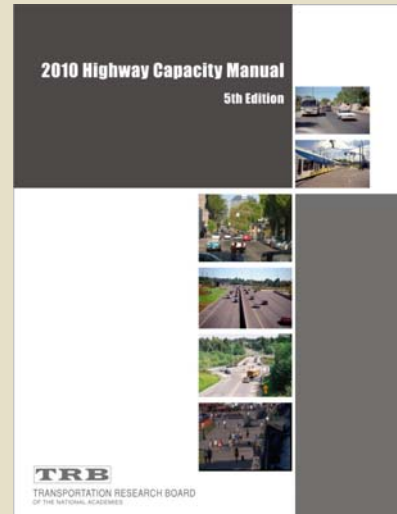


A LOOK AHEAD TO THE 2010 HCM

John Zegeer, P.E., PTOE



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A Look Ahead to the
2010 HCM

Presentation Overview

- Overview of the role of NCHRP and NCHRP Panels
- Overview of NCHRP 3-92
- Summary of Significant Proposed Enhancements



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NCHRP and the HCM

- The Cooperative Research Program is a part of TRB
 - Sponsored by Individual State DOT's through AASHTO
- Established in 1962 as a means to conduct research in areas that affect highway planning, design, construction, operation and maintenance
- NCHRP projects selected by a balloting process under the oversight of AASHTO's Standing Committee on Research (SCOR)
- NCHRP has been the primary funding source for research within the HCM and funded the development of the 2000 and 2010 HCM



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Role of NCHRP Panels

- NCHRP Panels:
 - Develop research requests for proposals
 - Review proposals from potential contractors
 - Recommend contract awards to NCHRP
 - Monitor research progress
 - Review reports and other deliverables developed by contractors
- Panel members selected based on technical qualifications and typically include representatives from TRB, State DOT's, FHWA, Municipal government, Academic/research institutions, and consulting firms



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NCHRP Panel for NCHRP 3-92 (Production of the 2010 HCM)

- Barbara Ostrom, Mactec (Panel Chair)
- Bob Bryson, City of Milwaukee
- Rick Dowling, Dowling Associates
- Kevin Hanley, Caltrans
- Bruce Landis, Sprinkle Consulting, Inc.
- John Leonard, Georgia Institute of Technology
- Doug McLeod, FDOT
- Andy Wolfe, State University of New York Institute of Technology
- Dave Gibson, FHWA
- Rich Cunard, TRB

NCHRP Staff

- Ray Derr



Overview of NCHRP 3-92 – Production of the 2010 HCM

- Project began in October 2007
- Final 2010 HCM Version Delivered to TRB in April 2010
- Scheduled for publication by TRB by the end of 2010
- Research Team includes:
 - Kittelson & Associates, Inc. (Prime)
 - Polytechnic University
 - Texas Transportation Institute
 - University of Florida



Overview of NCHRP 3-92 – Production of the 2010 HCM cont.

- **Project Has Two Phases and 10 Tasks:**
 - **Phase 1 (Completed in April 2008)**
 - State of the Art Review and Inventory
 - Focus Group Survey
 - Evaluation of Alternative Delivery Methods
 - Purpose, Objectives, Target Users for 2010 HCM
 - Interim Report
 - **Phase 2 (Began in May 2008)**
 - Supplemental Research for 2010 HCM
 - Develop Software and Sample Problems
 - Prepare Draft Chapters
 - Prepare Final HCM Submittal to TRB
 - Assist TRB During Publication Process



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Overview of NCHRP 3-92 – Production of the 2010 HCM cont.

Key Issue Papers Prepared During Phase I:

- Target Audience and Users for the 2010 HCM
- Organization and Delivery Options for the 2010 HCM
- Knowledge Gaps for the 2010 HCM
- Treatment of Level of Service
- Treatment of Multimodal Analysis
- Use of Computational Engines
- Treatment of Travel time reliability

