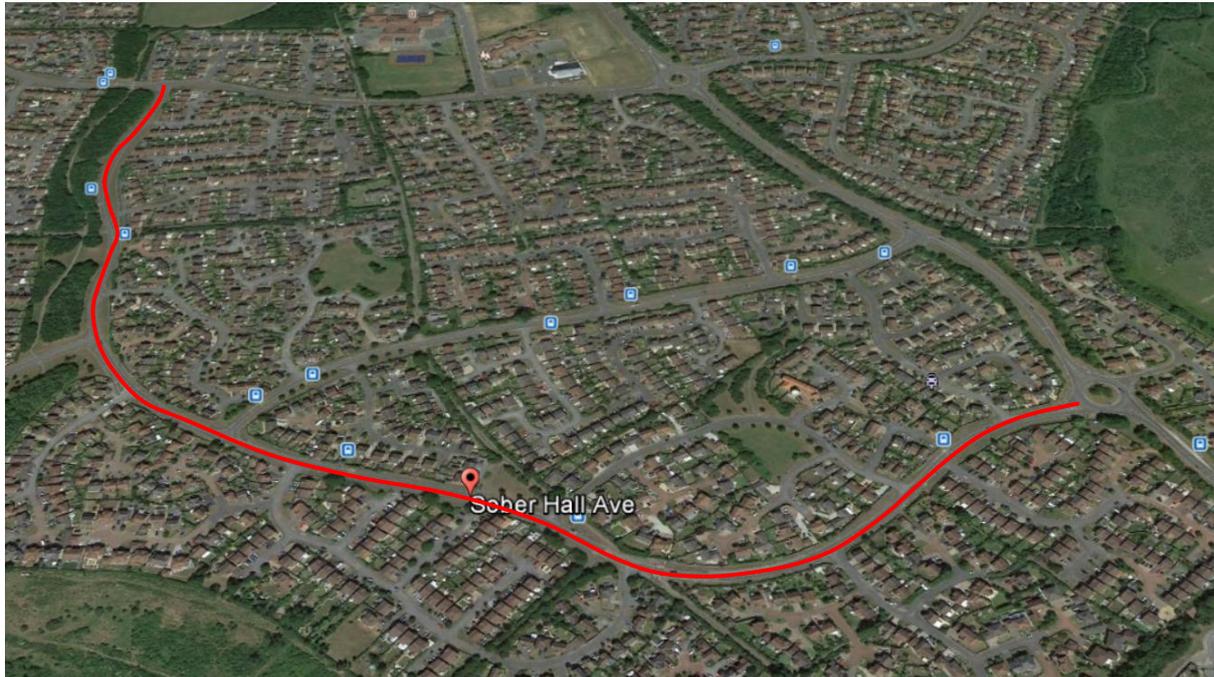


SOBER HALL AVENUE, INGLEBY BARWICK

Issue raised: Speed related concerns

Request: Investigation into possible speed management measures on Sober Hall Avenue.



Existing situation

Sober Hall Avenue is a winding road of approximately 1.4km in length that runs east to west/north to south between Barwick Way and Blair Avenue. It is one of the main feeder roads for the Sober Hall Estate and is part of a local bus route serving the area. No properties front Sober Hall Avenue, grass verges and footways are provided on both sides of the carriageway. The road is subject to a 30mph speed limit by virtue of the presence of a system of street lighting.

Sober Hall Avenue approximate width ranges between 6.8m and 7.2m. centre line hatching is provided for its full length.

There is an existing pedestrian/cycle puffin crossing located on the bend to the east of Challacombe Crescent.

Sober Hall Avenue is an active Police speed enforcement site which is targeted on a rotational basis.

Speed Surveys

An automatic speed survey was carried out on Sober Hall Avenue at 2 locations over 7 day periods to establish prevailing vehicle speeds. The surveys were carried out in January 2018 and March 2019.

