Hertfordshire County Council

DRAFT STRATEGY FOR THE CONTROL AND MITIGATION OF DEER ENCROACHMENT

Contents

ACKNOWLEDGMENTS

With grateful thanks to:
Jochen Langbein
David Hooton, East England and East Midlands Deer Liaison Officer
The Deer Initiative
Lawrence Trowbridge, Lead Ranger, National Trust, Ashridge Estate Office

1 Executive Summary

1.1 There is evidence that collisions with deer are increasing nationally due to rising deer population. It is estimated that there are approximately 2,000,000 deer in the UK which is the largest recorded population. This trend is set to continue, increasing the risk for deer-vehicular collision (DVC). As the number of collisions rises there is a higher risk that more of these will result in fatalities.

1.2 This strategy looks at Hertfordshire's legal duties and powers in relation to this matter, particularly around installing, maintaining and operating deer encroachment fencing as well as looking at alternative mitigation measures.

1.3 There are several stages to the implementation of this strategy and any assessed gaps within the service will be identified. Risk management will provide the scope for implementing any measures used in addressing any identified gaps.

1.4 The document identifies key points associated with the current network and asset inventory.

- Update and maintain inventory to include existing assets
- Introduce planned and reactive inspection regimes
- Highlight the need to maintain all assets
- Inspect and consider the potential benefits of improving existing deer-proof fences

2 Introduction

2.1 There are six free living species of deer in Great Britain, all are believed to be present in Hertfordshire although most common are fallow and muntjac deer. Nationally, the wild deer populations total approximately 2,000,000 which is the largest they have been for 1000 years, and the number is set to continue to increase.

2.2 Collisions between deer and vehicles are rising too. In addition to the terrible human cost of road collisions, they also impose a massive financial burden on the country

2.3 This strategy identifies the specific risks and identifies mitigation measures to better control and deal with deer encroachment onto the highway.

3 Strategy Summary

3.1 Current Measures

3.2 Hertfordshire currently has a range of deer-encroachment prevention measures on the highway that are maintained as part of the highway asset including signs and fencing.

3.3 **Maintenance:** These are maintained as part of the highway asset. Damage or the need for maintenance is usually identified through the safety inspection process, by fault reports or by specific inspection following a reported incident such as an accident in which damage may have been caused to the asset. Such maintenance would typically form part of either the Category 1 (if urgent) or Category 2 programmes.

3.4 **New Provision:** New installation of physical assets like signs or fencing will generally only be in response to certain specific circumstances where the provision of such measures is justified to meet an identified need within HCC's existing priorities. These could potentially include being part of the safety engineering casualty reduction programme in response to a specific identified and prioritised issue or during the construction of a new road where deer are identified as a likely hazard (as happened with the Baldock bypass). The additional of more assets creates a future maintenance liability and so is not supported in reaction to anecdotal problems or sites which do not otherwise feature as a priority on a programme such as the casualty reduction programme.

3.5 Potential Strategy Developments

3.6 During the production of this document, a number of potential improvements to the current strategy have been identified. As with any potential service improvements, these would need to be investigated, costed and their merits considered against other service priorities. However, the initiatives identified below are considered to be likely to be relatively low cost and high potential benefit and will therefore be investigated over the coming year. It is envisaged that an update to this strategy will appear with the 2014 Transport Asset Management Plan Asset Performance Report (or successor document); which is likely to be published in early 2015, reporting the results of these investigations and any impact on this strategy.

3.7 **Summary of Key Potential Improvements**
Consider:
Updating and maintain inventory to include existing assets
Introducing planned and reactive inspection regimes
Highlighting the need to maintain these assets appropriately
A detailed one-off inspection of existing assets to consider the effectiveness of existing deer-proof fences

These potential improvements are identified and explored in more detail later in this document. In each case they are contained in box like this one.