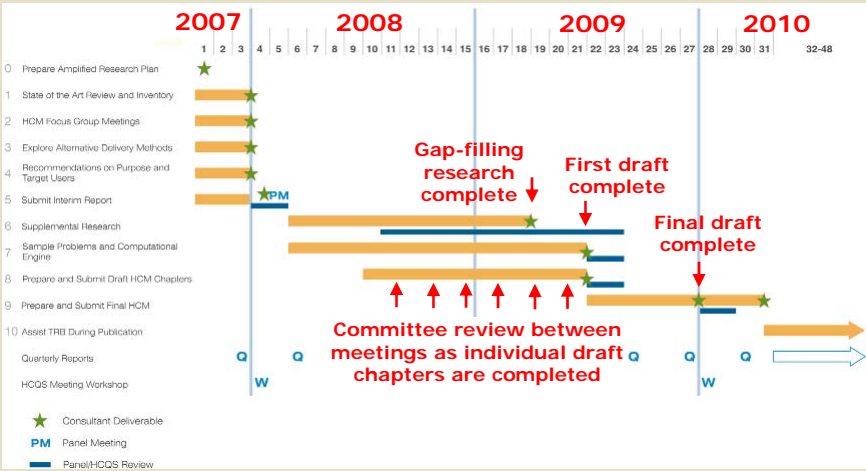


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NCHRP 3-92 Project Schedule



Summary of Significant Proposed Enhancements

- Integrated Multimodal Approach
- User Perception Performance Measures
- Incorporation of New Research
- Proposed Organization and Format



Integrated Multimodal Approach for Urban Streets

To encourage HCM users to consider all users of a facility when performing analyses and making decisions the 2010 HCM will:

- Integrate material on non-auto modes with the auto mode, particularly in the system element chapters.
- There will be no stand-alone, Pedestrian, Bicycle, and Transit chapters.
- Users will refer to the Urban Streets chapter for analysis procedures for pedestrians, bicyclists, and transit users on urban streets. Same approach for Signalized and Unsignalized intersection chapters.



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User Perception Based Performance Measures

- Past HCM's have relied on use of operational measures that can be perceived by users (control delay, density, percent time spent following, etc.)
- Recent research has been completed related to traveler perception of service quality that goes beyond traditional operational performance measures.
- User perception indices from two of these studies will be incorporated into the Urban Street Facilities, Urban Street Segments, and Off-Street Pedestrian and Bicycle Facilities chapters.
- It is anticipated that future research will develop similar indices for other transportation system elements.



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Incorporation of New Research

- NCHRP 3-60 (Interchange Ramp Terminals)
- NCHRP 3-64 (HCM Applications Guide)
- NCHRP 3-65 (Applying Modern Roundabouts in the United States)
- NCHRP 3-70 (Multi-Modal Arterial Level of Service)
- NCHRP 3-75 (Analysis of Freeway Weaving)
- NCHRP 3-79 (Predicting Travel Speeds for Urban Streets)
- NCHRP 3-82 (Default Values for HCM)
- NCHRP 3-85 (Guidelines for the Use of Alternative Traffic Analysis Tools)
- NCHRP 20-7 (Two-lane Highways)
- TCRP A-15A (Transit Capacity and Quality of Service – 2nd Edition)
- NCHRP 3-92
 - Signalized Intersection Methodology (New Delay Method and Structure Changes reflecting Modern Actuated Control)
 - Gap Acceptance for Six Lane Two-Way Stop Controlled Intersections
 - 75 Mph Speed Flow Curve for Freeways



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Proposed Organization and Format

- **Organization**
 - The 2010 HCM should consist of the following volumes:
 - Highway Capacity Concepts
 - Highway Capacity for Uninterrupted Flow Facilities
 - Highway Capacity for Interrupted Flow Facilities
 - Highway Capacity Applications Guide/Supplemental Material
 - The HCQS will maintain a web-based technical reference library
- **Format**
 - Combination of Print and Electronic



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Recommendations on Organization and Format (cont.)

- Volume 1 Highway Capacity Concepts

1. HCM User's Guide
2. Applications
3. Modal Characteristics
4. Traffic Flow & Capacity Concepts
5. Quality of Service Concepts
6. Analysis Tools
7. Interpreting and Presenting Results
8. Policy Considerations
9. Glossary and Symbols



Recommendations on Organization and Format (cont.)

- Volume 2 Uninterrupted Flow Facilities

10. Freeway Facilities
11. Basic Freeway Segments
12. Freeway Weaving Segments
13. Ramps & Ramp Junctions
14. Multilane Highways
15. Two-Lane Highways



Recommendations on Organization and Format (cont.)

