this section of road by vulnerable road users i.e. pedestrians or cycles.

### 3. Accident Data

- 3.1. At the time of the 2015 TA there appeared to be small clusters of accidents at the two bends, 5 accidents at the southern bend by the cottages and two at the northern bend at the junction of Birchwood Lane. Speed appeared to be a factor in a number of these accidents.
- 3.2. Whilst there has been only 1 recoded accident within the last three years, the five-year data still shows a number of accidents at the two bends, 2 at the southern junction and 3, including a fatality, at the northern bend. Details of these accidents are provided within Figure 1 and Table 1 below. It is noted that KCC have asked for the inclusion of five-year data within the TA and it is considered that five-year data provides a better basis for considering accident issues than three-year data.
- 3.3. Speed does appear to have been a factor contributing to accidents on this section of Star Hill Road

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Figure 1: Locations for PICs Between October 2012 to September 2017

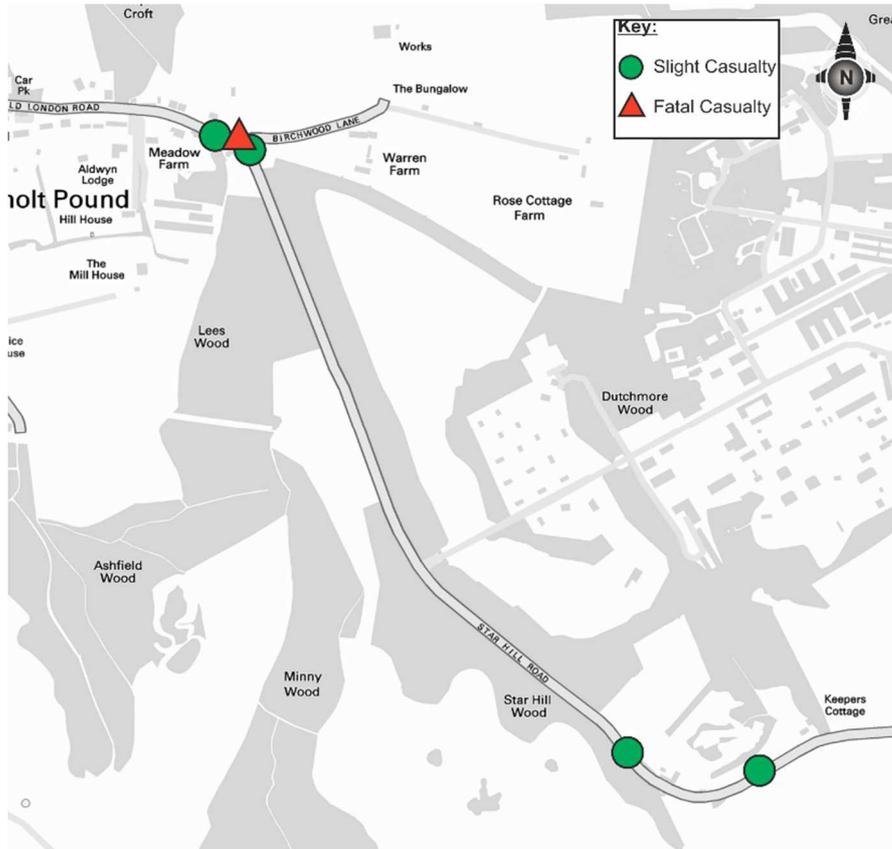


Table 1: Personal Injury Collisions Along Star Hill Road Between October 2012 to September 2017

