

B3379 Ember Lane, Esher Speed Management and Road Safety

Feasibility Report

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1. INTRODUCTION:

A petition was presented to Elmbridge Committee in November 2018 requesting traffic calming measures to reduce the speeds on Ember Lane particularly at the junctions with Chestnut Avenue and the rear entrance to Imber Court. This report is to investigate feasible options to improve road safety, manage vehicle speeds and driver behaviour on Ember Lane. Options are to include speed reducing measures specifically as vehicles approach the two bends (Chestnut Avenue/Imber Court) and options to improve driver awareness of the approaching hazards.

2. SITE ANALYSIS:

This report will focus on the section of Ember Lane (B3379) from the junction of Embercourt Road to the junction with Grove Way. Fig 1 illustrates the study area. Ember Lane forms part of a route between Hampton Court and Esher. The road is wide (approximately 9m) with footways, some verge and fronted by residential properties. It is subject to a 30mph speed limit. This section of road has two sharp bends (see photos 1 and 2). As well as recorded incidents resulting in injury (see Section 3.2) there are anecdotal reports of damage only accidents and motorists crashing into residential walls/gardens when approaching the bends from the north.

The road is a bus route. Ember Lane has been identified for speed enforcement by Surrey Police, subject to resources and prioritisation.

The areas of the two bends in the study area of Ember Lane have been highlighted to the county council's Asset Management Team. Investigation of the road condition and any appropriate remedial action will be considered as part of the highway maintenance regime.