4 Background

4.1 Legal Framework

4.1.1 **Section 39 of Road Traffic Act 1988** imposes a public law duty on highway authorities to promote road safety. It is considered that the prevention of wild animals encroaching onto the highway as falling within the bounds of such duty. However, such duty, as the House of Lords stated in Gorringe v Calderdale MBC [2004] 2 All E.R. 326, does not give rise to a common law duty of care and thus a private law right of action. In such instances where the council has failed to comply with it duties the most the court can order is a direction for compliance (i.e. an order in mandamus)

4.1.2 The encroachment or escape of wild deer from land adjacent to the highway would be considered much in the same principle to the rabbit infestation case whereby in Hall v Dark Valley Light Railway PLC [1998] CLY 3933 the court found that: '*Even if it was the case that [the landowner] had so mismanaged its land as to encourage the breeding of rabbits, there could, bearing in mind that they were naturally occurring wild animals, be no liability on account of their escape onto adjoining land".*

4.1.3 **Section 165 of the Highway Act 1980** gives the Local Authority (or, under some circumstances, the Highway Authority) the power to require the landowner of land adjacent to street where there is a unfenced source of danger to users of the street to make safe or fence the source of danger. In the light of the precedent cited under 3.1.2 above however, it is unclear whether the presence of deer or other wild animals on adjacent land would be considered a 'danger' in this context.

4.1.4 **Section 41 of the Highways Act 1980** imposes a statutory duty to maintain the highway. The case history generally applies a strict interpretation of what is meant by a highway for the purposes of being in disrepair. It is usually concentrated on the fabric of the highway whereby obstructions and the like (including snow which resulted in amendments to specific impose a duty for snow) on a highway do not constitute disrepair. A boundary fence in disrepair is therefore not considered a breach of duty of s41. The fence is a safety addition to the highway provided not for the purposes of repairing the highway but for s39 RTA purposes. The failure to repair would be a breach of that duty which as above doesn't carry a common law duty of care.

4.1.5 There is a caveat to the above, in that the county council is liable where we have undertaken works to the highway and such works are negligent as to their design and result in an accident (whether as a direct consequence or part consequence). Thus, as part of any works we carry out we owe a common law duty of care.

4.1.6 Lack of repair isn't negligence arising from the works, but rather a failure to maintain the safety features. Such duty to maintain safety features would arise under s39 RTA and that duty doesn't have a common law duty of care.

4.1.7 **S39 Road Traffic Regulations Act 1988** requires authorities to develop programmes to address sites with known collision problems. Hertfordshire's safety engineering programme addresses this requirement by considering and ranking sites with significant clusters of personal injury acidents and applying remediation treatments to the sites that rank highest. The safety engineering programme is not considered in detail here however, in the event of a future accident site in which deer figure as a significant causal factor, some of the techniques and information set out in this report could be considered as part of any proposed remediation measures.

