SURREY
COUNTY COUNCIL

A245 Stoke Road, Cobham
Tilt Road (Western Arm) to Blundel Lane
Reduction in speed limit to 30mph

Feasibility Report

September 2013

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Prepared By: Print Andy Curtis

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Authorised By: Print Michelle Armstrong

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1. INTRODUCTION:

A petition was submitted to the September 2009 meeting of the Elmbridge Local Committee, concerning the existing 40mph speed limit along the A245 Stoke Road.

The proposal to reduce the speed limit to 30mph was not accordance with the County Speed Limit Policy and did not have the support of the Police, who were concerned at the enforcement burden such a limit would generate. It was therefore recommended that the speed limit remain at 40mph.

However the decision was referred to the Cabinet Member for Transport for consideration.

Following the Cabinet Member decision, on 13 December 2012, not to endorse a reduction in speed limit to 30mph, Elmbridge Local Committee has allocated funds to investigate what measures would be required to enable a 30mph speed limit to be introduced.

This report looks at the various engineering measures available to appropriately affect vehicle speeds, so that, as far as possible, a 30mph speed limit may be self-enforcing.

Stoke Road, Cobham is an 'A'-classified semi-rural, two-way single carriageway road, approximately 2.4 km in length and averaging 7.0 metres in width. It forms part of the A245, which runs from Leatherhead to Horsell Common, Woking, and is part of Surrey County Council's Priority Route Network 1. As a County Distributor road, it sits within Tier 1 of Surrey County Council's Speed Management policy.

The road is subject to a 40mph speed limit and has a continuous system of street lighting. A footway runs on both sides for the majority of the length under investigation.

The residential properties that bound Stoke Road are generally set back from the carriageway, and have off-street parking.

Stoke Road is a bus route and there are no designated cycle facilities.

The existing road surface and signing is in generally good condition.

There are existing pedestrian crossing facilities at the following locations:
Pedestrian refuge near junction with Ravenswood Close
Pedestrian refuge near junction with Fairmile Lane
Pedestrian refuge near junction with Station Road
Signal-controlled crossing near junction with Vincent Road

2. ANALYSIS:

A full automatic traffic speed and volume survey was carried out at two separate locations (west of Fairmile Lane, and south west of Vincent Road) for 24 hours per day from 10th to 17th February 2011.

Shown in the table below are the 85%ile and mean speeds. The 85%ile is a numerical average used by Highways Engineers to assess vehicle speeds. It is effectively the maximum speed at which 85% of drivers will travel.

Automatic Traffic Counter (mph)	Westbound 85%ile	Eastbound 85%ile	Westbound mean	Eastbound mean	Eastbound daily flow	Westbound daily flow
Fairmile Lane	39	40	34	34	7413	6935
Vincent Road	36	37	31	32	8074	8640

2011 Speed Data

The data obtained from the first device (Fairmile Lane) showed that the westbound 85%ile speed of traffic travelling along the road was 39mph, with a 7-day average daily westbound flow of 6935 vehicles. The mean speed was 34mph.
The eastbound 85%ile speed of traffic travelling along the road was found to be 40mph, with a 7day average daily eastbound flow of 7413 vehicles. The mean speed was 34mph.
The data obtained by the second device (Vincent Road) showed that the westbound 85%ile speed of traffic travelling along the road was 36mph, with a 7-day average daily westbound flow of 8640 vehicles. The mean speed was 31mph.
Similarly the eastbound 85%ile speed of traffic travelling along the road was found to be 37mph, with a 7-day average daily eastbound flow of 8074 vehicles. The mean speed was 32mph.
More recently a radar gun survey of daytime, off-peak, free-flowing traffic was undertaken on 6 August 2013, using the same locations as the 2011 survey.
The results are shown in the following table:

Automatic Traffic Counter (mph)	Westbound 85%ile	Eastbound 85%ile	Westbound mean	Eastbound mean
Fairmile Lane	38	39	34	35
Vincent Road	34	34	31	31

2013 Data

In the last three years there has been a total of 7 personal injury collisions on Stoke Road,

between the junctions of Tilt Road (west) and Blundel Lane.
These are summarised in the table below:

Location/near to	Collisions	Date	Nature
Tilt Road (west)	1	15/11/2012	Serious
Ravenswood Close	2	30/03/2010 20/06/2010	Slight (Speed-related) Slight
Oak Road	1	19/07/2011	Slight
Oxshott Way	1	04/11/2010	Slight
Fairmile Lane	1	16/03/2012	Slight
Station Road	1	07/08/2012	Slight

As shown, Surrey Police determined that speed was a contributory factor in only one of these collisions.
Three of the above collisions involved vehicles hitting the rear of queuing traffic.
The total personal injury collisions per year are:

Year	No. of collisions
2010	3
2011	1
2012	3
2013	0

3. OPTIONS AND DISCUSSION:

Option 1 - Speed cushions - (See Drg No. PC0246-001)
In accordance with current advice a longitudinal spacing of 80 metres between cushions has been used.