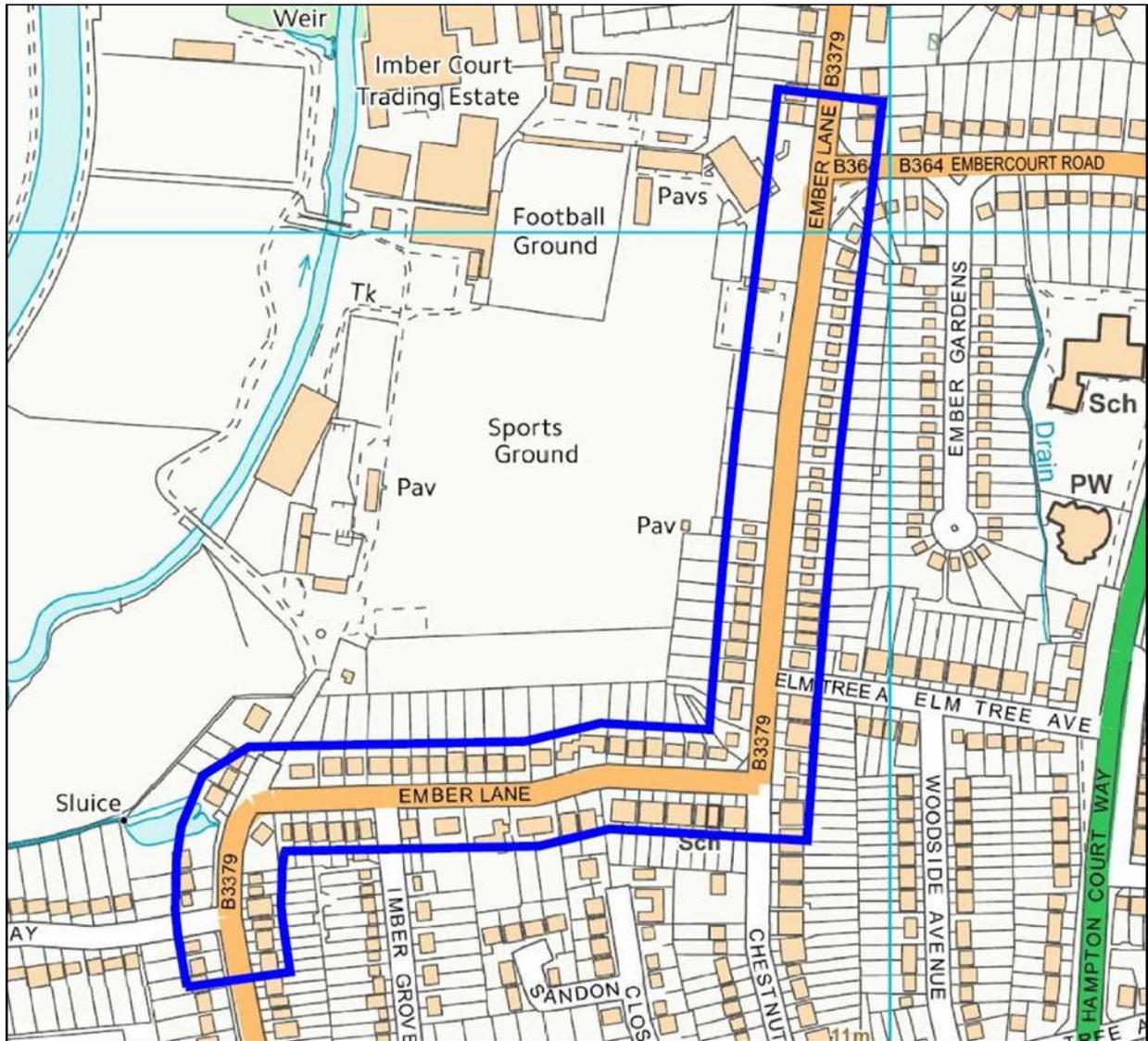


Fig 1. Location Plan



Photo 1. East bend (junction with Chestnut Avenue)



Photo 2. West bend (Imber Court entrance)

3. DATA COLLECTION:

3.1 Speed Data

Traffic surveys were undertaken for 7 days in order to establish vehicle speeds.

Two locations were surveyed from Thursday 4th July to Wednesday 10th July. Fig 2 shows the survey locations.

Site 1 – Ember Lane –North of bends (near property 140)

Site 2 – Ember Lane – Between two sharp bends (near property 72)

A third location was surveyed from from Saturday 14th September to Friday 20th September

Site 3 – Ember Lane – South of the bends (near property 59)



Fig 2. Survey Locations

Summary of traffic survey results –

Location	Direction	Number of vehicles (7 days)	Number of vehicles (daily average)	Mean speed (mph)
1	Northbound	38827	5547	30.8
1	Southbound	27576	3939	31.7
2	Eastbound	27564	3938	30.7
2	Westbound	24169	3453	31.1
3	Northbound	23093	3299	32.6
3	Southbound	23860	3409	30.9
			NB (EB) Average:	31.4
			SB (WB) Average:	31.2

The data suggests good compliance with the speed limit. It is recognised that some vehicle speeds will be higher than this.

3.2 Personal Injury Collision Data

An assessment has been made of the personal injury collisions for the study area for the last 3 full years and the part of 2019 where data is available, giving the period between 1st January 2016 and 31st March 2019. The Police and Surrey County Council do not collect or hold 'damage only' collision data, and therefore we are unable to report or comment on these.

Latest 3 year and year to date collisions (01/01/16 to 31/03/19)			
Year	Slight	Serious	Fatal
2016	2	1	0
2017	1	0	0
2018	0	0	0
2019 (Jan to Mar)	0	0	0
Total	3	1	0

When the police attend personal injury collisions they assess and log the likely contributory factors. The table below shows all the factors related to the collisions that have been recorded at this location during this assessment period. Some collisions have a number of factors attributed to them.

Collision contributory factors (01/01/16 to 31/03/19)	
Factor	Number
Aggressive driving	1
Careless/reckless/in a hurry	1
Failed to look properly	2
Poor turn or manoeuvre	2
Failed to judge other persons path or speed	2
Passing too close to cyclist/horse rider/pedestrian.	1
Road layout	1
Loss of control	1
Distraction in vehicle	1
Nervous/uncertain/panic	1

It should be noted none of the collisions had 'exceeding the speed limit' recorded as a contributory factor.

It should also be noted that three of the four collisions were recorded as being due to driver/rider error which may not have been affected by measures to improve the highway.

4. DISCUSSION AND OPTIONS:

4.1 Design and Road Safety Audit

The feasibility designs are based on Ordnance Survey mapping. Detailed design would determine the exact highway widths available via topographical surveys as necessary. This would allow for confirmation of turning movements and available highway space

An independent road safety audit has been undertaken on a number of the options where changes to the highway layout are proposed. Comments are included within the discussion of the options. Further independent safety audits would take place on any options that were to be progressed.

4.2 Option 1 – Do Nothing

This option looks at carrying out no works.

Budget Price: £0

Conclusion

Based on the recorded evidence of collisions which have resulted in personal injury, measures could not be justified in terms of casualty reduction when compared with other locations. However, there are local concerns regarding traffic speeds, driver behaviour and safety.

4.3 Option 2 – Markings and signs (see drawing PC1022-01 Option 2)

This option looks at improving existing signing and markings. Currently there is only one bend warning sign which is old and faded. This option would replace the existing sign and install additional warning signs on the other approaches to the two bends. School warning signs which are now redundant due to the closure of the school could also be removed.

The two existing Vehicle Activated Signs (VAS) between Embercourt Road and Chestnut Avenue have faults and are beyond economic repair. This option would replace the two existing signs with new VAS to show the 30mph speed limit and remind drivers to slow down.

Red backed SLOW road markings are present within in this section of road, however the red backing has become faded over time. There is currently no programme to refresh the red backing (high friction surface). The red backing could be refreshed as part of this option, however it should be noted this is likely to fade over time if not maintained.

