

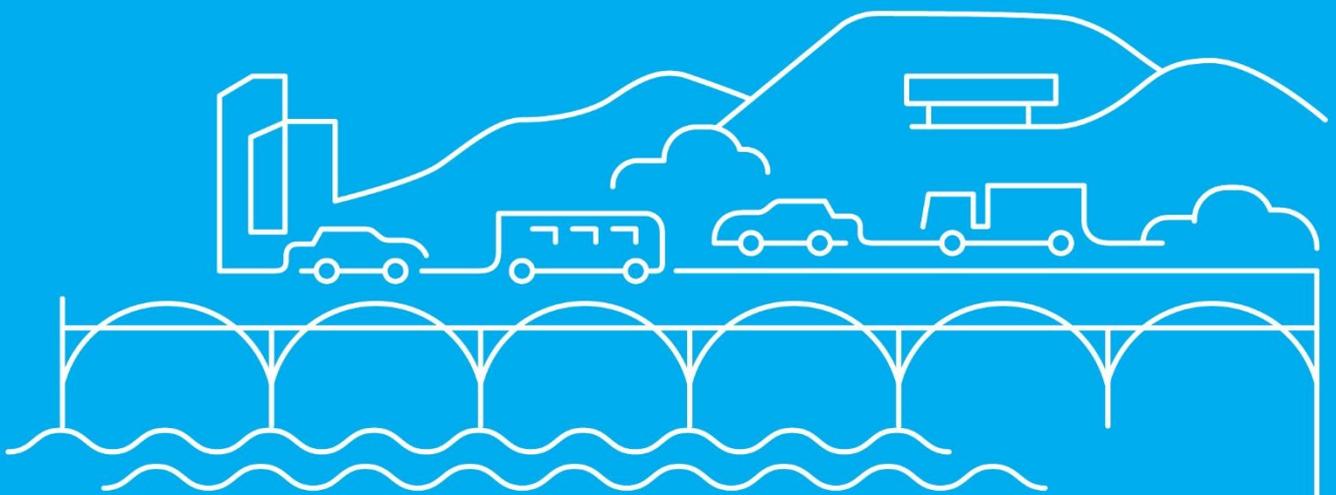


# Specialist Professional & Technical Services (SPaTS) Framework

**Task 1-116:** Improving Vulnerable User  
Design Tools – Undertake Best Practice  
Research and Develop Improved Guidance  
Task

**Vulnerable User Design Guidance  
Recommendations Report**

**Project Sponsor:** Thomas Breakwell  
**Package Order Ref:** 1-116



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Task Ref: 1-116  
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Vulnerable User Design Tools – Undertake Best  
Practice Research and Develop Improved  
Guidance Task**

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Recommendations Report**

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# 1. Introduction

## 1.1 Background

The Manual for the Development of Documents (MDD) is being revised with the intention that the Design Manual for Roads and Bridges (DMRB) will be fully updated by 2020. The Safer Roads - Design Team is responsible for 55 of the documents in the DMRB. This Vulnerable User Research and Design Guidance Development task details the scope of the updates required to the vulnerable user-related documents in the DMRB and will also clarify the links to external guidance created by other parties.

This task includes a vulnerable user gap analysis of the DMRB and reviews the applicability of referring to external design advice, outside the control of Highways England, i.e. beyond the DMRB. Highways England has already provided design guidance relating to cyclists in the form of the Cycling IAN. This task will not re-visit this work but will consider how the Cycling IAN fits into the wider design guidance portfolio.

This Recommendations Report provides recommendations for changes to the existing design tools for walking, cycling and horse-riding within the DMRB based on the findings of the research that has been undertaken and recorded within the Best Practice Scoping Report.

For the purposes of this report, the following terms are used interchangeably and refer to pedestrians, cyclists and equestrians primarily. This also includes disabled and more vulnerable users within each of these user groups:

- Vulnerable Users (VUs);
- Vulnerable Road Users (VRUs); and
- Non-Motorised Users (NMUs).

