The Task Force convened at 8 a.m. and began the meeting with self-introductions, followed by approval of the previous year’s meeting minutes. All Task Force members listed on the updated roster (attachment 1) were present except Messrs. Bucik, James, Marek, and Ms. Evans. FHWA representatives included Secretary Powers and Messrs. Artimovich, Metczkowski, and Taylor. AASHTO was represented by Messrs. McDonnell and Kobetsky (briefly). Guests included former Task Force member Bill Hickey and LDOTD assistant Bridge Engineer Paul Fossier. Trey Jesclard, also with LDOTD, provided invaluable technical support during the meeting. Chairman Little announced the resignation from the Task Force of Dan Davis (retired), George Steltzmiller (resigned), Doug McClure (resigned) and Earl Freedman (resigned). Bernie Clocksin, from South Dakota, was appointed in Stelzmiller’s place and Chairman Little will initiate the process to fill the remaining vacancies. A list of topics was developed for further discussion during the meeting, each of which will be summarized below. Revised chapter assignments were made due to the turnover in Task Force members and those members on the panels for current NCHRP projects were identified. These assignments are summarized in attachments 2 and 3.

Formal Presentations

A presentation was made by Chuck Niessner who provided a detailed overview of NCHRP projects underway or scheduled to begin during FY 2003. The projects of interest to the Task Force are listed on the attached agenda and current information on the status of each can be found at [http://www4.trb.org/crp.nsf/NCHRP+projects](http://www4.trb.org/crp.nsf/NCHRP+projects). A brief status report on those most directly related to material in the Roadside Design Guide (RDG) follows.

**NCHRP 16-04: Design Guidelines for Safe and Aesthetic Roadside Treatments in Urban Areas**

This two-year project was recently awarded to the Georgia Institute of Technology and is expected to provide specific recommendations and guidelines for incorporation in Chapter 10 of the RDG. Buchan is chairman of the NCHRP panel for this project, which is also expected to develop a matrix for possible crash tests for trees commonly used for landscaping.
NCHRP 17-11: Determination of Safe Cost Effective Roadside Slopes and Associated Clear Distances

The final report for this project is expected in early 2004 but a follow-up project will be needed to establish revised guidelines for possible incorporation into Chapter 3.

NCHRP 17-14(02): Improved Guidelines for Use of Median Barriers

The final completion date for this project is February 2004. A state-of-the-practice survey was completed by the contractor and will be sent electronically to Task Force members for information. The end product is expected to be revised median barrier warrants based on some combination of current state practices and analysis of the data previously collected on this project from North Carolina, Iowa, and Connecticut. Powers announced that in anticipation of new AASHTO warrants, the FHWA intended to request each state DOT to plot its freeway cross-median crashes (fatal crashes primarily, but others where practical) against its current warrants to see if and to what extent the current RDG warrants fail to address the concern. Some discussion ensued. Powers stated that a draft of the proposed FHWA request would be sent to each member electronically for comment before sending it to FHWA field offices, and from there, to each state.

NCHRP Project 17-20 Problem Statements

Project 17-20 was developed to provide technical support the Task Force. The three projects were carryovers from last year and include (a) a RDG review to identify significant safety recommendations whose origins are not clear and to identify the research upon which these recommendations were made (Task 2), (b) a re-evaluation of the flare rates recommended for both permanent and temporary barriers (Task 3), and (c) an evaluation of the crashworthiness of the newer vandal-proof/secure mailboxes (Task 4). The Task Force requested continuation funding of $200K for future projects. The status of each current project is as follows:

**NCHRP 17-20 (Task 2)**

Principal Investigator Kim Nystrom identified specific recommendations in the 2002 RDG that had not been referenced and obtained information on these from Task Force members. She prepared a summary report identifying the sources for these RDG recommendations. The Task Force agreed to expand the contract with additional funding needed to produce a master CD containing the results of this effort.

**NCHRP 17-20 (Task 3)**

Mark Ayton, with assistance from Ron Seitz, had originally prepared a problem statement intended to verify the longitudinal barrier flare rates currently recommended in the RDG. Since a similar effort has been partially funded by the Midwest States Pooled Fund program, the Task Force agreed to supplement the
pooled fund effort under this project to avoid duplication of effort and to expedite examination of this issue.

**NCHRP 17-20 (Task 4)**

Taylor reported on the work done at the National Crash Analysis Center (NCAC) to date on heavy mailboxes. Several Finite Element Analyses (FEA’s) were done and the results validated by full-scale crash tests. The heavy boxes performed acceptably when mounted on steel posts and on wood posts when attached with through-bolts. When attached to wood posts with lag bolts, however, the mailbox separated and penetrated the vehicle’s windshield. Additional funding ($25K) was added to this project to develop a performance envelope and to finalize installation guidelines that will eventually be considered for inclusion in the RDG.

**NCHRP 22-09: Improved Procedures for the Cost Effectiveness Analysis of Roadside Safety Features**

The project has been completed with the results published as NCHRP Report 492, *Roadside Safety Analysis Program (RSAP) – Engineer’s Manual*. AASHTO will send copies of a CD (which includes the Engineer’s Manual) to previous purchasers of the 2002 RDG and will include it with future purchases of the Guide. It was noted that the example problem currently in Appendix A of the Guide is based on an earlier version of RSAP and is incorrect. Niessner has had discussions with King K. Mak, who will revise the example as needed under an extension to his contract. The revision will be disseminated as an addendum and/or posted on the AASHTO website as an errata sheet to the RDG when it is completed.