Sober Hall Avenue	Direction	Average Speed mph	85%ile mph
Near western junction with Challacombe Crescent	Eastbound	28.2	33
	Westbound	32.7	38.1
North of Langleeford Way	Northbound	26	32.8
	Southbound	30.6	36.1

Speeds survey results indicate average speeds are below police enforcement levels. However, DfT guidance for setting local speed limits suggests that where there is a large discrepancy between the average speed and 85%ile it usually indicates that drivers have difficulty in deciding the appropriate speed for the road and it may be necessary to consider additional measures to bring the speeds in line with the residential environment.

Accidents

There have been 2 recorded pedestrian injury accidents on Sober Hall Avenue within the last 3 years.

Accident 1, slight injury - pedestrian aged between 81 - 85, east of Barwick Way junction.
Accident 2, serious injury - pedestrian aged between 11 - 15, north of Round Hill Avenue.

Discussion

A number of traffic calming options have been considered as detailed below:

Speed Indication Device

Speed Indicator Devices (SIDs) are a variation of standard vehicle activated signs which can be moved around easily. They flash the current speed limit (e.g. 30, 40), if a vehicle approaches which is exceeding this speed. Drivers are often unaware of the speed they are actually travelling at, a SID could help to break the habit of drivers who consistently use excessive speed and encourage them to slow down. A SID is generally used for 2 weeks at any one location, to prevent drivers from becoming complacent, however, it can remain in one location.

As well as showing information, the signs also store vehicle speed and flow data, which can then be downloaded. The data is not used for enforcement but can be used to inform the police of a particular site which has a high speed record. The data also allows dates and times of the speeding to be forwarded to the police so that it can assist/target their limited resources.

Advantages:

- Can be relocated to various sites
- Appear to be well received by residents particularly in the vicinity of schools, shops etc
- Provides flexibility to respond to complaints regarding perceived speeding problems in residential areas.
- Can be used to request and target police enforcement resources
- On average, can reduce speeds by approximately 1mph

Disadvantages:

- Do not by themselves 'inform' motorists if they are complying with the law
- Do not relate to a particular hazard i.e. bend in road
- Displays information that is already available to the motorist via the speedometer.
- Motorists can become accustomed to the impact of the sign if used too often
- Operating costs can be high (recharging batteries and relocating fortnightly)
- Batteries can sometimes be unreliable

The estimated cost of a SID is approximately £3,200

Vehicle Activated Sign

A Vehicle Activated Signs (VAS), is a permanent road side 'LED' sign that displays a message when approached by a driver exceeding the speed limit or going too fast for the type of road, especially when there is a hazard, e.g. a bend or a crossroads or at an

entrance to a village. They require a relatively straight section of road and can be mains supplied or Solar/ wind powered, depending on the circumstances.

A VAS is normally used to encourage a driver to reduce speed by displaying the speed limit, a message 'Slow Down' and can have 'wig wag' flashing amber lights. A VAS generally does not record vehicle speeds and volumes; they are erected at fixed sites, with a history of speeding or complaints of speeding and can be an effective way of tackling speed problems, and collisions caused by inappropriate speed. This reduces the need for other measures such as speed cushions, humps and tables. They can also help to reassure concerned residents.

Advantages

- Reminds drivers of the actual posted speed limit
- Low operating costs
- Well received by and reassures residents

Disadvantages

- Permanent site and can be visually intrusive in a rural village setting
- Relatively expensive for single site
- Long term maintenance/replacement issues can arise
- Drivers can become complacent due to permanent presence

The provision of a SID or VAS to encourage drivers to reduce westbound speed be located on the straighter section of Sober Hall Avenue between the eastern and western Challacombe Crescent junctions. This section has shown to have the highest 85%ile speeds.

The estimated cost of a VAS is approximately £4,500.