- Volume 3 Interrupted Flow Facilities
 - 16. Urban Street Facilities
 - 17. Urban Street Segments
 - 18. Signalized Intersections
 - 19. Two-way Stop-Controlled Intersections
 - 20. All-way Stop-Controlled Intersections
 - 21. Roundabouts
 - 22. Interchange Ramp Terminals
 - 23. Exclusive Pedestrian and Bicycle Facilities



Recommendations on Organization and Format (cont.)

- Volume 4 Applications Guide/Supplemental Material
 - Supplemental Chapters
 - Comprehensive Case Studies/HCMAG
 - Technical Reference Library



2010 Highway Capacity Manual

5th Edition

- TRB
- HCQS
- Publications
- Contact
- Research

Highway Capacity Volumes
1. Concepts
2. Uninterrupted Flow Facilities
3. Interrupted Flow Facilities
4. Applications Guide



Updates

- NEW: Chapter 26 (Adopted):** Interchange Ramp Terminals
- NEW: Chapter X (Evaluation Copy):** Local Urban Streets
- NEW: NCHRP Report XXX:** Analysis of Freeway Weaving Sections

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Chapter 16 Urban Street Facilities

- Guidance to help analysts to determine the scope of their analysis and the relevant travel modes
- Methodology section will describe how to aggregate operations-based MOEs and perception-based scores for a facility assessment of LOS
- Incorporates NCHRP 3-70 work

Chapter 17 Urban Street Segments

- Incorporates NCHRP 3-79 operational methodologies **NEW!**
- Incorporates NCHRP 3-70 LOS methodologies **NEW!**



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Chapter 18 Signalized Intersections

- Incorporates IQA method for calculating d_1 uniform delay term and Q_1 length term **NEW!**
- Actuated controller operation modeling procedure added **NEW!**
- Left-turn pocket overflow check added **NEW!**
- Ped/bike LOS incorporates NCHRP 3-70 & potentially other research **NEW!**



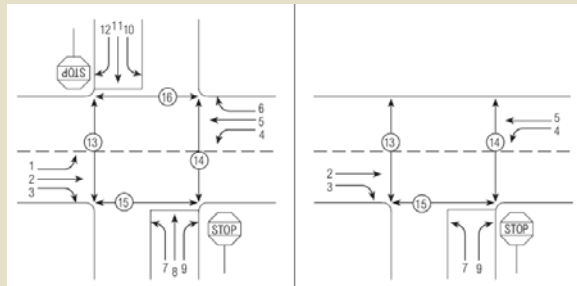
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Chapter 19 Two-Way Stop-Controlled Intersections

- Gap acceptance parameters for six-lane streets added **NEW!**
- Interface with urban street segment methodology for upstream signal effects **NEW!**



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Chapter 20 All-Way Stop-Controlled Intersections

- Restructure of chapter to make procedure clearer
- Explicit incorporation of details to calculate AWSC with three-lane approaches (details in Volume 4)



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Chapter 21 Roundabouts

- Incorporates NCHRP 3-65 methodologies for evaluating roundabout performance **NEW!**
- LOS table for roundabouts **NEW!**

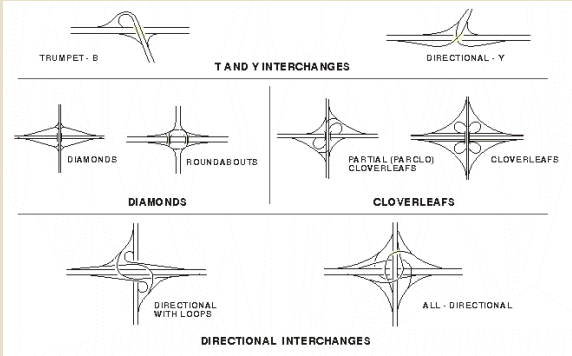


Photo: Casey Bergh



Chapter 22 Interchange Ramp Terminals

- Chapter completely updated, based on NCHRP 3-60 results **NEW!**



Chapter 23 Off-Street Pedestrian & Bicycle Facilities

- New bicycle path procedures based on FHWA research **NEW!**
- Guidance on applying pedestrian methodologies to a wider variety of facility types **NEW!**



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