4.2 Deer / Vehicle Collisions

4.2.1 National Collision Data

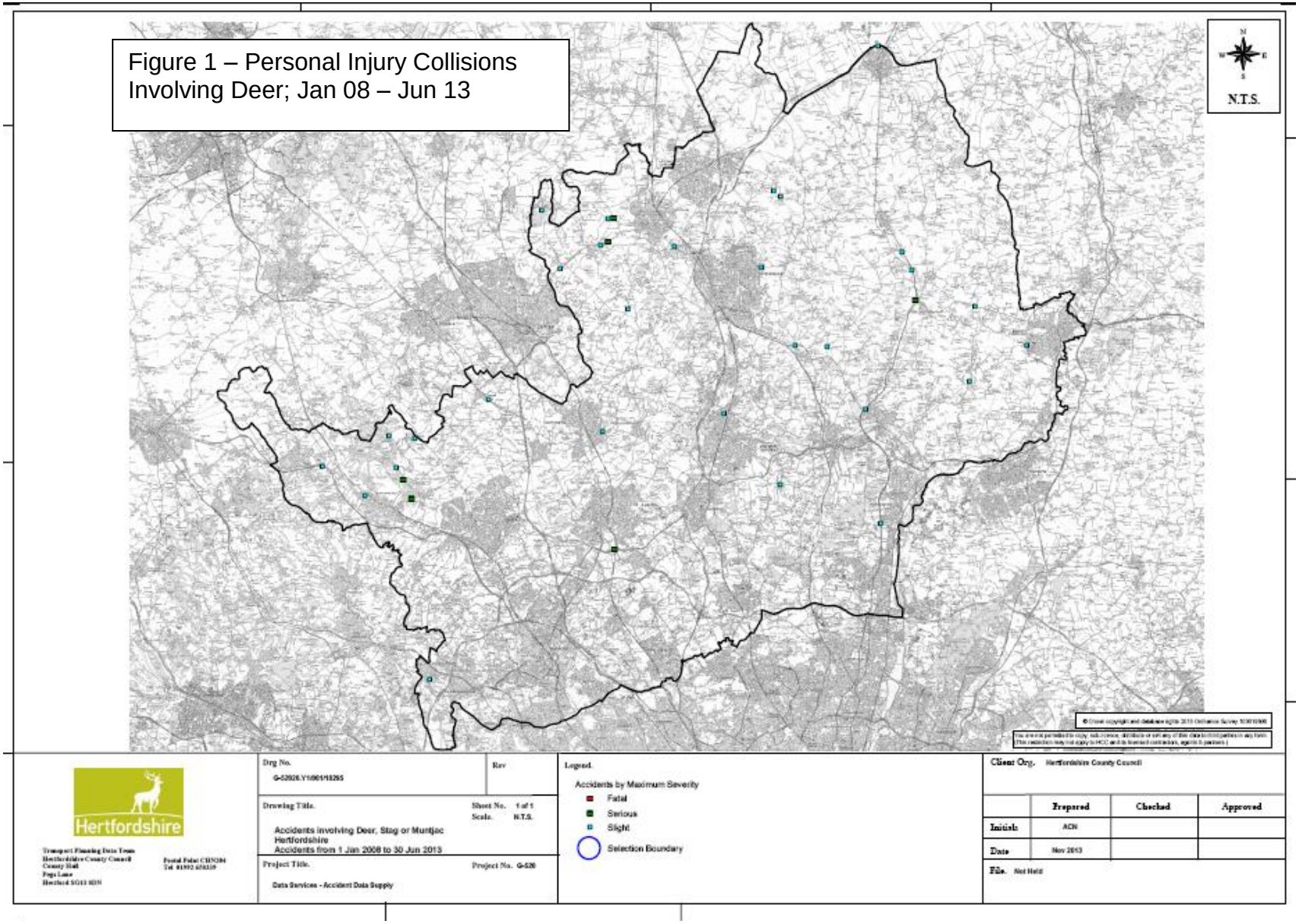
Collisions of motor vehicles with deer have escalated over the past five decades in most countries across Europe including Britain. Recent studies supported by the Highways Agency indicate that the annual toll of deer vehicle collisions (DVCs) in Britain is now very likely to exceed 42,500 and may be as high as 74,000, and lead to several hundred personal injuries and a number of fatalities each year. The numbers of DVCs recorded on the strategic network of motorways and trunk roads in England managed by the Highways Agency (which make up only 2% of all roads in England) now commonly exceed 1,100 per annum with many more likely to remain unreported.

4.2.2 Hertfordshire's Personal Injury Collision Data

On 15 October 2013 there was a particularly tragic double fatal collision on the A10 involving a deer. Naturally any fatal collision is upsetting and too many, in number. However, the fatality was the only one involving a deer in Hertfordshire in the preceding 5½ years. Indeed for the time period 1 January 2008 to 30 June 2013 the total number collisions specifically involving deer was 35. This represented 0.23% of the total number (14,885) of personal injury collisions in that period.

Figure 1 below is a plan showing the location of personal injury collisions within Hertfordshire from 1 January 2008 to 30 June 2013, in which the police report specifically mentioned 'deer' as a contributory factor. There could be other collisions with the type of animal unspecified in the police report. For the five and half years of data, there have been 35 collisions of which 22 occurred after dark.

Figure 1 – Personal Injury Collisions Involving Deer; Jan 08 – Jun 13



4.2.3 The following table shows the split of accidents by the speed limit of the road and severity of the personal injury.