Date of Accident	Severity of Injury and Description of Accident
07/11/2012	Slight injury. Vehicle 1 has been travelling down Star Hill Road in the direction of Dunton Green following two other unknown vehicles. On a left-hand bend, a car has come around the bend towards vehicle 1 with bright lights and caused driver to pull to the left. This has caused the front end to lose control and hit the nearside bank and the vehicle to roll.
19/01/2014	Slight Injury. Vehicle 2 was travelling north on Star Hill Road. A vehicle in front of Vehicle 2, travelling in the same direction came to a halt. Vehicle 2 then came to a halt. Vehicle 2 was then struck by Vehicle 1 from behind resulting in injury and damage.
08/06/2014	Slight Injury. Cyclist travelling along Star Hill Road direction of Birchwood Lane, as the cyclist was cycling down the hill, hit a man hole cover, lost control and fell off bike. Bike continued down the road and hit oncoming vehicle.
06/08/2015	Fatal injury. Vehicle 1 was travelling downhill and negotiating a left-hand bend. It failed to negotiate the bend crossing into the opposite carriageway and collided with a tree. The driver was removed by the fire brigade and taken to hospital with life threatening injuries and later died of the Injuries.
23/06/2017	Slight Injury. V1 travelling in a north/northwest direction along Old London Rd. Rounded a left and corner, clipped the bank on the outside corner, nearside to vehicle 1. Vehicle 1 then lost control, travelled up the bank and came to rest in the bushes.

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## 4. Current Traffic Speeds

- 4.1. The TA (Appendix) reported traffic speeds at a number of locations along Star Hill Road and showed that generally the existing average speeds were consistent with the proposed 40 mph speed limit. More recently (between 25<sup>th</sup> September – 2<sup>nd</sup> October 2018) a further speed check was undertaken through an automatic traffic counter located approximately 450 metres to the north of the site access. This location is where traffic speeds would likely be at their highest since the location is on the long straight section of road but sufficiently far from the northern bend and 30 mph village speed limit not to be constrained by those factors.
- 4.2. Table 2 provides a summary of the average and 85<sup>th</sup> percentile speed recordings from these various surveys. As can be seen, the more recent surveys are consistent with the earlier surveys and do not suggest that there would be a compliance problem should a 40 mph speed limit be provided.

*Table 2: Recorded Speeds Along Star Hill Road*

Location and Description	Direction	Mean Speed (mph)	85th Percentile Speed (mph)
<b>2018 Traffic Surveys</b>			
Star Hill - 450m North of Site Access	Northbound	41.1	47.5
	Southbound	38.0	43.6
<b>2014 Traffic Surveys (As Part of 2015 OPA)</b>			
Star Hill - 100m North of Site Access	Northbound	39.7	45.9
	Southbound	40.8	47.2
Star Hill - Between Site Access and the Cottages	Northbound	33.9	39.6
	Southbound	36	41.2
Star Hill - South of the Cottages	Northbound	38.6	43.6
	Southbound	36.1	41.8

## 5. Summary and Conclusions

- 5.1. The accident data suggests that there is a continuing pattern of accidents at the two bends along Star Hill Road and that speed is a contributing factor.
- 5.2. The proposed speed limit is consistent with the recorded speeds along the entire section of Star Hill Road and do not suggests that there would be a compliance problem. It is also noted that the 40 mph speed area would abut an existing 30 mph area and would not involve an isolated 40 mph within a rural area. It would therefore provide a logical progression.
- 5.3. It is not clear what evidence there is to support the contention that the provision of 40 mph repeater signs would encourage drivers to drive up to the new speed limit. However, it is considered that the provision of VAS signs at the bend, would help to counter any such a tendency.
- 5.4. The fact that there are accidents at these bends suggests that the provision of such signs would not conflict with DfT guidance. Alternatively, static warning signs and/or chevrons could be incorporated as an alternative.
- 5.5. Geoff Binham's report notes that there is no evidence of Star Hill Road being used by vulnerable road users. However, it has been noted, based on comments made by residents and others and through site visits, that there is considerable use of Star Hill Road by cyclists, particularly at weekends.

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### Appendix A – Star Hill Road Improvement Measures (Appendix From 2015 OPA)

**Appendix F    Technical Note 003 (Star Hill Road)**

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**Job Name:** Fort Halstead  
**Job No:** 26582  
**Note number:** 003  
**Date:** 26 November 2014  
**Prepared By:** Robert Parker and Charlie Rudd  
**Subject:** **Star Hill Road Impact Review**

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This technical note provides a review of traffic conditions along Star Hill Road including traffic flows, speeds and the safety record of the road. It also looks at the potential impact of the proposed Fort Halstead development on the road. It has been undertaken in part in response to concerns raised about safety by residents at the recent Fort Halstead public consultation event.

