Item # 5b - Terry Abbott

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Caltrans

Proposed Highway Design Manual Changes

FROM:	SPONSORED BY:	Date:
DIVISION OF DESIGN	TERRY L. ABBOTT, Chief	5/17/11
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AREAS WITH PROPOSED CHANGES:	ISSUING UNIT:	
ENTIRE MANUAL	OFFICE OF GEOMETRIC DESIGN STANDARDS	
PROPOSED CHANGES:	REVIEW NOTIFICATION PROVIDED TO:	
SEE LIST BELOW FOR SPECIFICS ON CHANGES PROPOSED TO THE SIXTH EDITION	DESIGN MANAGEMENT BOARD LEGAL DIVISION CALTRANS HQ DIVISIONS – TRAFFIC OPERATIONS ENGINEERING SERVICES RIGHT OF WAY FHWA California Bicycle Advisory Committee ATLC CALPED VARIOUS INDIVIDUALS	

Background

Portions of the entire Sixth Edition of the Highway Design Manual (HDM) [Foreword, Table of Contents; List of Figures; List of Tables; Chapters 10 through 1100, and Index] are proposed to be updated and revised as necessary to implement Departmental Deputy Directive 64- R-1 and also update Department terminology, falsework standards, truck turning guidance, and pavement design procedures. The proposed HDM revisions and changes are summarized in the overview below. The proposed changes are available for review on the Department Design website at:

http://www.dot.ca.gov/hq/oppd/Draft-HDM-Complete-St/

This website has been provided to facilitate both the internal and external review of these proposed changes. The review and comment period for these proposed HDM changes will terminate at the Close of Business (5 PM) on Friday July 8, 2011.

Once all of the commentary has been received and it has been analyzed, the HDM changes currently being provided for review may be modified as deemed appropriate by the Division of Design. Thus, the revisions and changes as currently proposed are subject to change before final publication and should not be used to design projects that are currently in the process of being delivered

Currently, it is anticipated that the HDM update that will result from this review will become available during the fall of 2011. At that time, a manual change transmittal will be provided to communicate how these HDM revisions will be implemented and applied to on-going projects on the State highway system.

For further information, please contact:

Antonette Clark, Editor of the HDM
Email Address = antonette_clark@dot.ca.gov
Phone Number = (916) 653-0180

Kevin Herritt, Chief of the Office of Geometric Design Standards (OGDS) and Chief Editor of the HDM:
Email Address = kevin_herritt@dot.ca.gov
Phone Number = (916) 653-0253

Guidelines & Protocols for Communicating Comments

1. The preferred method of communicating comments on the proposed HDM changes is to indicate edits on a hardcopy of the page(s) of text you wish to comment on, in legible, hand written form. Choose either red or any legible color ink, using the blank areas on the page and arrows to indicate where the comment or change is to be inserted.
2. Please focus comments to the edited text, as indicated by yellow highlighted text in the Draft HDM document that has been provided. Comments on text/figures without yellow highlighting, or information that it is believed is missing can also be submitted but it should be done separately from the comments provided on the draft text.
3. Comments or additions that are technical or pose a significant change in standard or policy must be accompanied by backup data, study, reference, etc. Such significant changes will not be considered without supporting data.
4. If comments/changes are typed on a separate sheet of paper, cut and tape the comments onto a blank portion on the page and use arrows to indicate where the change should be inserted. Check, as appropriate, to ensure that the remaining text on either side of the insertion continues to make sense both grammatically and contextually.
5. Deletions of text should be legible and either shown by a single-line strikeout, in red or any legible color ink. The underlying struck-out text, figure, or table should be visible through the strikeout line.

Overview of the Proposed Highway Design Manual (HDM) Changes

NOTE:
Please be aware that the Table of Contents, List of Figures, List of Tables, and Index have not been provided in the file containing the proposed HDM changes. To navigate through the file containing the draft HDM changes without this information, it is recommended that the existing on-line Table of Contents, List of Figures, List of Tables, and Index be used in coordination with the following overview. The current version of the HDM is available on-line at the following website:

http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm

These portions of the HDM will be updated to be consistent with the updated manual at the time of final publication.

A summary of the most significant revisions in the proposed HDM are as follows:

Foreword

Edited for clarity the purpose of the manual and updated the discussion of Departmental policy on the use of the U.S. Customary (English) and Metric units.