Pedestrian refuge island

A pedestrian refuge is a raised section of pavement between two lanes of traffic moving in opposite directions. The Islands normally have yellow and white plastic bollards with a blue arrow to remind motorists to keep left. Refuge Islands allow pedestrians to stop in the centre of the road, so they can split the crossing into two stages for each direction of traffic.

Pedestrian refuges are very effective at increasing safety for pedestrians crossing the road. On a road where pedestrians often cross without a crossing facility, a refuge will decrease pedestrian accidents by around 40%. The refuge provides some protection from traffic in the centre of the road, while the pedestrian waits for a safe gap in the second direction of traffic. Without a refuge, the pedestrian needs to judge a safe gap between both directions of traffic at the same time - this is more difficult and may increase risk.

Refuge islands must be a minimum of 1.2 metres wide, however 1.8 metre wide islands will be more useful to accommodate pushchairs and wheelchairs more easily. To accommodate cyclists, the island must be 2.5 metres wide. The width of the refuge island will also depend on the available carriageway width and it likely that carriageway widening would be required to accommodate a pedestrian refuge on Sober Hall Avenue.

Advantages:

- Allows pedestrians to cross more easily than if there was no crossing
- May help to cross the road more quickly, as a gap is only required in one direction of traffic
- Pedestrian refuges narrow the road, which may reduce the speed of vehicles

- Discourages overtaking manoeuvres

Disadvantages:

- There is no pedestrian priority. Motor vehicles have priority
- Visually impaired people, or those with other disabilities may find refuge island less easy to use compared with a zebra or puffin crossing
- Some motor vehicle drivers may squeeze past cyclists when they travel through a refuge island or swerve dangerously around the cyclist just before the crossing island. Cyclists can feel very uncomfortable with this behaviour
- It is likely that road widening would be necessary

The provision of a pedestrian refuge at the pedestrian crossing point to the north of Round Hill Avenue would reduce the carriageway width and potentially reduce speeds and increase pedestrian safety on this section of Sober Hall Avenue. Carriageway widening would be required to achieve the necessary width to accommodate a pedestrian refuge.



Costs to provide a pedestrian refuge is dependent on the width of the island and the carriageway widening required and is estimated to be in the region of approximately £5,000 - £15,000. Further detailed investigation would be required for a more accurate estimate and to establish its viability should this be a preferred option.

Traffic Calming

Traffic calming is a useful way of controlling drivers' speeds where speeds are either excessive and/or inappropriate for the type and use made of a road. Justification for installing traffic calming is often based on improving safety by reducing accidents. Whilst the number of accidents on residential roads is often relatively low, and usually scattered over a wide area with highly variable annual accident rates, the use of traffic calming enables an area-wide approach to be adopted to address such isolated incidents.

Changes in speed have been shown to bring about changes in injury accidents. Guidance shows that a 5% reduction in injury accidents can be expected to result from a 1 mph reduction in mean speed

Guidance on traffic calming measures suggest that in order to keep speeds down measures should not be located more than 100-150 metres apart. A spacing between features of 50m to 150m allows the designer to fit them into the streetscape, but 75m is considered to be the optimum spacing to avoid drivers adopting an aggressive style of driving, with heavy braking and acceleration between cushions.

Vertical deflections on bus routes should either be long flat topped humps (raised tables) or 1700mm wide speed cushions. Any physical measure should include a cycle bypass.

Speed Cushions

Speed cushions are designed to be slightly wider than a car, so car drivers need to slow down and drive over the centre of the speed cushion to reduce discomfort. Buses are wider than cars, so they can drive over speed cushions without passengers feeling discomfort. In Stockton Borough, speed cushions are normally 1.7m wide on bus routes.

