April 12, 2005

William A. Prosser, Secretary
AASHTO Technical Committee on Geometric Design
Federal Highway Administration, HIPA-20
400 Seventh Street, SW
Washington, DC 20590

Members
Technical Committee on Geometric Design

Dear Member:

The annual meeting of the AASHTO Subcommittee on Design, Technical Committee on Geometric Design was held in Woods Hole, Massachusetts during the period July 11 through July 13, 2005. The meeting was held jointly with the AASHTO Technical Committee on Non-motorized Transportation.

Mr. Robert Walters, Chair called the meeting to order at 8:00 a.m. on July 11. He welcomed 2 new members of the committee – Mr. Rick Bruce and Mr. Mark Leiferman. Since the 2004 Annual meeting Mr. Norman Roush, West Virginia and Mr. Wayne Kinder, Nevada have retired from their respective Departments of Transportation. The retirements have created two new vacancies on the committee.

ATTENDANCE

The following members were present:

Mr. Reza Amini, Oklahoma Department of Transportation
Mr. Don Arkle, Alabama Department of Transportation
Mr. Paul Bercich, Wyoming Department of Transportation
Mr. James O. Brewer, Kansas Department of Transportation
Mr. Kenneth T. Briggs, Maryland State Highway Administration
Mr. Rick Bruce, Ohio Department of Transportation
Mr. Philip Clark, New York Department of Transportation
Mr. Jeff Jones, Tennessee Department of Transportation
Mr. John LaPlante, American Public Works Association
Mr. Mark Leiferman, South Dakota Department of Transportation
Mr. Donald Lyford, New Hampshire Department of Transportation
Mr. Reza Malecki, The Port Authority of New York and New Jersey
Mr. Mark Marek, Texas Department of Transportation
Mr. John Pickering, Mississippi Department of Transportation
Mr. William A. Prosser, Federal Highway Administration
Mr. James Rosenow, Minnesota Department of Transportation  
Mr. Max Valerio, New Mexico Department of Transportation  
Mr. Robert L. Walters, Arkansas Highway and Transportation Department  
Mr. Ted Watson, Nebraska Department of Transportation  

The following members were unable to attend:  

Mr. Joe Ruffer, National Association of County Engineers  
Mr. David Hutchinson, National League of Cities  

Also in attendance during all or part of the meeting were:  

Mr. B. Ray Derr, Project Manager, NCHRP, Transportation Research Board  
Mr. Douglas Harwood, Principal Traffic Engineer, Midwest Research Institute  
Mr. Jim McDonnell, Associate Program Director for Engineering, AASHTO  

A copy of the roster and home mailing list were circulated for correction and additions. A copy of the updated lists is attached.  

RESEARCH ACTIVITIES  

Ray Derr reported on the status of research underway related to the activities of the Technical Committee. The projects approved and reported on previously are underway (15-31, Design Guidance for Freeway mainline Ramp Terminals; 15-30, Median Intersection Design for Rural High-speed Divided Highways; 20-7(176), Update of Exhibits for AASHTO Green Book, and 20-7 (194), Consistency of Titles for AASHTO Publications.  

Research projects that are approved of interest to the Technical Committee include: Performance Based Analysis of Geometric Design of Highways and Streets (15-34), Median Design with Barrier on Non-level Terrain (22-22), Geometric Design of Driveways (15-35) and Update of Recommendations on Crest Vertical Curves (SR 214) (20-7 (208)).  

Two additional projects approved that may impact the Committee are NCHRP 15-33, Updating of Guide for Transportation Landscape and Environmental Design and NCHRP 25-29, Standards for Historic Highway Corridors.  

Several other projects are efforts to develop additional information related to weaving, ramp terminals, and default values for the Highway Capacity Manual. Work continues on the development of a Highway Safety Manual.  

The FHWA has a project underway on Mitigation for Design Exceptions.
Two research projects recommended by the Technical Committee were not selected for funding by the Standing Committee on Research but are ranked at or near the top of contingency projects – Interchange Spacing and Superelevation on Steep Downgrades.