One of the outcomes of this overall task is to recommend a way forward for the definition of these user groups; and a specific recommendation is provided within this report.

## 1.2 Report Structure

**Chapter 2** of the report clarifies the scope of the work done to date and some of the more significant findings.

**Chapter 3** provides recommendations for improvement in a structured, tabulated format.

**Chapter 4** provides a concise summary of the recommendations made within this report.

## 2. Findings from Research Project

### 2.1 Overview

Research undertaken for this task included the following topics which were presented in the Best Practice Scoping Report as part of this project:

- Literature review – including a review of existing DMRB documents, international comparisons, and comparisons with design guidance published by other organisations including the Department for Transport, national stakeholder organisations and local authorities.
- Data analysis – including personal injury collision data.
- Consultation – including Highways England, the Highways England Vulnerable Road Users Committee and the Devolved Administrations.

### 2.2 Key findings

The key findings from the research were:

- The majority of the technical content relating to vulnerable users within the DMRB is out of date in terms of alignment with best practice and guidance produced by other organisations;
- The structure of the documents related to walking, cycling and horse-riding within DMRB is very sporadic and difficult to navigate, which can lead to confusion and inconsistencies if updated separately;
- A lot of technical content is purely advice (TA documents) which does not conform with the latest MDD drafting rules;
- There is a lack of a higher-level policy-type document for the consideration of these users, which may contribute to the lack of awareness in this area from design teams; and
- Some technical content is produced by Highways England (such as IAN 195/16) while others (such as TA 68) directly reference documents from other organisations. This means an inconsistent approach to provision of design guidance but allows for the inclusion of more specific requirements and advice so has benefits and dis-benefits.

The key findings above have helped shape the recommendations provided within Section 3.

## 3. Recommendations for Improvement

### 3.1 Overview

Recommendations for improvement are shown in tables below along with any associated benefits, dis-benefits, implications and potential costs. These are provided as a subjective assessment based on the evidence obtained and the professional judgement of the project team. There are some unknowns regarding the future structure of the DMRB and MDD as well as changes to technical content that might be underway. These recommendations have been produced at a point in time (September 2017) and it is therefore important to consider the recommendations in the context of any future changes made elsewhere within Highways England.

The recommendations have been categorised in to different types, as follows:

**DMRB** – recommendations relating to the process or structure of how pedestrians, cyclists and equestrians are considered within DMRB.

**Design** – recommendations specific to the design tool technical content for walking, cycling and horse-riding.

**Other** – recommendations relating to other aspects of the provision for pedestrians, cyclists and equestrians which would bring value but are considered outside the scope of this project and would therefore warrant further investigation.