Advantages

- Buses don't need to slow down
- More effective than horizontal treatments at reducing speed
- Can be avoided by cyclists
- Drainage should not be affected
- Emergency vehicles can travel drive more quickly over cushions than speed humps or tables

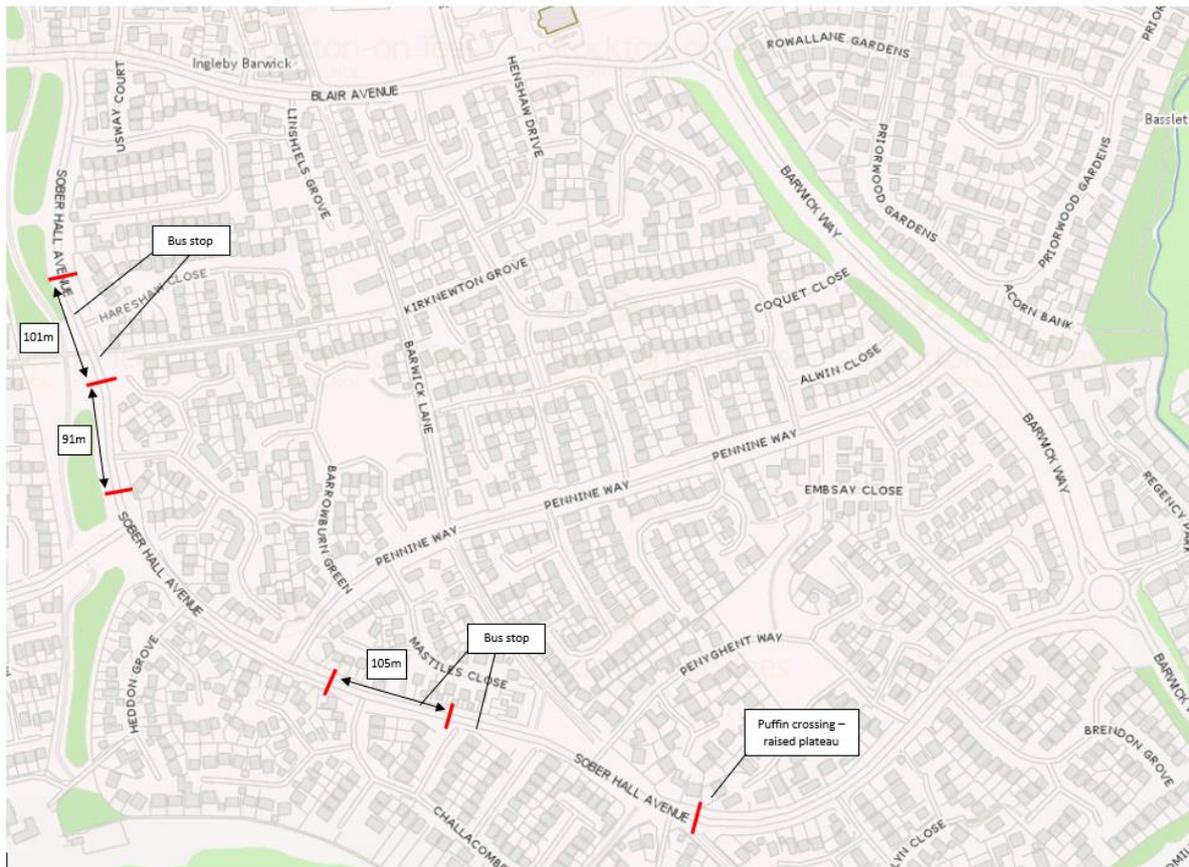
Disadvantages

- Cars drive considerably faster over speed cushions than speed humps or speed tables
- Bus companies and emergency services may oppose wider speed cushions (e.g. 1.7m wide) which are proven to be more effective at slowing down cars
- Some traffic is likely to transfer onto alternative routes, potentially causing a problem somewhere else
- Speed cushions could create noise and vibration which is heard and felt in residences nearby. A greater distance between speed cushions and residences would reduce this problem.

Vertical treatments - such as speed cushions - are generally expected to reduce accidents by around 44%. Generally, vertical treatments - such as speed cushions or speed tables - are more effective at reducing speeds.