Chevrons are in place to highlight the bend at the entrance to Imber Court but there are no chevrons in place to highlight the bend at the junction of Chestnut Avenue. Due to visibility required for vehicle accesses no large chevron signs could be positioned on this bend, smaller single chevrons could be placed at this bend.

The existing central hatching road markings in Ember Lane could be extended north to the junction with Embercourt Road to visually narrow the driving lanes.

Budget Price: £30,000

Conclusion

Recommended as a lower cost option which would further highlight the bends to drivers. This option could be scaled back to further reduce cost.

4.4 Option 3 – Traffic islands (junction with Chestnut Avenue) (see drawing PC1022-01 Option 3)

This option looks at installing two traffic islands on the bend at the junction with Chestnut Avenue. The islands would have Keep Left bollards and high level illuminated signing to highlight them to approaching drivers. The path of vehicles exiting properties near the islands has been simulated successfully, however residents of the properties may find exiting more difficult.

Budget Price: £33,000

Conclusion

It has been observed on site that some cars are driving around the corner wide using the hatched area at the centre of the road, there are also anecdotal reports of vehicle collisions at this junction. Providing islands would encourage lane discipline and could reduce the speed of vehicles navigating the bends. An approximate kerb to kerb lane width of 3.75m would be left adjacent to the islands, cyclists could be vulnerable if a motorist attempted to overtake them at this point.

The road safety audit noted that the islands could lead to difficulties for manoeuvres by large vehicles as well as access to and from properties. Detailed design, including topographical surveys, would confirm the available space for movements.

Recommended as an option to encourage lane discipline and lower speeds on the bend but would not address southbound entry speeds into Chestnut Avenue.

4.5 Option 4 – Traffic islands and build outs on the junction of Chestnut Avenue (see drawing PC1022-01 Option 4)

This option includes the traffic islands of Option 3 with additional kerb build outs on the junction of Chestnut Avenue.

Budget Price: £57,000 (including the elements of Option 3)

Conclusion

The elements of Option 3 are included as a measure to discourage drivers from taking a 'racing line' through the central hatched area in order to enter Chestnut Avenue. The addition of kerb build outs could further highlight the bend and reduce the speed of drivers. It has also been observed on site a number of drivers travelling south on Ember Lane do not slow or indicate when turning into Chestnut Avenue. The addition of the build outs would encourage drivers to slow when turning into Chestnut Avenue.

The road safety audit noted that the build out on the east side should be designed so as to be sufficient to encourage lower entry speeds. Also that any pedestrian crossing should be in accordance with current guidance and additional parking controls, e.g. yellow lines, could improve visibility. Detailed design, including topographical surveys, would address these issues.

Recommended as an option to encourage lane discipline and lower speeds on the bend, plus reduce southbound entry speeds into Chestnut Avenue.

4.6 Option 4a – Build out on the junction of Chestnut Avenue and introduction of No Entry from Ember Lane (see drawing PC1022-01 Option 4a)

This option provides a large build out at the junction, with traffic only permitted to exit onto Ember Lane. The movement from Ember Lane southbound into Chestnut Avenue would be prohibited. A traffic regulation order would be required to introduce this proposal.

Budget Price: £45,000

Conclusion

The layout would prevent legal access from Ember Lane into Chestnut Avenue and would therefore eliminate the hazard of vehicles entering at speed. The southbound route from Ember Lane to Hampton Court Way via Chestnut Avenue would no longer be available, potentially impacting on the surrounding local roads. Residents of Chestnut Avenue would need to access via Imber Park Road or Lime Tree Avenue. Residents of Imber Park Road, Lime Tree Avenue and Alma Road

would not be able to access via the junction of Ember Lane and Chestnut Avenue. The accesses to the properties closest to the build out on Chestnut Avenue would be affected.

Recommended only if affected residents were in favour. Option 4 addresses the same safety issues, albeit still permitting access southbound from Ember Lane to Chestnut Avenue.

4.7 Option 5 – Speed Cushions (see drawing PC1022-01 Option 5)

Introduce a series of speed cushions to reduce vehicle speeds. Narrower cushions would be used as this is a bus route. The positioning of cushions would be dictated by the property vehicle entrances. Ideally when passing over a cushion you should be able to see the next, however this may not be always possible here due to the positioning of cushions and the bends within the road. It is also worth noting cushions are already in place elsewhere on the B3379 (Ember Lane/Station Road).

Advantages of Cushions include -

- Buses can drive over them with no discomfort for passengers.
- Emergency vehicles can travel more quickly over them than tables.
- Can be avoided by cyclists.
- Drainage should not be affected.