## 3.2 Recommendation tables

<b>Recommendation Number:</b>	Recommendation 1
<b>Category</b>	DMRB
<b>Title</b>	Re-structuring of existing (Safer Roads-Design Team) design tools provision
<b>Recommendation details</b>	
<p>The new DMRB structure will be key in determining how the provision of design tools is delivered in future. The proposed matrix structure, as set out in MDD v4.0, indicates that the future structure of DMRB will be an asset lifecycle structure that will include the following volumes:</p> <p><b>Volume 1 – General Information</b>  <b>Volume 2 – Initial Assessment and Appraisal</b>  <b>Volume 3 – Design</b>  <b>Volume 4 – Construction</b>  <b>Volume 5 – Management</b>  <b>Volume 6 – Disposal</b></p> <p>Volume 3 appears to be the most appropriate location for the existing design tools (that are currently managed by the Safer Roads-Design Team) to be included. Research evidence supports the provision of one single design tool document for walking, cycling and horse-riding for ease of use.</p> <p>However, it is important to consider that this approach would lead to obvious gaps in design provision, for which further work would be required to provide a full 'suite' of information. The following documents are therefore proposed to be amalgamated in to one design document to be contained within Volume 3 of the future DMRB structure:</p> <ul style="list-style-type: none"> <li>• TD 36/93 – Subways for Pedestrians and Pedal Cyclists</li> <li>• TA 68/95 – Assessment and Design of Pedestrian Crossings</li> <li>• TA 90/05 – The Geometric Design of Pedestrian, Cycle and Equestrian Routes</li> <li>• IAN 195/16 – Cycle Traffic and the Strategic Road Network</li> </ul> <p><i>Note: This is a high-level recommendation and would need further work to determine which specific clauses (technical content) are relevant for inclusion – it is possible that several existing clauses within these documents would be amended or removed entirely in order to comply with MDD drafting rules. As noted earlier, advice in the form of TAs is discouraged in MDD v4.1 and therefore the content of TA 68 and TA 90 will require careful consideration.</i></p>	
<b>Benefits</b>	<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. Would tie in well with asset lifecycle structure</li> <li>2. Provides an easy-to-use format for designers and Project Sponsors.</li> <li>3. Provides a reduction in number of DMRB documents.</li> <li>4. Removes advice only (TA) documents which are not permitted in the new structure but allows the content to be kept if appropriate to specific requirements.</li> </ol>	<ol style="list-style-type: none"> <li>1. A single document could be a much larger document.</li> <li>2. Gaps in content will be more noticeable (particularly walking and horse-riding elements) and more work is likely to be needed to provide a complete 'suite' of information, even if that involves references to external guidance.</li> </ol>

5. Removes the Cycling IAN (195/16) document and incorporates it in to a requirement document, in accordance with DMRB and MDD rules.

6. Although one document is proposed, each user mode could be provided a separate section to ensure each is given equal importance.

### Practical Implications

Removal of the following documents from DMRB:

- TA 36/93
- TA 68/95
- TA 90/05
- IAN 195/16

### Cost implications

A cost (efficiency) saving due to the removal of four documents meaning these will not need to be maintained/updated separately.

A cost increase may be evident when additional topics are included to provide a full 'suite' of information, but this could be a staged process once the document structure is finalised.

<b>Recommendation Number:</b>	Recommendation 2
<b>Category</b>	Design
<b>Title</b>	Expansion of combined design tools document
<b>Recommendation details</b>	
<p>The amalgamation of existing documents to provide one design document for walking, cycling and horse-riding (as set out in Recommendation 1) would lead to gaps in provision for a complete design tool document as the existing documents do not provide a full 'suite' of information.</p> <p>Therefore it is recommended that the new document is structured such that a complete set of requirements and advice is provided to cover all related topics. The detailed technical content would be subject to further work but a proposed broad structure is outlined below:</p> <ol style="list-style-type: none"> <li>1. General and Consultation requirements.</li> <li>2. Walking Requirements.</li> <li>3. Cycling Requirements (to incorporate IAN 195/16 and other external references where appropriate).</li> <li>4. Horse-Riding Requirements.</li> <li>5. Shared Use Requirements. <ul style="list-style-type: none"> <li>• NAA – Welsh Government and interaction with the Active Travel (Wales) Act;</li> <li>• NAA – Department for Infrastructure Northern Ireland – items specific to Northern Ireland;</li> <li>• NAA – Transport Scotland – use of Roads for All; and</li> <li>• NAA – Highways England – items specific to Highways England .</li> </ul> </li> </ol>	
<b>Benefits</b>	<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. This would provide a clear reference point for designers.</li> <li>2. A structured document would allow for additions, deletions and amendments relatively easily, without full document update and approval processes each time.</li> <li>3. The new document would be more up-to-date and relevant – important for emerging trends and technologies.</li> <li>4. A more comprehensive document would allow Highways England to better provide for pedestrians, cyclists and equestrians in line with corporate objectives and help facilitate the delivery of the Accessibility Strategy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Document could become unwieldy.</li> <li>2. Document maintenance would become more onerous as more topics would need to be maintained/updated through document lifetime.</li> </ol>
<b>Practical Implications</b>	
Topics not previously covered by existing design tools need to be determined and agreed to provide a complete document structure.	
<b>Cost Implications</b>	
Over time, the technical content of the additional topic areas will need to be developed. It is anticipated that Cycling Requirements would be covered by the recently developed IAN 195/16, for example.	