On the straighter section of Sober Hall Avenue, near to the western junction of Challacombe Crescent, speed survey data shows that the average speeds are in line with the 30mph speed limit and are appropriate for the surrounding environment. However, for vehicles travelling westbound the survey results show that the 85%ile speed (38.1mph) is above police enforcement levels.

On the winding section north of Sober Hall Avenue between Round Hill Avenue and Blair Avenue the speed survey results show that average speeds north of Langleeford Way are in line with the 30mph speed limit and are appropriate for the surrounding environment. However, for vehicles travelling southbound the 85%ile speed (36.1mph) is above police enforcement levels.



The provision of a series of speed cushions is a viable option on the sections of Sober Hall Avenue that have shown to have higher 85%ile speeds - 3 sets to the north of Round Hill Avenue and 2 sets near Challacombe Crescent. A draft traffic calming design is shown above.

To accommodate the provision of speed cushions the carriageway width would be required to be narrowed to 6.7 meters. The provision of speed cushions would have the desired effect of reducing traffic speed and be suitable for buses and larger vehicles.

As no residential properties front Sober Hall Avenue a resident consultation exercise is not necessary, however it may be worth considering to gauge the support/objection of residents.

For raised traffic calming features such as speed cushions a legal Notice is required and would be subject to a statutory 21 day objection period, estimated costs approximately £1,000. Costs for one set of speed cushions is approximately £8,000 (including reduction of carriageway width).

Pedestrian/Cycle Puffin Crossing

Speed tables (table top) are a raised section of road, with a ramp on both sides. The ramps are painted with white arrows to make them more obvious to motor vehicle drivers. The aim of the speed table is to slow motor vehicle traffic to a safe speed, as the ramps become uncomfortable for vehicle drivers if they are driven over too fast. A speed table is normally around 75mm high and can vary in length. Table tops are often used as part of a controlled crossing point for pedestrians.



Located on a bend to the east of Challacombe Crescent, the provision of a raised table top at the pedestrian/cycle puffin crossing and the inclusion of an advisory 20mph speed limit would have the effect of slowing traffic on this section of Sober Hall Avenue.

Advantages:

- Attempts to reduce vehicle speeds at the same point where pedestrians are crossing the road
- Crossing pedestrians become more visible to vehicle drivers
- Safer and easier for pedestrians with disabilities

Disadvantages:

- Short humped crossings can cause discomfort for bus passengers
- Managing water drainage could be complex and costly
- Buses, cyclists and emergency vehicles will need to reduce their speed for a humped crossing

For raised traffic calming features such as a raised table top a legal Notice is required and would be subject to a statutory 21 day objection period, estimated costs approximately £1,000. Estimated costs for a raised table top is approximately £15,000.

