

# Design Standards Letter

**Letter Number: D-1995-08**

**Letter Date: 10/06/1995**

**Effective Date: 10/02/1995**

**Section/Plan No.: D2-02, D4-04, D4-09, D6-03, D6-04, D6-05**

**Subject: English and Metric revisions to the Design Division's Policy, Procedure and Design Manual**

## **Body**

-----  
Enclosed are English and Metric revisions to the Design Division's Policy, Procedure and Design Manual for the above noted sections including some figures in these sections. Revisions are summarized as follows:

**Contents Sheet, for Volume I. Revision date changed to 10-2-95.**

**Revision date changed to 10-2-95 for Sections 2-02, 4-04 and 4-09.**

**Contents Sheet, for Volume II. Revision date change to 10-2-95.**

**Revision date changed to 10-2-95 for Sections 6-03, 6-04 and 6-05.**

**Section 2-02, Public Hearings and Meetings. Revision date changed to 10-2-95. Pages numbered in numerical order and Section 2-02 placed above revision date. Section format changed to a single column format. Numerous editorial changes were made throughout the section to provide consistency in terminology.**

**Under Subsection 2-02.2(2), approval changed from "Assistant to the Chief Engineer, Planning and Design" to "Division Engineer, Design".**

**Under Subsection 2-02.2(3), the district engineer now approves the final strip map.**

**Under Subsection 2-02.2(4), editorial changes were made for clarification purposes. Only one color location sketch is required as a handout. Final location and design approval is now given only by the commission.**

**Under Subsection 2-02.2(5), new stipulations for the certification acceptance is given.**

**Under Subsection 2-02.5(1), terminology in the notice of public hearings form and notice of open-house public hearing form has been changed from "handicap access" to "access for the physically disabled".**

**Under Subsection 2-02.8, the transcript to the Design Division now includes an executive summary which describes and discusses uses raised at hearings or during the open comment period.**

**Under Subsection 2-02.8, the letter of transmittal from the district engineer now also must include a cost comparison. The Design Division is now responsible for presenting the transcript to the commission for action, and following approval by the commission, a copy of the transcript is furnished to the FHWA.**

**Under Subsection 2-02.8, editorial change made to clarify that prior to submitting the transcript to the Design Division the district engineer should make copies of the transcript available for public inspection and copying.**

**Section 4-04, Basic Design Criteria. Revision date changed to 10-2-95. Page numbers given in numerical order and Section 4-04 placed above revision date. Section format changed to a single column format.**

**Under Subsection 4-04.5(1)(b), requires an approved crash cushion or crashworthy end terminal to be used as end treatment for concrete barriers and allows restricted use of barrier height transitions with criteria for use.**

**Section 4-09, Miscellaneous. Revision date changed to 10-2-95. Page numbers given in numerical order and Section 4-09 placed above revision date. Section format changed to a single column format.**

**Under Subsection 4-09.8(1), definition for breakaway cable terminal deleted and a new definition provided for approved crashworthy end terminal.**

**Under Subsection 4-09.8(2), revised to provide new guidelines for crashworthy end terminals on guardrail and eliminating the use of the BCT.**

**Under Subsection 4-09.8(5), revised to require the use of approved crashworthy end terminal on guardrail placed for bridge end protection and eliminated the use of the BCT.**

**Under Subsection 4-09.8(10), the use of the BCT has been deleted and requirement for approved crashworthy end terminal has been inserted.**

**Subsection 4-09.15(2) is revised to clarify standard roadway slopes. In the second to last sentence, "Roadside Design Guide" is added to clarify which guide is referred to.**

**Table of Content, Chapter VI. Revision date changed to 10-2-95.**

**The title of Figure 6-03.3 has been revised by adding the words "for Two-Way Traffic".**

**Figure 6-03.4 is a new figure, providing details for light duty rigid and flexible pavement for dual lane facilities.**

**Figures 6-03.5 is a new figure, providing details for light duty rigid and flexible pavement on rock filled base.**

**Figure 6-03.6 is a new figure, providing detail for medium duty rigid and flexible pavements and shoulder details for dual lane facilities.**

**Figure 6-03.7 was Figure 6-03.4. The title has been changed, adding the words "for Two-Way Traffic".**

**Figure 6-03.5 was renumbered as Figure 6-03.8.**

**Figure 6-03.6 was renumbered as Figure 6-03.9 and titled changed to add the word "Medium".**

**Figure 6-03.10 is a new figure providing details for medium and heavy duty pavement and shoulders under bridges.**

**Figure 6-03.7 was renumbered as Figure 6-03.11.**

**Figure 6-03.8 was renumbered as Figure 6-03.12.**

**Figure 6-03.9 was renumbered as Figure 6-03.13.**

**A new section 6-04.2(2) has been added to address medium duty pavement rigid and flexible - all ADTs.**

**Section 6-04.2(2) has been renumbered to Section 6-04.2(3) and the word "medium" has removed from the title.**

**Sections 6-04.2(3), (4), and (5) have been renumbered as 6-04.2(4), (5) and (6) respectively.**

**Sections 6-03, Pavements. Revision date changed to 10-2-95. Page numbers given in numerical order and Section 6-03 placed above revision date. Format changed to a single column format.**

**Subsection 6-03.1, Figure 6-03.9 was renumbered as Figure 6-03.13 and is now based on projected accumulative ESALs over a 30 year period.**