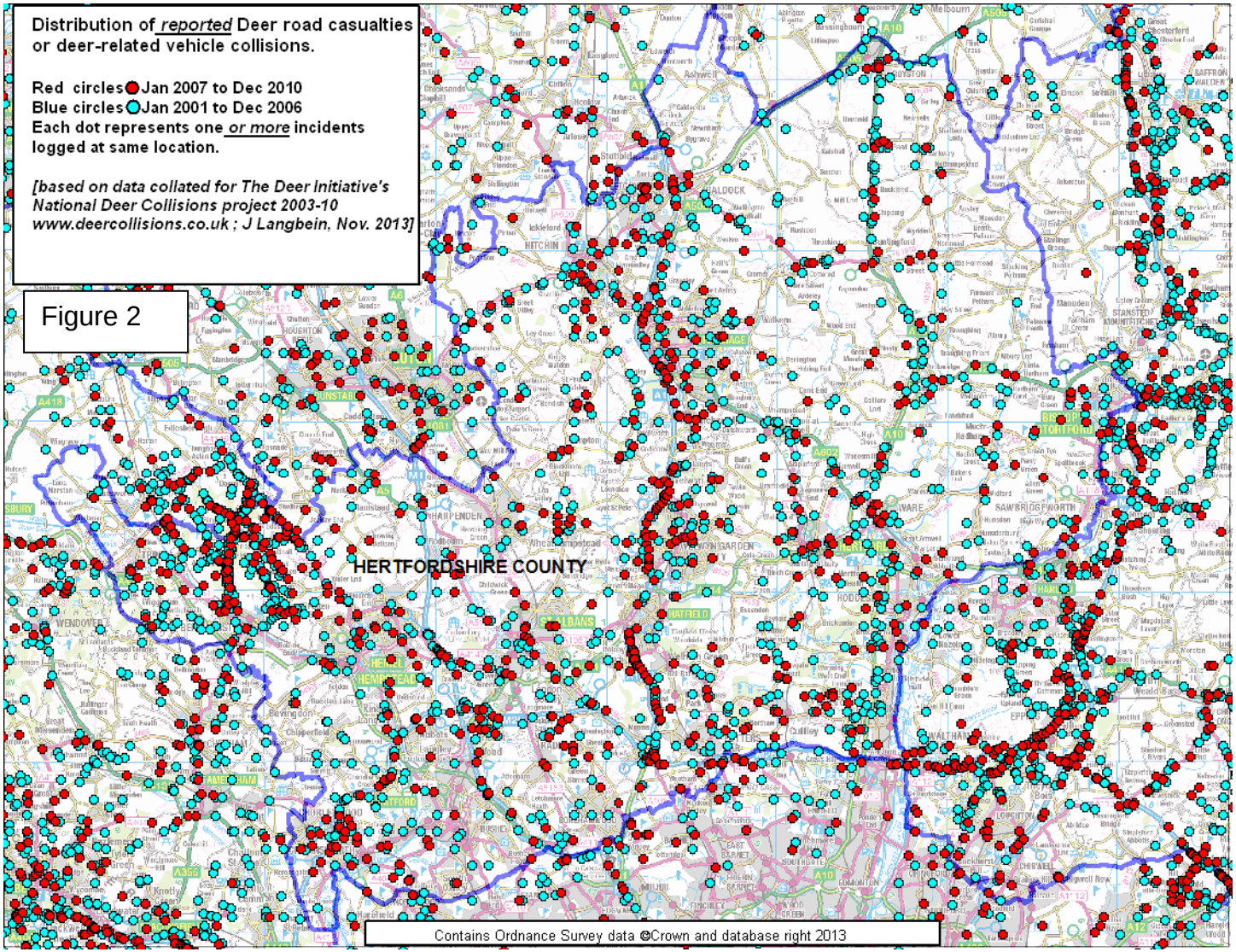
Speed Limit	Serious	Slight
70mph	3	7
60mph (A roads)		6
60mph (non A roads)	3	6
50mph (A roads)		2
50mph (non A roads)		1
40mph		1
30mph		6

Higher speed roads account for most of the personal injury collisions involving deer and all such accidents which resulted in a serious personal injury occurred. These trends are not unexpected, both since more serious accidents typically involve higher speeds and because higher speed limits will tend to be in more rural areas where deer may also be more common.