**RESEARCH NEEDS**

Two possible research projects were discussed. A project to investigate Channelized Right Turn Lanes must be resubmitted. An earlier problem statement will be reviewed/updated and resubmitted.

The Technical Committee on Maintenance has proposed a project to look at 4-D Highway Design. Basically add “weather” to the three dimensions of design. A lot of information is available relating to snow, but other elements need information – fog, smoke, dust, etc. Consider weather as it relates to design, as it might be a component of performance-based design. The committee believes other subject areas have higher priorities at this time.

**STATUS OF AASHTO DOCUMENTS**

Four Guides have been published that are of interest to the Technical Committee. They relate to Pedestrian Facilities, Flexibility in Design, HOV Facilities, and Park-and-Ride Facilities.

The project to develop a Glossary has been completed and provided to AASHTO. AASHTO will decide the disposition of the document. The Utility Guide and Policy have been completed and are being balloted.

The revised procedures for Superelevation have been completed and incorporated into a 5th edition of the Green Book carrying the date of 2004. In addition to the revised Superelevation procedures, the technical corrections identified in the 2001 edition have been incorporated.

**CONTRACTOR REPORTS**

**NCHRP Project 15-25 – Alternatives to Design Speed for Selection of Roadway Design Criteria**

**NCHRP Project 15-26 – Passing Sight Distance Criteria**

Doug Harwood reported on the current activities of these two projects requested by the Technical Committee. These projects are to investigate and develop, if appropriate, revised procedures for future editions of the Green Book. Copies of the slides used in the presentations are attached.
UPDATING THE BICYCLE GUIDE

In preparation for the joint meeting with the Non-motorized Transportation, the report of NCHRP Project 20-7 (187) was discussed. Chapter 5 is an “arrangement” of an updated guide with Chapter 6 providing the proposed outline. The report proposes expanding the discussion on planning, adding discussion on operations and safety, separating design into two chapters – shared use and on street, and providing a chapter on maintenance.

John LaPlante will develop a paragraph on bike rail height for discussion in the joint meeting (Text is provided under the joint meeting heading). It is recommended that the height of railing be revised from 42-in to 48-in, with 54-in recommended at appropriate locations.

JOINT MEETING WITH TECHNICAL COMMITTEE ON NON-MOTORIZED TRANSPORTATION

The purpose of the joint meeting was to discuss two research projects of mutual interest. The two projects were Determination of Appropriate Railing Heights for Bicycles (NCHRP Project 20-7 (168) and Updating the Guide for Development of Bicycle Facilities (NCHRP Project 20-7 (187).

The appropriate height of railing for bicycles was discussed in detail. As a result of the discussions of the research report, a statement on height was developed. The statement will be forward to the Technical Committee on Bridges and Structures for their comment. The statement reads: “Railings, fences or barriers on either side of a shared use path on a stand alone structure, or along a bicycle lane, shared use path or signed shared roadway located on a highway bridge should be a minimum of 1.1 m (42 in) high. On a bridge or bridge approach where high-speed, high-angle impacts with a railing, fence or barrier are more likely to occur (such as short radius curves with restricted sight distance or at the end of a long, descending grade) or in locations with site specific safety concerns, a higher, e.g. 1.2 m (48 in) or 1.4 m (54 in) railing should be considered.”

Theodore A. Petritsch presented an overview of the report from NCHRP Project 20-7 (187), Updating the AASHTO Guide for the Development of Bicycle Facilities. The presentation discussed the literature search, survey results and a proposed outline for the next update of the Bike Guide. Comments developed during the discussion included: The Guide is not a standard, the proposed outline appears to contain more chapters than necessary such as bike racks; need to determine the audience for the guide: planners, designers, advocates, lawyers; the guide should not include things that are not needed (The design paragraphs should include only information about design.). A research problem statement to update the Bike Guide will be developed for consideration of SCOR.
The development of three additional problem statements by the Non-motorized Transportation Committee were recommended, 1) Safety and Operational Impacts of Properly Designed Bicycle Lanes, 2) Sidepaths, and 3) Volume and Mode Shift when a Bicycle Network Exists.

