

## PROVISION OF VEHICLE RESTRAINT SYSTEMS IN LINCOLNSHIRE

HGD NO: 4.4

POST: TECHNICAL SERVICES PARTNERSHIP

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### 1. Introduction

- 1.1. This HGD provides guidance on the standards, both local and national, which are to be used when considering the provision or the replacement of Vehicle Restraint Systems (VRS). These comprise safety barriers (including terminals transitions and crash cushions, in both permanent and temporary situations), vehicular and pedestrian parapets, vehicle arrester beds and anti-glare screens.

### 2. Scope

- 2.1 This HGD is applicable to situations where:
- A new road is constructed
  - The highway cross section is being altered permanently
  - The VRS is life expired and requires replacement
  - A new hazard is introduced
  - A VRS needs to be dismantled

All of these situations require the designer to consider the necessity to provide an appropriate vehicle restraint system

### 3. Process

- 3.1. All inc *CD377 – Requirements for Road Restraint Systems* is part of the Design Manual for Roads and Bridges (Volume 2, Section 2, Part 8). Along with this technical document, an associated computer program (Road Restraint Risk Assessment Process) and a list of *Approved Road Restraint Systems* are published by the Highways Agency.
- 3.2. All Road Restraint Systems shall be provided in accordance with *CD377 – Requirements for Road Restraint Systems*, and only the following will be permitted:

- Permanent safety barriers, parapets and crash cushions that are certified products CE marked in accordance with the Construction Products Regulation (CPR) to harmonised standard EN1317 part 5
  - Temporary safety barriers, terminals, vehicle attenuators, transitions and miscellaneous RRS included within the latest publication of the Approved Road Restraint Systems document
  - Permanent safety barrier systems that are not CE marked in accordance with the CPR and are accepted for use, as detailed in the Non-Proprietary Safety Barrier System (NPSBS) drawings
- 3.3. In situations with a speed limit of 50mph or higher and a traffic flow exceeding 5000 vehicles per day average annual daily traffic flow (AADT), *CD377 – Requirements for Road Restraint Systems* requires that a risk assessment is undertaken to determine the need for a vehicle restraint system using the *Road Restraint Risk Assessment Process (RRRAP)* computer program.
- 3.4. Where the RRRAP is not applicable to existing roads, which is the majority of situations on Lincolnshire roads, a local standard has been developed for undertaking the risk assessment.

This standard requires that the risk assessment will be carried out using the *Provision of Vehicle Restraint System Assessment Sheet (PVRAS)*, which is currently an Excel spreadsheet (Appendix A). The guiding principles of *CD377 – Requirements for Road Restraint Systems* are still applicable when using the *PVRAS*.

- 3.5. For *new* roads outside of the scope of the RRRAP, a bespoke risk assessment in accordance with the principles of CD377 APPENDIX 2- GUIDANCE ON THE SPECIFICATION OF VEHICLE RESTRAINT SYSTEMS FOR LOW SPEED AND/OR LOW TRAFFIC FLOW ROADS must be undertaken for the site and the conclusion agreed with the TAA.
- 3.6. The *PVRAS* is a risk based system, developed and maintained by Technical Services Partnership, which provides a numerical score dependent upon assessing the individual site on a number of factors judged on both historic and existing information. This system scores each site over 15 different criteria and then multiplies the resulting value by an aggressiveness factor to reflect the perceived potential danger to road users of the hazard. This score is compared to an intervention threshold value to justify or otherwise the need for the provision of a vehicle restraint system.
- 3.7. The intervention threshold is a numerical value selected to reflect the prevailing conditions on Lincolnshire roads. This intervention threshold is held and reviewed by TSP. Where the *PVRAS* risk score approaches within 10 points of the intervention threshold, it is imperative that the designer checks the input data and gives further consideration to the provision of a vehicle restraint system.

- 3.8. The PVRAS system is not suitable for indiscriminate analysis of the existing network.
- 3.9. During the development of this policy, it has been recognised that there may, on rare occasions, be certain situations which require a different approach as an alternative to the PVRAS. In such situations where using the risk based model is inappropriate, a “Departure from Standards” would be necessary to allow this change from policy.
- 3.10. The latest Approved Road Restraint Systems document is available from  
[http://www.standardsforhighways.co.uk/ha/standards/tech\\_info/en\\_1317\\_compliance.htm](http://www.standardsforhighways.co.uk/ha/standards/tech_info/en_1317_compliance.htm)

### **Superseded Documents**

HGD 4.4 – February 2018  
HAT 51-3-18

### **Review Date**

The Review date for this HGD is November 2022

### **Appendices**

Appendix A – PVRAS Spreadsheet