4.3 'Damage Only' Collisions in Hertfordshire Involving Deer

Figure 2 below was produced by Jochen Langbein of Langbein Wildlife Associates. Its research was set-up by The Deer Initiative with the support from the Highways Agency. The dot-map shows reported collisions with deer between 2003 and 2010. The information was collated from various differing sources, including RSPCA / deer managers / police etc. It was part of a nationwide study of deer road casualties. Mr Langbein considers that this map represents 10-20% of the actual number of collisions involving deer.

As mentioned previously Figure 2 shows deer strikes / damage only collisions (or deer avoidance collisions). It is estimated that, in general, for every personal injury collision there may be up to 12-18 damage only type collisions. This figure again shows the widespread nature of the collisions.


Distribution of reported Deer road casualties or deer-related vehicle collisions.
Red circles Jan 2007 to Dec 2010
Blue circles Jan 2001 to Dec 2006
Each dot represents one or more incidents logged at same location.
[based on data collated for The Deer Initiative's National Deer Collisions project 2003-10 www.deercollisions.co.uk ; J Langbein, Nov. 2013]
Figure 2
HERTFORDSHIRE COUNTY
Contains Ordnance Survey data ©Crown and database right 2013

5 Existing Assets Relating to Deer

5.1 Inventory

5.1.1 There are a few roads throughout the county that have previously been identified as being at risk from deer / vehicle collisions. At these locations highway assets have been installed to reduce the likelihood and severity of such collisions. These assets vary from prevention measures such as fences along high speed roads, to measures warning drivers, such as signs, or more elaborate measures that were introduced in Ashridge.

5.1.2 The B4506, through Ashridge estate, was subject to a major study and subsequent casualty reduction scheme. There was involvement and funding from three County Councils. This resulted in raised awareness in the media, new entry gateways, and lower speed limit to 50mph, with DfT approved roundels. In addition, the following highway assets were installed along the B4506:

- Acoustic Game Warning Reflectors
- ECO-pillars
- Vehicle and deer activated warning signs

5.1.3 On both the A10 Wadesmill, High Cross and Colliers End bypass and A505 Baldock bypass fencing was installed as a road safety measure, specifically to prevent deer from crossing the road. This fencing was provided in place of boundary fencing with its maintenance responsibility being retained by the highway authority.

5.1.4 Consideration should be given to updating HCC's inventory database to specifically include all known existing assets that were installed to control / mitigate against deer encroachment. If this is done, the database should be up-dated when any further existing assets are identified. This could potentially be delivered via the contractor Ringway who could be instructed to identify further existing assets during safety or ad-hoc inspections.

5.2 Inspection

5.2.1 The Code of Practice for Highway Maintenance Management 'Well-maintained Highways' recommends the establishment of an effective method of inspection. It further states that high risk locations will require a robust inspection regime with a commensurate high standard of condition. The impact of vehicle safety will be higher on higher speed roads. With particular reference to fences, the CoP states:

Pedestrian safety fences, boundary fences and environmental barriers for which the authority is responsible, should be also inspected in respect of integrity, and where appropriate stock proof qualities, during the course of service inspections of carriageways, footways and cycle routes. A higher

frequency may be necessary in some locations (e.g. in areas with known higher incidence of vandalism). Inspections of structural condition and protective treatment should be carried out at regular intervals. All inspection intervals should be determined using a risk based approach, or by default every 2 years.

5.2.2 HCC has already established a regime of inspection of all roads, as recorded in 'Safety Inspection Manual'. This regime is based on road hierarchy, with the busiest / high risk roads being inspected every month. These safety inspections are undertaken from a slow moving vehicle. Where it is difficult to obtain the necessary level of accuracy from a slow moving vehicle, footways are inspected on foot.

5.2.3 Where deer prevention fences are installed at the top of embankments (or in cutting) or are obscured by vegetation, consideration should be given to whether they should be inspected on foot, as it would be difficult to accurately determine their condition from a slow moving vehicle.

5.2.4 If it is decided to implement a separate walked inspection or similar regime, the frequency of inspection of deer protection fences should be commensurate with the risk. Factors for consideration include:

- As fences and posts do not deteriorate quickly the planned inspection does not need to be frequent,
- However the fences can be subject to vehicle strike (including agricultural vehicles), and / or vandalism.
- Any planned inspection regime might be supplemented by a reactive inspection following an incident.