It was agreed that development of an updated Bicycle Guide would be a collaborative effort between Geometric Design and Non-motorized Transportation Committees.

A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS

Individual chapters of the Green Book were reviewed for the next edition of the Policy. Chapter authors presented the revisions identified to date and accepted suggested areas to be updated further.

The members of the Technical Committee will be furnished a CD of the Green Book that can be downloaded and used to make necessary updates to the chapters. It was agreed that drafts would be prepared on 8 ½ by 11 pages. Strikeouts and additions would be shown in red. Notes would be in a text box in the right margin in dark blue or indigo. See draft of Chapter 8.

Areas identified during the review of the individual chapters included:

Preface – Include a discussion of the material that the Green Book does not cover. Expand to include additional discussion?

Chapter 2 – Delete information pertaining to the WB-50 and WB-67 design vehicles (NCHRP 505). Review the 20-7 report on the older driver for appropriate information to include.

Chapter 3 – The discussion on Passing Sight Distance will be reworked. Review and revise the discussion on NC, RC, and negative crown in discussion of superelevation to clarify, possibly using an example. In Offtracking, rework the tables to use a WB-62 as the Design Vehicle. Review the discussion on truck acceleration. Replace the text in the 1st paragraph on page 252 with a table or supplement with a table (Caption: Typical Lengths for Passing Lanes).

Chapter 4 – Update the discussion on clear zones, curbs (NCHRP 537), use of rumble strips (bikes), and pedestrians.

Chapter 5 – Create a section on Very-low Volume Roads (VLVR) and add language on work zones.

Chapter 6 - Incorporate VLVR as appropriate. Revise discussion on Clear Zones and Horizontal Clearance to Obstructions as discussed.
Chapter 7 – Update after reviewing transit document. Incorporate information as appropriate.

Chapter 10 – Include a discussion on pedestrians at ramp intersections with free-flow ramps, and the impact of pedestrians on interchanges in general. Consider whether the control of access distance on the cross street should be increased. Should control of access also apply to intersections (NCHRP Synthesis 332)? Consider improving the definition of auxiliary lanes. Add discussion on roundabouts at ramp terminals and swapping shoulder widths when considering horizontal sight distance. Monitor research on interchange spacing and weaving. Consider a ramp metering discussion based on information from TRB Committee. Maybe include erosion control in chapter?

NCHRP PROJECT 20-7 (TASK 171) IDENTIFICATION OF CONFLICTS RELATED TO CLEAR ZONES WITHIN AASHTO PUBLICATIONS (DRAFT)

This report presents a series of recommendations related to clear zone issues in the Green Book and the Roadside Design Guide. The research effort confirms the views of some in the AASHTO community that incomplete, confusing and in some cases conflicting guidance is given by these documents. The report provides 11 recommendations to improve the information available related to clear zone and horizontal clearance to obstructions in the two documents. The recommendations include establishing one document or the other as the primary source of definitions, technical background and knowledge on the subject of roadside design. It was suggested that the definition discuss design versus available clear zone. Additional issues recommended for clarification include defining auxiliary lanes and their treatment, relationship of curbs to clear zone, and the treatment of bike lanes and shoulder use lanes in relation to clear zones.

Another recommendation involves clarification of horizontal clearance. Horizontal clearance and clear zone are misused on occasion. A suggestion was made and recommended to rename “Horizontal Clearance” to “Lateral Offset to Obstruction” when used in the Green Book.

CLOSING

Rick Bruce was thanked for serving as the host for the meeting, stepping in for Larry Sutherland.

The next meeting of the Technical Committee will be in Jackson, Wyoming on July 10 through 12, 2006. Paul Bercich is hosting the meeting.

Tentatively, the 2007 meeting will be in Chicago, Illinois with John LaPlante as the host.

The meeting of the Technical Committee was adjourned at 11:45a. m. on July 13.
Sincerely yours,

William A. Prosser
AASHTO Technical Committee
on Geometric Design