Given that this road is a bus route, standard practice is to use cushions of a width that can be straddled by such vehicles, to minimise discomfort. This also allows all wide-wheelbased vehicles to pass relatively unimpeded; therefore speed-reduction is limited to cars and the like. Two-wheeled vehicles are able to bypass these measures using the gaps between adjacent cushions.

Speed cushions are rarely used on ‘A’ class roads, where the road’s function is to carry large volumes of traffic at reasonable speed. Additionally this road is a gritting route but during times of snow, ploughs would be unable to clear fully, due to the raise profile of these measures.

Such vertical deflection is also generally unpopular with car drivers due to the wear and tear on their vehicles and is often unpopular with adjacent residents due to the noise generated.

A previous study of similar traffic calming on major roads, showed only a 2% reduction in

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personal injury collisions resulting in slight injury.

Drivers can often be more focused of their driving line through speed cushions, than on other road users or events.

Option 2 - Central islands - (See Drg No. PC0246-002)
This Option shows the introduction of additional pedestrian refuges, along with the existing pedestrian refuges near Ravenswood Close and Fairmile Lane.

Only a few locations are suitable for new central islands as their presence restricts turning movements at side roads and private vehicular accesses, when placed too close.

The central islands shown, can be constructed within the existing public highway, but would require the existing carriageway to be widened locally to accommodate. On both sides of Stoke Road there is British Telecom (BT) apparatus present. At the locations of proposed carriageway widening, BT apparatus would need to be lowered at significant cost.

Central islands are unpopular with cyclists who can get 'squeezed' by passing motorists, when lane widths are narrow. However increasing the lane width at these measures to better accommodate cyclists, negates any speed reducing effect.

An alternative would be to change the use of the adjacent footways to a shared facility between pedestrians and cyclists. That said, those cycling long distances would generally not use such a facility given the need to give way at the various side roads along the route. Similar schemes have also proven unpopular with residents, who are concerned of potential conflict when egressing their properties.

It is difficult to know what amount of speed reduction would be possible although it is known that the presence of islands do generally reduce speeds by a few miles an hour. Due to the lack of suitable sites, it would not be possible to install a significant enough number of islands to achieve a decent amount of speed reduction over the whole length of road.

Option 3 - Roundabouts - (See Drg No. PC0246-003)
This Option shows the locations at which mini-roundabouts would be suitable, based on current advice. TD 54/07 Design of Mini Roundabouts states that such measures must NOT be used at a junction where the forecast traffic flow on any arm, is below 500 vehicles per day (2-way Annual Average Daily Traffic).

Due to the staggered layout of the junction with Station Road and Blundel Lane, a double mini-roundabout would be required. However this arrangement could cause confusion to drivers and doesn't allow any vehicle bigger than a car to queue between the roundabouts. As an alternative, the plan also shows the layout of a 'standard' roundabout which would be a more appropriate option in this instance.

However, the introduction of any scheme that gave priority to the side roads would inevitably cause vehicles to queue. This would be a serious issue on the railway bridge southeast of Blundel Lane, where forward visibility is poor, and would no doubt result in shunt type

accidents involving westbound traffic.

Whilst reducing speed locally, the sporadic positioning of these measures would have little overall effect to control vehicle speeds.

The construction of a standard roundabout at the junction of Stoke Road and Station Road / Blundel Lane would involve the acquisition of land and a significant upgrade of street lighting.

It should also be noted that any improvement to this junction, could make Blundell Lane a more desirable route for vehicles and thus may be unpopular with residents of that road.

Both roundabout options for Stoke Road j/w Blundel Lane / Station Road would result in the existing bus stop outside The Plough to be relocated.

Option 4 – Do nothing
In accordance with current County Speed Limit policy the existing speed limit of 40mph is appropriate for the type and nature of this road.