Currently daily traffic flows on Star Hill Road are in the order of 3,000 vehicles per day (average weekday) with peak flows of around 315 vehicles during the morning peak and 272 during the evening peak. The review of the impact of the existing Fort Halstead development upon Star Hill Road has concluded that this is limited to the morning and evening peak periods and is very largely restricted to the section of Star Hill Road between the A224 and the site access. The impact to the north of the site access is negligible. The most recent survey undertaken by DSTL indicates that approximately 45 vehicles used the Star Hill access during the morning peak hour and 75 during the evening peak hour with almost all traffic travelling to or from the A224.

Star Hill Road is subject to the national speed limit (60 mph). It is a narrow road, unlit rural lane with a width of approximately 5.0 metres and has a steep gradient of up to 10% rising up from the A224 towards the site access. There are sharp bends to the south of the site and also to the north at the junction with Birchwood Avenue just before the road enters the village of Knockholt Pound.

There is very limited frontage activity along the road. A small number of cottages front the road to the south of the site at the sharp bend (Photo 1). Whilst some of the cottages have off-street parking others share a small plot of land just to the north of the cottages where there is parking available to accommodate up to 4 cars. There is also a bus stop for the 402 bus service at this location. There is a narrow footway (which is likely to be private) along the frontage of these cottages.



Photo 1: Informal parking and bus stop located to the north of the cottages



Photo 2: Cottages located on bend to the south of the site access

The existing site access (Photo 3) is located approximately 515 metres to the north of the cottages. The road is still rising slightly at the location and the access is on the inside of the gentle bend. Whilst the access is excessively wide, visibility for traffic exiting the site is minimal, approximately 35 metres to the south and 75 metres to the north. This compares with the DMRB requirements for a road subject to the 60 mph National speed limit of 240 metres. Concealed entrance signs are displayed on Star Hill Road to warn approaching drivers regarding the junction and a mirror has been installed opposite the junction to allow drivers exiting the junction to view approaching vehicles.



Photo 3: Existing Site Access Junction

Traffic speed surveys were undertaken in October 2014 at three locations along the Star Hill Road corridor, south of the cottages between the two bends (ATC 3), between the site access and the cottages (ATC 2), and approximately 100 metres to the north of the site access (ATC 1). The results of these surveys are summarised within Table 1 below and the full speed data provided within Appendix A. These show that the mean speeds recorded are all around or below 40 mph and that, with the exception of the ATC 3 site all 85<sup>th</sup> percentile values are around 40

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mph. The ATC 3 site reflects the highest speeds on Star Hill Road since it was located mid-way along the straight road between Birchwood Terrace and the site access. Therefore, the recorded 85<sup>th</sup> percentile speeds are slightly higher, 46 mph northbound and 47 mph southbound.

Based upon the observed 85<sup>th</sup> percentile speeds and the manual for Streets methodology the minimum visibility splay requirements at the Fort Halstead access onto Star Hill Road would be 85 metres to the north and 65 metres to the south.

Table 1: Recorded mean and 85<sup>th</sup> percentile speeds along Star Hill Road

Location	Direction	Mean speed (mph)	85 <sup>th</sup> percentile speed (mph)
ATC 1	Northbound	38.6	43.6
	Southbound	36.1	41.8
ATC 2	Northbound	33.9	39.6
	Southbound	36.0	41.2
ATC 3	Northbound	39.7	45.9
	Southbound	40.8	47.2



Photo 4: Faded entry treatment on entry to Knockholt Pound (south of Birchwood Lane)

Accident data for a period of almost 7 years has been analysed for the Star Hill Road corridor. During that time there have been 7 recorded injury accidents, all slight in severity between Knockholt Pound Village and the A224 (excluding accidents at the A224 junction itself).