Chapter 10

Index 11.1 and Figure 11.1 have been edited to be consistent with the current Division of Design organization structure.

Chapter 40

Edited to be consistent with current federal legislation and with the current California Stewardship & Oversight Agreement with FHWA.

Chapter 60

Topic 61
Updated and re-alphabetized the list of abbreviations.

Topic 62
Updated, reorganized, enhanced, and clarified the definitions to be consistent with the changes being proposed in the remainder of the manual.

Chapter 80

Index 81.1 - Philosophy
Clarified and enhanced the existing text.

Index 81.2 – Highway Context
New guidance provided that discusses designing a highway that is sensitive to, and respectful of, the surrounding context.

Index 81.3 – Place Types
New guidance provided that discusses "place types" - the physical environment and land uses that surround the State highway.

Index 81.4 – Type of Highway
New discussion has been provided in this portion of the manual to connect highway type terminology to highway context and place types.

Index 81.5 – Access Control
New discussion provided to connect access control to highway context, place types, etc.

Index 81.6 – Design Standards and Highway Context
New discussion provided to communicate that Designers have the ability to design for all modes of travel (vehicular, bicycle, pedestrian and transit); and also to tailor a project to the unique circumstances that relate to it and its location.

Index 82.1(4) – Permissive Standards
Edited text to clarify.

Index 82.2(1) – Mandatory Standards
Edited text to be consistent with current federal legislation and with the current California Stewardship & Oversight Agreement with FHWA.

Tables 81.2 A & B: Mandatory and Advisory Standards
These tables have intentionally not been edited to be consistent with the changes being proposed. Commenting on this is not necessary. These tables will be updated similar to the Table of Contents, List of Figures, List of Tables, and Index as mentioned above.

Chapter 100

Topic 101 – Design Speed
Edited text to provide clarity.

Topic 102 – Highway Capacity
Edited text to provide clarity.

Topic 103 – Design Designation; 103.1 – Relation to Design
Climate region added.

Topic 104 – Control of Access; 104.3 – Frontage Roads
Clarified text that discussed bicyclists and pedestrians.

Topic 105 – Pedestrian Facilities
Clarified and updated the text. Increased the advisory standard for the minimum width a sidewalk should be from 5 feet to 8 feet when directly adjacent to a curb and 6 feet when separated by a planting strip.

Topic 108 – Coordination with Others; 108.2 – Transit Loading Facilities
Added new text and changed terminology from bus to transit.

Topic 108 – Coordination with Others; 108.3 – Commuter and Light Rail Facilities Within State Right of Way
Modified text to focus on commuter and light rail facilities.

Topic 108 – Coordination with Others; 108.4 – Bus Rapid Transit
Edited text to be consistent with changes in Index 108.3.

Topic 108 – Coordination with Others; 108.5 – Coordination with FHWA
Renumbered existing Index 108.4 and edited text to be consistent with changes in Chapter 40.

Topic 110.7 – Traffic Control Plans
Edited text to assure adequate consideration for all users and travel modes.

Topic 110.8 – Safety Reviews
Edited text to assure adequate consideration for all users and travel modes.

Topic 115 – Designing for Bicycle Traffic
New information has been added on this subject.

Topic 116 – Bicyclists and Pedestrians on Freeways
New information has been added on this subject.

Chapter 200

The design guidance that addressed the mobility needs of bicyclists related to Class II bikeways (bike lanes) was distributed into this chapter where it was appropriate. In addition, the text was clarified and updated. Plus, the following specific changes have been made:

Index 204.5 (4) - Sustained Grades; Turnouts
Added guidance that where less than 4'shoulders are provided, consideration should be given to providing bicycle turnouts equal to a standard shoulder width as often as possible.

Table 204.8 - Falsework Span and Depth Requirements
Table has been completely updated.

Index 205.4 - Driveways on Frontage Roads and in Rural Areas
Unpaved driveway crossings of bike paths and pedestrian walkways or driveway intersections with roadways or pedestrian paths are to be paved for a minimum of 15 feet.

Topic 210 - Reinforced Earth Slopes and Earth Retaining Systems
Design guidance has been updated.