OTHER TYPES OF MEASURES CONSIDERED BUT NOT FULLY INVESTIGATED DUE TO THE INAPPROPRIATENESS OF THE SITE:

Chicanes
This type of measure requires the installation of central islands with the addition of kerb buildouts. These are generally unpopular and often give rise to vehicle strikes.

As with Option 1 these islands can only be introduced at locations where they will not unduly affect turning movements. There is insufficient room to accommodate such measures along this length of Stoke Road.

Road Tables
Tables provide better speed control, than speed cushions, for all vehicles, but they also affect emergency vehicle response times.

Tables are also more unpopular than speed cushions, due to increased noise generation and driver / passenger discomfort.

Pinch Point / Priority Give Way
Given the amount of two-way traffic on Stoke Road, such measures would cause significant congestion and create pollution due to waiting vehicles. They could also give rise to collisions between opposing flows of traffic when drivers become impatient.

4. FINANCIAL AND VALUE FOR MONEY IMPLICATIONS:

The table below shows the various Options and an estimated cost for each. Additionally the main advantages and disadvantages are also tabulated.

Unfortunately there is a lack of statistical information available, regarding the average number of personal injury collisions associated with certain engineering measures. Coupled with a

historical lack of personal injury collisions for this route, it makes any cost benefit difficult to calculate.

Please note the following costs have not been included in these estimates:
Additional street lighting
Diversions to Statutory Undertakers' apparatus
Legal and design processes

It is also assumed that all land required to construct these options is highway owned

Option	Advantages	Disadvantages	Cost
Speed Cushions	Positive speed control	Noise. Will not affect larger vehicles or motorbikes. Winter maintenance affected	£30k
Central islands	Provide more crossing points for pedestrians	Questionable effect on traffic speeds. Issue with cyclists. Requires relocation of statutory undertakers' apparatus.	£40k NB – Does not include street lighting costs or Statutory undertakers' diversion costs
Roundabouts	Physically controls vehicle speeds	Limited locations available. Possible land issues and relocation of statutory undertakers' apparatus.	£15k – Fairmile £25k – Blundel mini RAB £60k - Blundel standard RAB. NB – Does not include street lighting costs or Statutory undertakers' diversion costs
Do nothing	Supported by Police and in line with current Policy.	No effect on speed	£0

5. CONCLUSION AND RECOMMENDATION:

In summary, in order to enable a 30mph speed limit to be introduced, the Options for A245 Stoke Road are:

Speed cushions
Though they would provide positive control on speed it is difficult to assess how much of an effect such measures would have, therefore a review would be imperative. Vertical deflection is generally not recommended for 'A' classified roads. It also generates noise and causes problems for snow ploughs due to the raised profile. This is an issue, given Stoke Road's position in the road hierarchy.

Central islands

Though they would provide additional crossing locations, central islands have a limited effect on vehicle speeds whilst creating a potential issue for cyclists. Additionally statutory undertakers' apparatus would need to be diverted.

Roundabouts
Whilst providing better control of speed and movement at junctions, these measures cannot be located at regular enough intervals to have much of an effect on average speed. There is also the potential to make the side roads more desirable to rat running traffic. Statutory undertakers' apparatus would need to be diverted and additional street lighting required.

It should be noted that the introduction of any physical measures will change the dynamics of the road, and could in some instances give rise to collisions where previously there were none.

Additionally the Option to retain the 40mph speed limit is:

Do nothing
No change to the existing situation, hence no effect on speed.
It should be noted that it is in line with the Surrey speed limit policy and supported by Surrey Police.

Given the status and nature of Stoke Road and the various physical constraints of the existing road geometry, the introduction of the various measures available is problematic and the merits questionable. It is extremely unlikely that a reduction in vehicle speed would alter the road environment, such that an increase in walking and cycling would be generated, and the low number of personal injury collisions does not give an obvious cost benefit.

As such, in order of preference the Options are:

1) Do nothing
2) Central islands (with a review to see whether further measures are required)

Not suggested for progression:

3) Speed cushions
4) Roundabouts

Therefore the preferred Option is **'Do nothing'**

6. APPENDICES:

Appendix A - Drawings showing proposed options (Annexes B,C & D of Local Committee report):

Drg. No. 0246-001 – Option 1: Proposed speed cushions

Drg. No. 0246-002 – Option 2: Proposed central islands

Drg. No. 0246-003 – Option 3: Proposed roundabouts

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