It is suggested considering:

- Planned inspection annually (ahead of rutting season for fallow deer)
- Localised inspection following car strike
- Full inspection following reported dead deer or if further existing deer fence is identified

5.3 **Maintenance**

5.3.1 It is important that necessary maintenance is undertaken in order to promote road safety. Maintenance undertaken could be as a result of planned inspections, public reports or part of a cyclical regime.

5.3.2 Consideration should be given to adding further specific guidance into key documents such as the Assess and Decide guidance to help ensure that all staff, particularly Ringway staff in the contractor directed service, understand the role and purpose of measures such as deer-restraint fencing and specify suitable treatments with an appropriate priority when dealing with inspections or works on this type of asset.

5.4 Enhancing the Serviceability of the Existing Deer-Proof Fencing

5.4.1 As deer-proof fencing currently in place was installed to mitigate against a previously identified risk to highway safety, it is particularly important that it is well designed, well maintained and still provides best protection to road users, whilst not imprisoning the deer. Consideration should be given to whether there would be value to a more detailed one-off inspection and review of existing fence being carried out, looking at:

- The integrity of the existing deer-proof fencing, paying particular attention to the ends and ensuring that, as far as practical, there are no gaps for deer to pass.
- The quality of the over / underpasses to encourage deer movements
- The extent of the deer-proof fencing

5.5 Summary of Key Potential Improvements

Consider:

Updating and maintain inventory to include existing assets
Introducing planned and reactive inspection regimes
Highlighting the need to maintain these assets appropriately
A detailed one-off inspection of existing assets to consider the effectiveness of existing deer-proof fences

6 New Assets

6.1 The decision to introduce new assets onto the network to control / mitigate against deer encroachment – like any other investment decision – would need to be based on risk; likelihood of a collision occurring coupled with its potential severity and balanced against other priorities.

6.2 New assets also create a future liability to inspect and maintain them which, in turn, detracts from other activities HCC can undertake within the limited available resources.

6.3 It is unlikely that the introduction of such assets would be considered except under certain specific circumstances. These could potentially include being part of the safety engineering casualty reduction programme in response to a specific identified and prioritised issue or during the construction of a new road where deer are identified as a likely hazard (as happened with the Baldock bypass).

6.4 The following information on deer restraint techniques is provided to help support solutions to identified problems; this strategy does not

envisage the installation or upgrading of deer restraint features on a general basis across the county.

7 Identification of Increased Risks to DVC

7.1 Location

7.2 There is a general risk of DVC in much of Hertfordshire although this is clearly significantly higher in rural, wooded areas where the presence of deer is most likely. As the traffic speed increases so does the potential severity of the collision. Therefore the greatest risk of a severe DVC exists on higher speed roads; roads where there is a speed limit above 40mph.

7.3 Time of year and Time of Day

7.4 The risk to a DVC increases during the fawning and rutting seasons. The risk is further increased by size of the deer, hence the species type. For fallow deer the fawning season is in May and rutting season in October. The buck is therefore most active in October and is motivated to cross the road to find a doe, and / or to find suitable woodland habitat.

7.5 Throughout the year dawn and dusk represent the times of day most common for deer movements. In October (the rutting season for fallow deer) dawn and dusk coincide with rush-hour traffic times. Therefore October represents the month of year most likely to result in serious DVC.

7.6 Potential Mitigation Measures

7.7 The effectiveness of the following measures does vary, but the best results are usually achieved through use of a range of complementary measures, rather than a reliance on any one of the individual measures. Any solution should be tailored to the pattern of accidents observed.

7.8 The following measures and, especially, the assessment of their likely effectiveness have been compiled with the support, assistance and input of a number of experts in the field of deer management, as acknowledged at the start of this document.