The locations of the accidents are shown on Figure 1 and descriptions provided within Table 2. This shows that whilst the overall accident rate is not particularly high that the accidents have been located at two points, the bend close to the cottages, where 5 accidents have occurred and the bend close to Birchwood Avenue where 2 accidents have occurred. Two of the accidents involved a cyclist and for at least two of the accidents excessive speed appears to have been a factor.

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There have been no recorded accidents within the vicinity of the Fort Halstead access.



Figure 1: Accident location

Table 2: Description of recorded injury accidents on Star Hill Road

Date of accident	Description of accident
27/02/2009	D1 was travelling towards Halstead on the Star Hill Road and hit a cyclist travelling in the same direction on the same side of the road. D1 hit the cyclist with the nearside wing mirror. Bright sunlight obscured driver's vision. The effect of the sunlight was made worse due to the steep uphill gradient on Star Hill Road. D1 did not even see the cyclist.
23/04/2012	Veh 1 heading down Star Hill Road towards Dunton Green. As came round the bend D1 lost control and went across the road and entered the field. This has damaged the fence in the field. Veh 1 has stopped a short distance into the field.
14/03/2012	V1 was travelling along Star Hill Road toward Knockholt came out of national speed limit, road enters near side bend after changing to 30 speed limit. D1 lost control of V1 causing V1 to hit telegraph pole (marker DP 353).
28/02/2012	Vehicle 1 was travelling downhill (south east direction) along Star Hill Road, approaching a L/hand bend driver lost control, clipped nearside grass bank, span and rolled onto its side. Road surface was greasy at location.
11/07/2012	Veh 1 has been travelling down Star Hill Road in the direction of Dunton Green following 2 other unknown vehicles. On a left hand bend, a car has come round the bend towards Veh 1 with bright lights and caused driver to pull steering to the left. This has caused the front end to lose control and hit the N/S bank and the vehicle to roll.
19/01/2014	Vehicle 2 was travelling north on Star Hill Road. A vehicle in front of Vehicle 2, travelling in the same direction came to a halt. Vehicle 2 then came to a halt. Vehicle 2 was then struck by Vehicle 1 from behind resulting in injury and damage.
06/08/2014	Cyclist travelling along Star Hill Road direction of Birchwood Lane, as the cyclist was cycling down the hill hit a man hole cover, lost control and fell off bike. Bike continued down the road and hit oncoming vehicle.

An analysis of the likely traffic impact of the Fort Halstead development (see separate Technical Note on journey times) suggests that on a worst case basis the development (450 residential units, an 80 bedroom hotel and extra jobs to reach a total of 1,483 workers on site) could add



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around 63 additional trips onto Star Hill Road (as compared with traffic levels observed in June 2014) during the morning peak hour and 92 during the evening peak hour.

In terms of average weekday traffic (AAWT), for both future locations (north and south of the site access along Star Hill Road) the proportion of peaks to weekday average from the ATC north of the site (which accounts mostly for residential traffic) has been used, because in the future all traffic using the Star Hill access to Fort Halstead would be from the residential development, since trips to/from the commercial and hotel developments will use the other access.

Table 3 summarises the likely net impacts.

Table 3: Development impacts on Star Hill Road

Period	North of site access		South of site access	
	Existing	Future	Existing	Future
AM peak	305	327	315	339
PM peak	268	294	272	292
Average weekday	3256	3529	3336	3586

Whilst the impacts are quite modest, particularly to the north of the site access, the impacts on conditions at the cottages could be considered to be material and require some mitigation. Possible improvements have been identified within Figure 2 and include the following:

