Status of the AASHTO Roadside Design Guide Update

AASHTO TECHNICAL COMMITTEE ON ROADSIDE SAFETY (TCRS)

Annual Meeting
AASHTO Subcommittee on Bridges & Structures
May 23-27, 2010 Sacramento, CA
1. AN INTRODUCTION TO ROADSIDE SAFETY
2. ECONOMIC EVALUATION OF ROADSIDE SAFETY
3. ROADSIDE TOPOGRAPHY AND DRAINAGE FEATURES
4. SIGN, SIGNAL AND LUMINARIE SUPPORTS, UTILITY POLES, TREES AND SIMILAR ROADSIDE FEATURES
5. ROADSIDE BARRIERS
6. MEDIAN BARRIERS
7. BRIDGE RAILINGS & TRANSITIONS
8. END TREATMENTS (ANCHORAGES, TERMINALS & CRASH CUSHIONS)
9. TRAFFIC BARRIERS, TRAFFIC CONTROL DEVICES & OTHER SAFETY FEATURES FOR WORK ZONES.
10. ROADSIDE SAFETY IN URBAN OR RESTRICTED ENVIRONMENTS
11. ERECTING MAILBOXES ON STREETS AND HIGHWAYS
12. ROADSIDE SAFETY ON LOW VOLUME ROADS AND STREETS (NEW CHAPTER)
RDG Update Objectives

- Statistics Updated
- Incorporate Latest Research
- Incorporate AASHTO “MASH” document
- Reference to safety hardware websites for designer use.
Research Studies used for RDG Update

- NCHRP Project 22-17 – “Recommended Guidelines for Curbs and Curb-Barrier Combinations”
- NCHRP 22-19 “Aesthetic Concrete Barrier and Bridge Rail Designs”
- NCHRP 16-04 “Design Guidelines for Safe and Aesthetic Roadside Treatments in Urban Areas”
- NCHRP 22-18 “Crashworthy Work Zone Traffic Control Devices”
- NCHRP 20-7 (196) “Development of a Guide to Crashworthy Bridge Rail Systems”
- NCHRP 16-04 “Median Intersection Design for Rural High-Speed Divided Highways”
Research Studies used for RDG Update

• NCHRP 17-13 “Strategic Plan for Improving Roadside Safety”
• NCHRP 20-7 (171) “Guidelines for the Selection of Cable Barrier Systems”
• FHWA Memoranda on:
  – “Guidelines for the Selection of W-Beam Barrier Terminal”
  – “High Tension Cable on Slopes”
  – “Design Considerations for Large Trucks”
• Midwest Pooled-Fund States Study “Development of Guardrail Treatments at Intersecting Roadways”

http://aashtotf13.org
Referenced Acceptance letters and policy from FHWA’s Office of Safety website

http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/

Added Reference for Updated Crash Test Criteria Under “MASH” and “FHWA/AASHTO Implementation Plan”
REPORT 350 & MASH

NCHRP REPORT 350 – “RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES”

MASH - AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE, 2009. NCHRP 22-14(02)

- Increase in size of vehicle fleet.
- Changes to test matrices
- Changes to evaluation criteria
AASHTO/FHWA Joint Implementation Plan

Highway safety hardware accepted prior to MASH using Report 350 may remain in place and continue to be manufactured and installed.

Any new safety hardware not previously evaluated shall utilize MASH for evaluation and testing.

Report 350 testing on-going must be completed by January 1, 2011.

Safety hardware accepted using Report 350 is not required to be retested with MASH.

Report 350 hardware that fails under MASH, FHWA must confer with AASHTO to determine if device may continue its use.
BRIDGE RAILING

- Evaluation of Existing Roadside Safety Hardware Using Updated Criteria (MASH 2009)

NCHRP Project 22-14(03), Texas Transportation Institute
BRIDGE RAILING

- 32” Concrete Jersey Barrier, TL - 3 and TL - 4 Tests
NJ BRIDGE RAIL TL-3 TEST

- 2007 Chevrolet Silverado 1500 Crew Cab
- Impact Speed: 62.6 mi/h
- Impact Angle: 25.2 degrees
- Ridedown, Ax: -5.6 g
- Ridedown, Ay: -9.6 g
- OIV, Ax: 14.1 ft/s
- OIV, Ay: 30.2 ft/s
- Passed Test 3-11
• 1999 Ford F800 Single Unit Truck
• Impact Speed: 57.4 mi/h
• Impact Angle: 14.4 degrees
• Ridedown, Ax: -4.3 g
• Ridedown, Ay: 7.7 g
• OIV, Ax: 8.2 ft/s
• OIV, Ay: 13.8 ft/s
• Failed Test 4-11
  – SUT rolled over barrier
LOW VOLUME ROADS

- New chapter on Low Volume Roads, including guidance on:
  - Clear zone
  - Drainage placement
  - Slope and ditch cross-sections
  - Barriers (TL-2)
  - Sign supports
  - Utility pole placement
  - etc.
Schedule

• Schedule for Adoption
  – Final chapter reviews and balloting by TCRS in Summer, 2010. Minimum guardrail height discussion with FHWA must be resolved.
  – Ballot to SCOD in Fall 2010.
  – TCRS to address SCOD ballot comments by Fall 2010 TCRS meeting
  – Ballot to SCOH by Spring 2011.