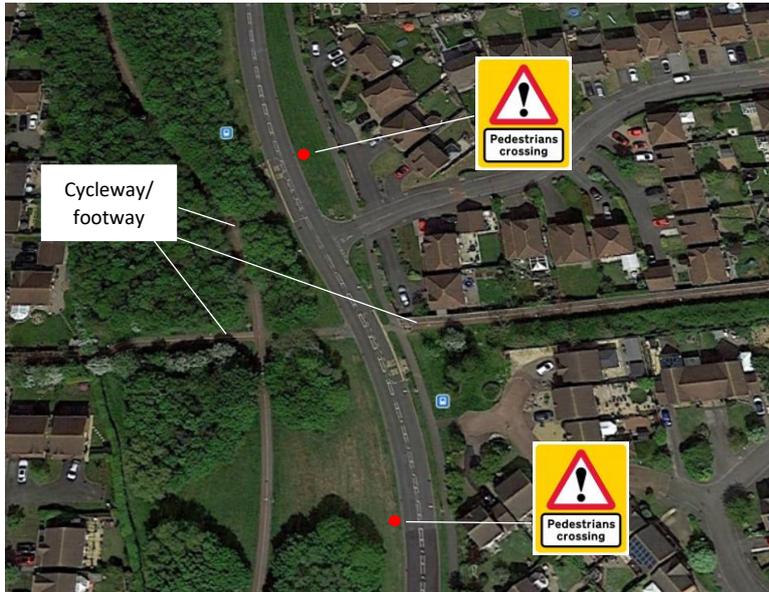
Signing / Lining

Sober Hall Avenue has existing centre line hatching covering its full length to visually narrow the road width. The 85%ile speed north of Langleeford Way is 36.1mph, signing and SLOW road markings to warn drivers of the pedestrian / cycle crossing point which links the cycleway/footway to the east and west of Sober Hall Avenue could have the desired effect of reducing speed at this location. For vehicles travelling south the visibility of pedestrians and cyclists exiting the combined cycleway/footpath from the eastern side is obscured by a garden wall, the provision of warning signs will alert drivers of a potential hazard and increase pedestrian safety.

Cost to provide 2 x warning signs and 2 x SLOW road markings would be in the region of approximately £900.

Further consideration could also be given to a 6m raised table top at this pedestrian/cyclist crossing point. This would have the desired effect of reducing traffic speed on the northern section of Sober Hall Avenue and increase pedestrian safety. However, this would conflict with the existing low floor bus stop which would need to be relocated further south.

Cost to provide a raised table top and associated signing and lining would be in the region of approximately £15,000. A legal Notice would be required and would be subject to a 21 day objection period, at a cost of approximately £1,000.



Conclusions

The high 85%ile speeds in two directions indicate that there is a need for calming measures to be introduced and a number of options have been considered.

Option 1

The introduction of speed cushions would have the desired effect of reducing traffic speeds. However, speed cushions are not always a popular option with residents and this option is likely to receive objections from residents during the legal process (statutory 21 day objection period). The estimated cost for 5 sets of speed cushions, including carriageway narrowing, legal process and associated signing and lining would be in the region of approximately £37,000. Given the high costs involved consideration could be given to implementing the scheme in phases i.e. Phase 1; 2 x pairs of speed cushions near Challacombe Crescent and Phase 2; 3 x pairs of speed cushions north of Round Hill Avenue.

Option 2

The provision of a raised table top at the Puffin/Cycle crossing and an advisory 20mph speed limit would have a calming effect over this section of Sober Hall Avenue and improve safety for pedestrians and cyclists. The estimated cost for a raised table top and associated signing and lining would be approximately £15,000.

Option 3

The introduction of a VAS showing 30mph and SLOW DOWN message or a SID would potentially have the desired effect of reducing traffic speeds in the mid-section of Sober Hall Avenue where the 85%ile speeds are at their highest. The estimated cost of a VAS is approximately £4,500 and a SID £3,200.

Option 4

A VAS or SID could be provided in combination with a raised table top at the pedestrian/cycle crossing facility to further reduce speeds on the western / mid-section of Sober Hall Avenue. Total cost would be approximately £18,200 - £19,500.

Option 5

The provision of a pedestrian refuge north of Round Hill Avenue would increase pedestrian safety and potentially reduce speeds. Further detailed investigation would be required to determine the viability of a refuge.

Option 6

Pedestrian warning signs and SLOW carriageway markings at the uncontrolled pedestrian and cyclist crossing point is a less costly option and could be implemented relatively quickly. Approximate costs £900.

Option 7

The additional option to provide a raised table top at the uncontrolled pedestrian and cyclist crossing point would further reduce speeds and increase safety on the northern section of Sober Hall Avenue. However, this would require the existing low floor bus stop to be relocated which would incur additional costs.

Whilst all of the above are potentially viable options, costs vary significantly. Consideration could be given to combining the lower cost options to see if they are successful in reducing speed before a costlier option is considered.

Recommendations

Options 3 or 4 to address concerns at the western/central area and option 6 for the northern section of Sober Hall Avenue.