**Under Subsections 6-03.1(1), (2) and (3), revised to reflect the accumulative flexible rigid ESALs over a 30 year period used to designate corridors as either heavy, medium or light duty pavements. New or revised figure numbers are given. It is noted the use of a 2' rock filled base should be considered when economically available.**

**Under Subsection 6-03.1(4), the definition of trailer combinations has been deleted.**

**Subsection 6-03.2 has been restructured for easier reading and Figures 6-03.7 and 6-03.8 have been renumbered as Figures 6-03.11 and 6-03.12 respectively.**

**Under Subsection 6-03.3(1), Figure 6-03.7 has been renumbered as 6-03.11 and "headquarters office" has been changed to "Design Division".**

**Under Subsection 6-03.6, when to consider a 2' rock fill base has been deleted and referred to Subparagraph (2) of 6-03.6.**

**Under Subsection 6-03.6(1), the word "subbase" has been replaced with the word "subgrade material".**

**Under Subsection 6-03.6(2), exception for the use of daylighting rock filled base is given.**

**Under Subsection 6-03.6(3), the number of figures referred to for use of Type 5 base have been revised.**

**Under Subsection 6-03.6(4), the word "aggregate" has been added to Type 1 and Type 2 base.**

**Under Subsection 6-03.6(5), the word "subbase" has been changed to "subgrade".**

**Figure 6-03.3 Rigid and Flexible Pavement and Shoulder Details for Two-Way Traffic Light Duty Pavement Revision date changed to 10-2-95.**

**The configuration of the Type A shoulder has been changed and is now referred to as Type A2 shoulder.**

**Figure 6-03.4 Rigid and Flexible Pavement and Shoulder Details for Light Duty Dual**

**Lane Pavements, This is a new figure and shows new shoulder configurations for light duty pavements with ADTs of 3500 or more.**

**Figure 6-03.5 Rigid and Flexible Pavement and Shoulder Details for Light Duty Pavement on Rock Fill Base. This is a new figure and shows the design configuration over rock fill base.**

**Figure 6-03.6 Rigid and Flexible Pavement and Shoulder Details for Medium Duty, Dual Lane Facilities. This is a new figure and shows a new shoulder configuration for the inside shoulder on dual lane facilities.**

**Figure 6-03.7 Rigid and Flexible Pavement and Shoulder Details for Medium Duty Pavement, Two-Way Traffic. Revision date changed to 10-2-95. This figure was Figure 6-03.4.**

**The words "Geotextile fabric with 12" lap on top" and arrow have been added to each of the sections.**

**Figure 6-03.8 Rigid and Flexible Pavement and Shoulder Details for Heavy Duty Pavement on Stabilized Permeable Base. This was Figure 6-03.5. No other changes made. Revision date changed to 10-2-95.**

**Figure 6-03.9 Rigid and Flexible Pavement and Shoulder Details for Medium and Heavy Duty Pavement on Rock Fill Base. Revision date changed to 10-2-95. This was Figure 6-03.6 and the only change made was adding the word "Medium" to the title.**

**Figure 6-03.10 Rigid and Flexible Pavement on Rock Fill Base or Stabilized Premeable Base, Drainage Details under Bridges. This is a new figure.**

**Figure 6-03.11 Flexible Pavement Thickness Selection Table. Revision date changed to 10-2-95. This was Figure 6-03.7.**

**Figure 6-03.12 Rigid Pavement Thickness Selection Table. Revision date changed to 10-2-95. This was Figure 6-03.8.**

**Figure 6-03.13 Corridor Designation for Pavement Design. This was Figure 6-03.9. Corridor designations have been changed significantly and are now developed by estimating the ESALs expected in the 30 year life of the pavement.**

**Section 6-04, Shoulders. Revision date changed to 10-2-95. Page numbers given in numerical order and Section 6-04 placed above revision date. Section format changed to a single column format.**

**Under Subsection 6-04.2(1)(e), an explanation of the new Type A1 and A2 paved shoulders is given.**

**Subsection 6-04.2(2) is a new subsection and provides a description of Type A and A1 shoulders for medium duty pavement, rigid and flexible.**

**Subsection 6-04.2(2) has been renumbered as Section 6-04.2(3) and the word "Medium" has been deleted from the title.**

**Subsection 6-04.2(3), (4) and (5) have been renumbered respectively as 6-04.2(4), (5), and (6).**

**Under Subsection 6-04.3, Type A1 and Type A2 paved shoulders have been added and state the paved shoulders on ramps should be the same type as provided on the mainline pavement.**

**Under Subsection 6-04.6, the minimum shoulder width rumble strips should be placed on has been changed from 4' to 3'.**

**Figure 6-04.5 Details of Bituminous Shoulder Rumble Strips. Revision date changed to 10-2-95. Rumble strip on outside shoulder has been moved 2' from edge of travel lane. Added a note stating "for paved shoulders 3'-6" or less in width, extend rumble strip to outside edge of shoulder".**

**Section 6-05 3R/4R Projects. Revision date changed to 10-2-95. Page numbers given in numerical order and Section 6-05 placed above revision date. Section format changed to a single column format.**

**The reference to headquarters office was changed to Design Division.**

**Under Subsection 6-05.4, statement added that all full depth pavement repairs must be doweled into adjoining pavement to be eligible for federal funds.**

**Under Subsection 6-05.10, new criteria for guardrail modifications is given.**

**Under Subsection 6-05.12, the requirement for approval by the Design Division has been removed.**

**pm/maj**

## **Enclosures**