- Provision of a 40 mph speed limit between Knockholt village (existing 30 mph zone) and south of the cottages. The outcome of the speed measurements together with the evidence of some speed related accidents at the corner by the cottages indicates that this could be justified.
- Improvements to the operation of the site access junction, to include improved visibility splays, shell grip on the approaches and low level lighting. These improvements have been requested by KCC;
- Potential improvement of the footway width outside the cottages. Whilst there is limited scope to narrow the road on the corner there maybe scope to widen slightly within existing highway limits on the west side in order to ease a short section of road across. This could allow a modest widening of the existing narrow footway. The feasibility of such an option would need to be checked through more detailed feasibility studies. It could also be compromised by ownerships.
- Remove the central carriageway lane markings and replace with carriageway edge markings. This would be consistent with the approach adopted elsewhere by KCC on roads of similar status and traffic flow and is considered to help reduce traffic speeds.
- In order to justify a revision to the existing speed limit some further measures would need to be considered. In the absence of street lighting options are quite limited but could include provision on a new gateway entry treatment on entry to the 40 mph zone from the south. This could include the provision of flashing warning lights to detect speeding cars.



Figure 2: Proposed scheme

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### Appendix B – Email from Geoff Bineham of KCC Local Schemes Team

**Robert Parker**

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**Subject:** RE: Fort Halstead - Star Hill Road Traffic Calming and speed limit

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**From:** Bineham, Geoffrey - GT HTW <[Geoffrey.Bineham@kent.gov.uk](mailto:Geoffrey.Bineham@kent.gov.uk)>  
**Sent:** 25 February 2019 14:17  
**To:** Rowlands, Louise - GT HTW <[Louise.Rowlands@kent.gov.uk](mailto:Louise.Rowlands@kent.gov.uk)>  
**Subject:** Re: Fort Halstead - Star Hill Road Traffic Calming and speed limit

Hello Louise,

Please see my comments below:

### Road geometry and environment

Star Hill Road is a two lane single carriageway road in a rural area, properties on this road are sparse and mainly concentrated close to the bend south of Star Hill Wood. The cottages are set back slightly from the road with a short section of footway serving the cottages, there are no other footways on this road and no street lighting is present. The road has predominantly a through traffic function, with bends but it is in the main straight with few junctions or accesses, during site visits to this area there was no evidence of vulnerable road users.

### Traffic Speeds

The vast majority of the rural road network is subject to the national speed limit of 60 mph on single carriageway roads. On many of these roads, the majority of drivers are travelling below, sometimes significantly below, the speed limit because of the characteristics of the roads. This is especially evident where the geometric characteristics include narrow sections, some bends, junctions and accesses. The traffic count data provided shows mean speeds of between 33.9mph and 40.8mph.

### 3-year Collision History

Star Hill Road has a good safety record as there has been no injury collisions along this section of national speed limit within the last three years.

### Proposed VAS

There are no collisions on Star Hill Road, therefore the site does not meet the application criteria set out by the DfT for vehicle activated signs.

### Secondary access

I appreciate that the current access to Fort Halstead may have more turning movements on to Star Hill Road as a result of the new development, however, the removal of vegetation as shown in the drawings provided should improve visibility splays and safety may be improved further by the addition of junction warning signs on Star Hill Road.

### Additional comments

Taking these facts into consideration, the current 60mph speed limit is appropriate for this section of road and complies with the current Department for Transport guidance for setting local speed limits.

My main concern is, currently the speed limit is national and therefore is only signed at the terminal points with no repeaters. This means that the majority of drivers drive appropriately to the road conditions, in other words, they drive to what they can see ahead of them. If the speed limit were to be reduced to 40mph, repeater signs would need to be installed as a reminder to drivers of the posted speed limit, we have previous experience where this has occurred and has resulted in a collision problem at bends, with drivers perception being that 40mph is a safe speed to travel along the road despite there being hazards. Reducing the speed limit to 40mph does not necessarily mean that there will be a reduction in traffic speeds. During a recent site visit observed driven speeds in the northern section between Fort Halstead and Knockholt were around 50mph, therefore reducing the speed limit may lead to a compliance issue in some areas.

From the above analysis, I do not feel that we would be looking to reduce the speed limit along this section of road to 40mph and any application received for a related TRO from a third party for this section of road may be unsuccessful.

If you have any queries with my comments please contact me.

Kind regards

Geoff

**Geoff Bineham** | Schemes Project Manager | Highways, Transportation and Waste  
Kent County Council | Ashford Highway Depot | Javelin Way | Ashford | TN24 8AD

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