<b>Recommendation Number:</b>	Recommendation 3
<b>Category</b>	DMRB
<b>Title</b>	Allocation of other documents
<b>Recommendation details</b>	
<p>The restructuring of the DMRB presents an opportunity to develop and improve the existing design tools for walking, cycling and horse-riding. For this to be effective, it is important to consider the wider picture in terms of how other DMRB documents would relate to the design tools such as a new all-encompassing design requirement document.</p> <p>Given the new asset lifecycle structure of the DMRB, it is recommended that the following existing documents are retained and included in the following volumes:</p> <ul style="list-style-type: none"> <li>• <b>HD 42/17</b> – to be included in <b>Volume 2 Initial Assessment and Appraisal</b></li> <li>• <b>HD 39/16</b> – to be included in <b>Volume 4 Construction</b></li> <li>• <b>BD 29/17</b> – to be included in <b>Volume 3 Design</b> but outside combined RAD.</li> </ul> <p><i>Notes: These documents are not in MDD v4.1 compliant formats and will need updating at some point.</i></p> <p><i>HD 39/16 sits outside the ownership of the Safer Roads-Design Team and therefore its continued inclusion/potential update would be subject to discussion with its Document Owner which lies outside the scope of this task.</i></p> <p><i>BD 29/17 contains useful design information but is primarily a structures related document. This should remain under the ownership of the relevant Highways England team and referenced within a new combined design RAD for vulnerable users.</i></p>	
<b>Benefits</b>	<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. HD 42/17 would have a defined place in the asset lifecycle structure, before design, highlighting its importance.</li> <li>2. HD 39 would also have a defined location within DMRB, eliminating any potential confusion between geometric and pavement design requirements.</li> <li>3. BD 29/17 is likely to appeal to a different audience of structural engineers/designers so will be more easily found under new DMRB structure if not combined with overall design RAD.</li> </ol>	
<b>Practical Implications</b>	
<p>Relatively straightforward process to update each document (in line with MDD) and move to relevant sections of the new DMRB structure. Limited potential for reducing number of documents here as each serve a different purpose.</p>	

**Cost Implications**

Limited to document update costs but dependent on consultation with Document Owners.

<b>Recommendation Number:</b>	Recommendation 4	
<b>Category</b>	DMRB	
<b>Title</b>	Creation of high level policy document	
<b>Recommendation details</b>		
<p>Evidence gathered throughout the project shows that provision for walking, cycling and horse-riding within the DMRB is very disjointed and difficult to use with many cross-references to other documents.</p> <p>The asset lifecycle structure will likely help this but there is a further opportunity to provide a policy level document within DMRB for the provision of walking, cycling and horse-riding. This would provide clarity for DMRB users and designers before design activities are commenced.</p> <p>It is therefore recommended that a new document is developed for Volume 1 of the DMRB (General Information). This document could use some of the information on TA 91/05 which is owned by the Safer Roads-Design Team.</p>		
<b>Benefits</b>		<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. This would provide further clarity for DMRB users and improve awareness of walking, cycling and horse-riding requirements.</li> <li>2. Would allow the retention of a lot of useful information within TA 91/05 in a MDD compliant format.</li> <li>3. Would not result in an increase in number of documents as would mean the withdrawal of TA 91/05.</li> </ol>		
<b>Practical Implications</b>		
<p>A new document would be developed and much of the content of TA 91/05 could be retained, but new content would need to be included to represent current best practice and ensure alignment with MDD, the future DMRB and other associated documents, strategies and policies. TA 91/05 would then be withdrawn thus there would be no overall increase in the number of documents.</p>		
<b>Cost Implications</b>		
<p>The costs would be limited to the development of a new document.</p>		