Chapter 300

The design guidance that addressed the mobility needs of bicyclists related to Class II bikeways (bike lanes) was distributed into this chapter where it was appropriate. In addition, the text was clarified and updated. Plus, the following specific changes have been made:

Index 301.1 – Lane Width
The minimum lane width on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways has been modified to allow 11-foot lanes under certain circumstances and conditions.

Topic 303 - Curbs, Dikes, and Side Gutters; 303.1 General Policy
The posted speed related to which the use of curb should be avoided has been changed from posted speeds less than or equal to 45 miles per hour to 40 miles per hour for consistency reasons.

Topic 303 - Curbs, Dikes, and Side Gutters; (1) Types A1-6, A2-6, and A3-6.
The speed environment related to using these curb types has changed from an operating speed of 40 miles per hour to a posted speed of less than 35 miles per hour.

Topic 303 - Curbs, Dikes, and Side Gutters; (5) Type D Curb.
The speed environment related to using these curb types has changed from an operating speed equal or exceeding 50 miles per hour to a posted speed equal or exceeding 45 miles per hour.

Index 303.4 Curb Extensions
New discussion and information has been provided.

Topic 305 - Median Standards; Index 305.1(2) Conventional Highways
New discussion and information on raised medians at pedestrian crosswalks and bicycle path crossings has been provided.

Index 307.2 - Two-lane Cross Sections for New Construction
Mandatory minimum paved width of each shoulder has been increased from 2 feet to 4 feet.

Index 309.1 - Horizontal Clearances for Highways
New discussion and information on providing bicyclists at least 1 foot of horizontal clearance from the edge of shoulder to fixed objects, guardrail, or barriers to minimize the risk of a bicyclist collision has been added.

Index 309.5 - Structures Across or Adjacent to Railroads
Guidance has been updated.

Topic 310 - Frontage Roads; Index 310.1 Cross Section
The minimum paved 2-lane cross section widths have been changed based upon whether 12-foot or 11-foot lanes are used and if 4-foot or 5-foot shoulders are present.

Chapter 400

The design guidance that addressed the mobility needs of bicyclists related to Class II bikeways (bike lanes) was distributed into this chapter where it was appropriate. In addition, the text was clarified and updated. Plus, the following specific changes have been made:

Topic 401 - Factors Affecting Design
New discussion and information has been provided.

Topic 403 - Principles of Channelization
New discussion and information has been provided related to pedestrians and bicyclists.

Topic 404 - Design Vehicles
Design guidance has been updated.

Index 405.2(2)(a) - Left-turn Channelization; Design Elements, Lane Width
11-foot lane width, for both single and double left-turn lanes on State highways, is acceptable in urban and suburban areas with posted speeds less than 40 mph and where large trucks are not expected.

Index 405.4 Traffic Islands
Design guidance has been updated.

Chapter 500

The design guidance that addressed the mobility needs of bicyclists related to Class II bikeways (bike lanes) was distributed into this chapter where it was appropriate. In addition, the text was clarified and updated. Plus, the following specific changes have been made:

Index 501.3 - Spacing
Per federal guidelines, a 3 mile minimum interchange spacing on rural Interstates has been added as a mandatory design standard.

Index 502.2 - Local Street Interchanges
The use of isolated off ramps has been changed from an advisory design standard to a mandatory design standard.

Index 502.2(f) - Other Types of Interchanges
Requirement created to have new or experimental interchanges have the Design Coordinator and Traffic Liaison's concurrence before selection.

Index 502.3 - Freeway-to-freeway Interchanges
Per federal guidelines, all interchanges need to provide for each of the eight basic movements (or four basic movements in the case of a three-legged interchange), except in the most extreme circumstances. Less than "full interchanges" may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOVs, HOT lanes) or park and ride lots.

Topic 503 - Interchange Design Procedure; Index 503.1 - Basic Data
Review procedures and data needed have been updated. The approval of geometric features of all interchanges or modifications to existing interchanges by the Design Coordinator has been changed to a procedural requirement.

Index 504.2(1) - Freeway Entrances and Exits; Basic Policy
Express lanes and Bus (BRT) lanes have been added to the mandatory design standard mandating connections to the right of through traffic.

Index 504.3(7) – Ramps; Two-lane Entrance Ramps
Guidance on these facilities has been eliminated in favor of requiring that whenever these types of entrance ramps are being considered, they be discussed early-on with the HQ Traffic Liaison and Design Coordinator or Design Reviewer.
Index 504.7 - Weaving Sections
Design guidance has been updated.