Disadvantages of Cushions include -

- Vehicles with a wide axle may be able to drive over speed cushions faster than speed tables.
- Narrower cushions used on bus routes will slow other vehicles less.
- Some traffic could transfer onto alternative routes.
- Noise and vibration experienced by residents close to the cushions

Budget Price: £57,000

Conclusion

Consultation would be required with residents and the emergency services. Consultation would also be required with the Passenger Transport team if this option were to be pursued as a bus stop may need to be relocated to allow a consistent spacing of cushions.

Based on the recorded evidence of collisions which have resulted in personal injury and the measured speeds this is not recommended due to the low potential cost/benefit and impact on residents near to any features.

4.8 Option 6 - Priority Give Way (see drawing PC1022-01 Option 6)

This option looks at introducing a series of priority give ways in Ember Lane from the junction with Chestnut Avenue to the junction with Embercourt Road to reduce vehicle speeds. However due to the number of vehicle accesses within the road it is only possible to provide two priority give ways along this length.

Advantages of Priority Give Ways include -

- They cause no discomfort to vehicle users.
- Cyclists can bypass them.

Disadvantages of Priority Give Ways include -

- Could cause traffic delays.
- May be more difficult for vehicles to exit properties adjacent to priority systems.
- Vehicles without priority are not required to reduce their speed when no oncoming vehicles are approaching.
- Vehicles may speed up to get through the priority system before an oncoming vehicle.
- Buses without priority may find it more difficult to find a gap in vehicle traffic.
- Noise experienced by residents close to the feature.

Budget Price: £34,000

Conclusion

Consultation would be required with the Passenger Transport team if this option is to be pursued as a bus stop may need to be relocated to accommodate works. Providing only two priority give ways would only provide isolated traffic calming benefits.

Based on the recorded evidence of collisions which have resulted in personal injury and the measured speeds this is not recommended due to the low potential cost/benefit and impact on residents near to any features.

4.9 Option 7 – Raised junction table (see drawing PC1022-01 Option 7)

Provide a raised table at the junction of Elm Tree Avenue to reduce speed.

Advantages of a raised table -

- Effective traffic calming treatment

Disadvantages of a raised table -

- Additional drainage required.
- Emergency vehicles will need to reduce their speed

Some traffic could transfer onto alternative routes.
Potential discomfort for cyclists and bus passengers.
Noise and vibration experienced by residents close to the table

Budget Price: £105,000

Conclusion

One table would only reduce speeds at that section of road and have limited impact along the rest of the route.

Based on the recorded evidence of collisions which have resulted in personal injury and the measured speeds this is not recommended due to the low potential cost/benefit and impact on residents near to any features.

4.10 Option 8 – Chicane (see drawing PC1022-01 Option 8)

This option introduces a series of islands and build outs to so slow drivers by forcing them to deviate from the straight line of the current layout.

Advantages of a Chicane include -

Cyclists can bypass the build outs adjacent to the kerb edge.

Disadvantages of a Chicane include -

May be more difficult for vehicles to exit properties adjacent to islands and build outs.

Chicanes have to be spaced so larger vehicles can pass through them, as a result they have reduced impact on smaller vehicles that can negotiate them at higher speeds.

Budget Price: £50,000

Conclusion

An approximate kerb to kerb lane width of 3.75m would be left adjacent to the islands, cyclists could be vulnerable if a motorist attempted to overtake them at this point. Consultation would be required with the Passenger Transport team if this option is to be pursued as a bus stop may need to be relocated to accommodate works.

The road safety audit noted that the islands could lead to difficulties for access to and from properties, as well as potential conflict with cyclists adjacent to the islands. It was also noted that the bus stops may need to be relocated, or the design amended to address potential conflict when buses are present. Detailed design would confirm the available space for movements and include consultation with Passenger Transport to develop a viable scheme.

Based on the recorded evidence of collisions which have resulted in personal injury and the measured speeds this is not recommended due to the low potential cost/benefit and impact on residents near to any features.

4.11 Other options considered

A junction table was considered at the junction of Chestnut Avenue. However a table at this location would be large, costly and only have isolated benefit. An island in the mouth of the junction was considered but this would not address the issue of southbound vehicles on Ember Lane entering Chestnut Avenue at speed.

5. RECOMMENDATION:

Based on the recorded evidence of collisions which have resulted in personal injury, measures could not be justified in terms of casualty reduction when compared with other locations. However, there are local concerns regarding traffic speeds, driver behaviour and safety.

Should measures be considered for progression, the following are recommended:

Option 2 – Markings and signs

To highlight the bends to drivers.

Estimated cost of £30k which could be scaled down to suit priorities and budgets.

Option 4 – Traffic islands and build outs on the junction of Chestnut Avenue

To encourage lane discipline and reduce the speed of vehicles navigating the bends. To encourage drivers to slow when turning into Chestnut Avenue.

Estimated cost of £57k.

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