<b>Recommendation Number:</b>	Recommendation 5
<b>Category</b>	Other
<b>Title</b>	Provision of e-learning facility
<b>Recommendation details</b>	
<p>The development of the Cycling IAN included an accompanying e-learning training package which was well received by the industry (anecdotal evidence). Given the MDD approach to minimising the number of documents, eliminating all advice documents, and focusing on requirements, an e-learning facility would help provide a user-friendly tool to show how pedestrians, cyclists and equestrians are considered within the future DMRB.</p> <p>It is recommended that one facility is developed to provide a complete understanding of walking, cycling and horse-riding within the DMRB, which would incorporate the existing Cycling IAN e-learning package. Alternatively, a separate e-learning facility for each document could be developed, or a mix of the two above-mentioned approaches to provide an 'overview' and a further more detailed one for each volume of the DMRB.</p>	
<b>Benefits</b>	<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. Better engagement with industry professionals.</li> <li>2. Ability to highlight advice/best practice away from the confines of MDD.</li> <li>3. Less technical queries directed to Safer Roads - Design Team.</li> <li>4. Ultimately better end products in terms of document outputs, design and user facilities on the ground.</li> </ol>	<ol style="list-style-type: none"> <li>1. Could be costly to develop.</li> <li>2. Would need to be kept up to date as and when documents are updated – at additional cost.</li> </ol>
<b>Practical Implications</b>	
<p>Could be developed alongside technical documents or soon after release. Care would need to be taken to ensure timings are similar so as not to lose the main benefit of the e-learning facility which is to help guide the industry.</p>	
<b>Cost Implications</b>	
<p>Dependent upon scope of e-learning package.</p>	

<b>Recommendation Number:</b>	Recommendation 6
<b>Category</b>	Design
<b>Title</b>	Design tool name
<b>Recommendation details</b>	
<p>The amalgamation of existing documents to provide one design document for walking, cycling and horse-riding (as set out in Recommendation 1) would need careful naming to allow easy identification and consistency with other approaches to document naming within the DMRB.</p> <p>Evidence gathered throughout this task and previous tasks has suggested that the terms 'Non-motorised User' (NMU); 'Vulnerable User' and 'Vulnerable Road User' are not appropriate for a variety of reasons. This approach was broadly supported during the Summer 2017 TPB.</p> <p>Therefore, it is recommended that the modes of travel or user groups are referred to within the title of the combined design tool document for ease of use and to align with recently released RADs such as HD 42/17 Walking, Cycling and Horse-Riding Assessment and Review.</p> <p>Suggested title for combined design tool: <b>Designing for Pedestrians, Cyclists and Equestrians on the Strategic Road Network.</b></p>	
<b>Benefits</b>	<b>Dis-benefits</b>
<ol style="list-style-type: none"> <li>1. This would provide a clear reference point for designers.</li> <li>2. A consistent approach and alignment with other RADs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Document name becomes quite long.</li> </ol>
<b>Practical Implications</b>	
<p>A new title that allows the incorporation of other existing documents. Promotion of the document will be key in order to explain what it replaces.</p>	
<b>Cost Implications</b>	
<p>Very limited costs associated with document title. Some costs will be incurred through cross referencing in other documents but all other documents are being updated as part of the overall DMRB update process so costs associated with this are negligible.</p>	

## 4. Summary

Due to changes to the DMRB structure (currently in development), as well as changes to how documents are structured and published (MDD v4.1) and a high-level commitment to better provide for those who use the Strategic Road Network, a unique opportunity exists to enhance the design tools for pedestrians, cyclists and equestrians within the DMRB. This opportunity has helped shape the recommendations provided within this report.

A total of six recommendations have been put forward – consisting of three structural DMRB change recommendations, two overall technical content recommendation and one recommendation to assist users of the documents.

It is envisaged that the implementation of all of these recommendations will support a step change in the provision for users and a more holistic and inclusive approach within the design process for major projects and smaller improvement schemes alike.