

DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Avenue
Denver, Colorado 80222
Phone (303) 757-9011



DATE: August 22, 2005

TO: CDOT Region Transportation Directors, Program Engineers, and Resident Engineers

FROM: Craig Siracusa, Chief Engineer *C Siracusa*

RE: Adoption of New AASHTO "Green Book"
A Policy on Geometric Design of Highways and Streets – 2004

The Colorado Department of Transportation is revising its policy on the design standards that apply to highway construction and reconstruction projects on the State's Highway System.

The previous standards were the 2001 version of the American Association of State Highway and Transportation Officials' (AASHTO) publication *A Policy on Geometric Design of Highways and Streets*. A 2004 revision of this publication has replaced the 2001 version.

The Federal Highway Administration (FHWA) had adopted the 2001 edition as its policy for design standards for highway construction and reconstruction effective March 14, 2002. On February 23, 2005 Mr. Dwight A. Horne, the FHWA Director of Program Administration, issued a memorandum authorizing the States to use either the 2001 edition or the 2004 edition. The memorandum said in part, "It has been determined that the 2004 Green Book is in substantial conformance with the criteria in the adopted 2001 Green Book. States are therefore allowed to use either the 2001 or 2004 Green Book as the design standard for projects on the NHS." This was confirmed in a memorandum to CDOT Executive Director Norton from the FHWA Colorado Federal Aid Division dated March 9, 2005.

The main changes from the 2001 edition to the 2004 edition are the correction of the errata in the 2001 edition and a revised presentation of the superelevation requirements for horizontal curves. The changes in superelevation will be implemented in coordination with the implementation of CDOT's new design software and the issuance of revised standard plans for superelevation. Additional information on the changes to the Green Book may be found on the following CDOT web page:
<http://www.dot.state.co.us/DesignSupport/Design%20Guide%2005/2004%20Greenbook%20Changes.ppt>

CDOT has just completed revising its Roadway Design Guide to conform to the 2004 edition. Supplemental requirements for the design of Interstate highways can be found in AASHTO's companion booklet, *A Policy on Design Standards – Interstate System*, dated January 2005.

Please ensure this information is forwarded to those in your Region who are involved in the design and construction process.

The FHWA Colorado Division's official memorandum is attached.



U.S. Department
of Transportation

**Federal Highway
Administration**

12300 W. Dakota Ave., Ste. 180
Lakewood, CO 80228

March 9, 2005

In Reply Refer To:
HDA-CO

Colorado Federal Aid Division

Mr. Thomas E. Norton
Executive Director
Colorado Department of Transportation
4201 E. Arkansas Avenue
Denver, Colorado 80222

Attn: Mr. Craig Siracusa

Dear Mr. Siracusa:

SUBJECT: 2004 AASHTO Green Book

AASHTO has recently issued the Fifth Edition of *A Policy on Geometric Design of Highways and Streets* (2004 Green Book). The major change in the 2004 Green Book compared to the previous edition, know as the 2001 Green Book, is revision of the superelevation section. The superelevation revisions and other minor changes are described below. It has been determined that the 2004 Green Book is in substantial conformance with the criteria in the adopted 2001 Green Book. The Colorado Department of Transportation is therefore allowed to use either the 2001 or 2004 Green Book as the design standard for projects on the NHS.

Changes in 2004 Green Book (as compared with 2001 Green Book)

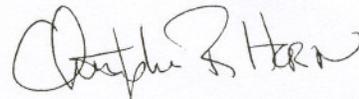
1. The superelevation section has been revised as follows:
 - The topics in the section have been reworded and rearranged.
 - The superelevation tables have been reformatted. In the 2001 Green Book the superelevation tables were formatted with radius in the left column and design speed across the top, enabling the user with these two pieces of information to find the recommended superelevation value in the body of the table. In the 2004 Green Book the superelevation tables are formatted with superelevation in the left column and design speed across the top, enabling the user to enter from the top with design speed, proceed down a column in the body of the table to curve radius, and find a recommended superelevation value in the left column.
 - The length of superelevation runoff has been moved from the superelevation table to a separate table in the discussion of transition design controls.



- For low speed rural design (≤ 45 mph) the 2004 Green Book incorporates different friction factors which in turn results in slightly different superelevation rates. For example, given a design speed of 25 mph, radius of curve 500 feet, and maximum superelevation rate of 8%, the superelevation rate found in the 2004 Green Book would be 5.0%, compared to 5.3% in the 2001 Green Book. For high speed design (≥ 50 mph), the superelevation rates in the 2004 Green Book are almost identical to those in the 2001 Green Book.
 - For low speed urban streets, use of superelevation is optional, as it was in the 2001 Green Book. Where superelevation is used, the 2004 Green Book presents the superelevation rates in a new table and revised graph. The change in superelevation rates is similar to those for rural facilities.
2. The terminology for M, middle ordinate of a horizontal curve, has been changed to HSO, horizontal sightline offset, to avoid conflict with a surveying term using M. This is a straight substitution of terms, no other changes were made in the text.
 3. The technical corrections noted in the first and second printings of the 2001 Green Book have been incorporated in the 2004 Green Book. Those using the 2001 Green Book can find these technical corrections posted at <http://downloads.transportation.org/Errata-GDHS-4.pdf>.

If you have any questions related to the use of the 2004 Green Book, please contact Mr. Chris Horn, of this office, at (720) 963-3017.

Sincerely yours,



For David A. Nicol
Division Administrator

cc:

Larry Brink, CDOT
Randy Furst, CDOT
Paul Jesaitis, CDOT
Mitch Kumar, CDOT