Chapters 600 to 670

Chapters 600 through 670
Titles and topic matter, as needed, related to the Pavement Management Program and Office of Pavement Engineering were updated in the text. Term structural section has been replaced with pavement structure. Rigid pavement joint terminology updated. In addition, the following specific changes have been made:
Topic 603 – Types of Pavement Projects
Guidance updated related to pavement preservation, roadway rehabilitation, and reconstruction. Text has also been updated to provide clarity.
Table 613.3B - Lane Distribution Factors for Multilane Highways
Notes have been revised.
Table 613.5A - Traffic Index (TI) Values for Ramps and Connectors
Ten-year design life deleted.
Index 613.5 - Specific Traffic Loading Considerations
Text related to the future conversion of a shoulder to a traffic lane and intersections have been updated.
Topic 619 - Life-Cycle Cost Analysis
Text updated to reflect new 20- and 40-year design periods being used.
Topic 620 – Rigid Pavement
Rigid Pavement Catalog tables have been updated.

Chapter 700

Topic 707 – Slope Treatment Under Structures
Clarified guidance related to reducing mud or debris from encroaching upon the traveled way for motorists, bicyclists, and pedestrians.

Chapter 800

Index 801.4 - Objectives of Drainage Design
Clarified text.
Index 803.1 - Basic Policy
Clarified text.
Index 803.3(2) – Proposed Upstream Development
Clarified text.

Chapter 830

Chapter Title
Chapter title changed.
Index 830.1 – Basic Concepts
Reworded text to provide clarity by using broader terminology.
Index 831.3 – Design Storm and Water Spread
Reworded text to clarify drainage needs at bus/transit stops.
Index 837.2(2) – Inlet Types; Grates
Reworded text for clarity.
Figure 837.1 – Storm Drain Inlet Types
Added Note 5 for clarity
Index 837.3 – Location and Spacing
Reworded text for clarity.

Chapter 860

Index 861.1 – Introduction
Clarified guidance applies to all transportation facilities and travelers
Index 861.2 – Hydraulic Considerations
Clarified guidance applies to all transportation facilities and travelers

Index 861.4 – Safety Considerations
Clarified guidance applies to all transportation facilities and travelers

Chapter 870

Index 871.1 - Introduction
Clarified guidance that applies to all transportation facilities.
Index 871.2 – Design Philosophy
Clarified guidance that applies to all transportation facilities.

Chapter 900

Index 902.2(1) - Sight Distance Setbacks
Clarified that sight distance requirements applied to all modes of travel.
Index 902.2(2) – Clear Recovery Zone
Added reference to Bike Path guidance related to this subject in Chapter 1000.
Index 902.3(3) – Plant Location
Clarified guidance in relationship to bicyclists and pedestrians.
Index 902.4 – Irrigation Guidelines
Added guidance to avoid the spraying of sidewalks and bikeways.
Index 903.4(4) - Automobile/Long Vehicle Split
Updated terminology used in text.
Index 903.4(5) – Bicycle Parking
Reworded text in title for clarity.
Index 903.5(4) – Parking Areas
Updated terminology used in text.
Index 903.5(6) – Signage
Added reference to DIB 82.
Index 903.5(7) – Walkways
Updated terminology in text and added a minimum clearance of 8 feet from pavement to the lower foliage that is to be provided adjacent to walkways.
Index 903.6(4) - Telephones
Updated terminology used in text.
Index 903.7(1) - Restrooms
Updated terminology used in text.
Index 903.8 – Security and Pedestrian Ammenities
Updated terminology used in text.
Index 904.1 – General
Added reference to DIB 82.
Topic 904.3 – Design Features and Facilities
Updated terminology and added reference to DIB 82.
Topic 905 – Park and Ride Standards and Guidelines
Updated terminology and added reference to DIB 82.

Chapter 1000

The design guidance that addressed the mobility needs of bicyclists related to Class II bikeways (bike lanes) was distributed throughout the manual to where it was appropriate. The topics and figures remaining in the chapter were reorganized, updated, and enhanced. New mandatory and advisory standards associated with bicycle transportation have been created. New guidance has been written for topics such as: entry control for bicycle paths; sharing of bus and bicycle lanes; and, trails.