7.9 Proven Effective Mitigation Measures

7.9.1 **Deer-proof Fencing** – Fencing in accordance with the appropriate specification is a well proven method of preventing deer collisions on major roads because the fence stops deer from crossing the road. Deer-proof fencing is typically installed on new roads, where the risk of deer crossing is an identified risk. The fencing is most successful where it is installed in combination with the construction of ‘green

bridges' and under / overpasses, hence the fencing channels animals to safer crossing points. For fencing of this type to be successful it must form a closed circuit, with particular attention be paid at its ends which must be secure. There are many disadvantages to fencing such as cost and impact on biodiversity, landscape and that once it is crossed by deer the deer is trapped on the highway, assuming both sides of the road corridor are fenced. This is seldom a suitable solution for retro-fitting to existing roads since the highway boundary on such roads will be frequently punctuated by gates, entrances and other accesses which will prevent the necessary closed circuit from being formed and largely negate the effectiveness of the fencing.

7.9.2 **Reduction of local Deer Density** – The Highways Agency states that deer are at nearly 'insupportable levels' in some areas, and that the most effective strategy to reduce DVCs in hotspots is to increase the deer cull and to raise driver awareness. Culling is therefore effective in reducing the number of deer crossing the road, and hence reducing the likelihood of a DVC. Sustainable deer management requires co-operation between landowners which is often hard to achieve. Whilst no-one owns the deer population, the land-owner has the right to manage and control the number of deer on his land. The land owner may wish to arrange for a cull as the deer can offer an income or damage woodland, biodiversity and farmer's crop. On occasion it may however be necessary to talk with the land owner to encourage better management. Neither culling nor the management of culling is a operation for which HCC as highway authority has responsibility.

7.9.3 **Raised Public Awareness** – This is particularly important at the specific time deer are present on the highway. VA signs can help to achieve this (mentioned below). But raised public awareness can be achieved through education, timely messages and / or campaigns.

7.10 **Moderately Effective Mitigation Measures**

7.10.1 **Verge clearance** – The clearance of roadside verges offers two potential advantages. Clear verges removes potential habitat or cover for deer and makes deer more visible for approaching drivers. The benefits of clearance are not established as the driver may still not have sufficient reaction time, due to the speed of both the vehicle and the deer. In Ashridge the land immediately adjacent to the carriageway is predominately clear. Clear verges are however a necessity if optical reflectors have already, or are due to be installed.

7.10.2 **Vehicle or Deer Actuated Signs** – In Ashridge two VA signs were installed on the immediate approaches to an established crossing point for deer. These signs were triggered by either the presence of deer, or by a vehicle exceeding the speed limit. The anecdotal evidence provided by the Ranger is that there has been a marked decline in the number of DVC within the vicinity of the signs although it is noted that this was in a specifically chosen location and that this was a solution

tailored to a known and investigated problem. It is unlikely that VA signs placed generally on the network would have a similar effect.

7.11 **Other Measures of Limited or Unproven Effectiveness**

7.11.1 **'Static' Warning Signs** – Whilst the provision of a triangular warning sign can be used to defend potential litigation, at best, they are effective only for a short period after installation, beyond that there effectiveness can diminish. If installed, it is recommended that they are located close to known deer crossing points, and not at the start of long routes, with sub-plate '*for X miles'.* Deer warning signs should however be installed at locations were deer are funnelled or intended to cross (for instance in conjunction with deer-proof fencing).

7.11.2 **Reduced Speed Limits** – Any changes to speed limits need to be in line with Hertfordshire's Speed Management Strategy; such measures are considered unlikely to have a significant impact on DVCs.

7.11.3 **Reflectors** - This is a night-time only measure, as vehicle headlamps are required. The reflector is angled to reflect head-lamps towards the roadside verge. It is considered that the effectiveness reduces in time, as the deer become accustomed to the light.

REFERENCES

RoSPA – Road Safety Engineering: Cost Effective Local Safety Schemes

Parliamentary Office of Science and Technology – Postnote Number 325 – Wild Deer

www.deercollisions.co.uk

The Deer Initiative & Highways Agency - Monitoring reported deer and road casualties and related accidents in England to 2010, Jochen Langbein

Deer Commission for Scotland et al – Joint Agency Statement and Guidance on Deer Fencing

Langbein et al – Overview of approaches to deer collisions Mitigation

Roads Liaison Group – Well-maintained Highways (Code of Practice for Highway Maintenance Management)

HCC – Safety Inspection Manual