**NCHRP 22-13(03): Performance of Roadside Barriers**

This project present the results of a formal in-service evaluation based on field reviews in North Carolina, Iowa and Connecticut and includes a model for the design and initiation of field performance studies of selected roadside hardware items. It will be published this fall as NCHRP Report 490.

**NCHRP 22-14(02): Improved Procedures for Safety Performance Evaluation of Roadside Features**

Several Task Force members participate in the NCHRP panel for this update of NCHRP Report 350. A panel meeting has been tentatively scheduled for the third week in November, at which time some decisions may be made on the test vehicles proposed to replace the small car and the 4400-lb pickup truck, as neither currently represents the vehicle fleet. State DOTs are concerned that drastic changes in test requirements may precipitate a new round of testing and hardware development. Test (and review) agencies are concerned that several of the evaluation criteria are too subjective and can lead to inconsistent conclusions among reviewers.
NCHRP 22-17: Recommended Guidelines for Curbs and Curb Barrier Combinations

This project is expected to be completed in early 2004 and to provide more comprehensive guidelines on the use of curb/guardrail combinations. Some crash testing has been completed (by E-TECH), but a few more tests are expected. Dr. Mac Ray at Worcester Polytechnic Institute is the Principal Investigator.

NCHRP 22-19: Aesthetic Concrete Barrier and Bridge Rail Designs

Lance Bullard of TTI is the Principal Investigator on this project that will identify and catalogue existing crashworthy barriers (roadside barriers and bridge railings) that are also considered aesthetic. This project is scheduled for completion in the fall of 2004. In addition, a new aesthetic bridge railing may be tested if a design can be developed that shows promise and widespread acceptability. A similar project to catalogue and provide information on all crashworthy bridge rails was initiated by FHWA (Martha Nevai in the California Division) and is nearing completion.

Proposed NCHRP Project Proposals (Problem Statements)

As in past years, when the opportunity is presented (around January/February 2004), the Task Force will be asked to rate NCHRP problem statements related to roadside safety. Albin presented several candidate projects as noted below for preliminary review by the Task Force:

**Pedestrian/Bicycle Barrier Heights**

The discrepancy between the minimum bicycle rail height of 54 inches in the AASHTO bridge specifications and the recommended 42-inch height contained in the AASHTO Bicycle Guide continues to be a source of some frustration among designers. Washington State DOT previously submitted an NCHRP problem statement to study and resolve the issue, and it was funded under Project 20-7 (Task 168). Report is due during the summer of 2004.

**Bridge Railing Performance Evaluation and Test Level Warrants**

Albin submitted another problem statement recommending a statewide survey of current bridge rail selection procedures and in-service performance evaluation data. The goal of this project would be the establishment of warrants for the appropriate test level bridge railing for eventual inclusion in the RDG. There was no general agreement by the Task Force on the priority that should be assigned to this effort. Albin also noted that the LRFD Bridge Specifications set minimum rail heights for each test level and that would preclude use of a lower rail height, even if that rail had been successfully crash tested. Task Force member Fredrick agreed to discuss this issue with the T-7 technical committee.
Truck-Mounted Attenuator (TMA) Certification Procedures

Current test criteria for TMAs contained in NCHRP Report 350 specify the maximum weight of the support vehicle and gear/brake settings. Several states have requested guidance on the allowable variability of the support vehicle weight in actual practice. An NCHRP project proposal to address this issue was discussed. The Task Force generally agreed that it was an issue of concern. Taylor suggested it could best be addressed in the re-write of Report 350 currently underway and agreed to raise the issue at the panel meeting scheduled for mid-November.

Evaluation of Edgeline (Shoulder) Rumble Strips on Two-lane Roads

Albin also submitted a project proposal for the evaluation of shoulder rumble strips on two-lane roads. To date, virtually all evaluation studies have been conducted on freeways, yet the trend in many states is to include rumble strips on undivided facilities as well. Powers stated that the Insurance Institute for Highway Safety (IIHS) has recently completed an evaluation of centerline rumble strips on two-lane roads and there is also an NCHRP Synthesis Study underway on the use of centerline rumble strips nationally. The Task Force agreed that an evaluation of shoulder rumble strips on non-freeway facilities was needed and agreed to support this proposal, but recommended some revisions be made first.

Miscellaneous Discussion/Action Items

Survey of State DOTs regarding the Roadside Design Guide

Chairman Little enlisted the Task Force to develop a series of questions to be included in a survey regarding the AASHTO Roadside Design Guide that will be sent to AASHTO member departments and FHWA field offices. This survey will be intended to identify any unresolved roadside issues that should be addressed in the next RDG update, as well as any suggested changes in RDG format, content or organization. The Task Force will use these survey results to guide development of the next revision. The draft survey will be finalized by Little, Powers, Cota, and McDonnell and distributed electronically by AASHTO staff and FHWA member Powers.

Assuming the survey is complete by mid-year, decisions can be made regarding items like 1) status of a proposed chapter on low-volume roads, 2) reorganization of Chapters 5 and 6 (Roadside Barriers and Median Barriers) to eliminate duplication in content, 3) future location of content regarding barrier transitions (currently in Chapter 7 Bridge Railings), or 4) Proposed addition of appendix on in-service evaluations. If we decide to proceed on any or all of these items, appropriate assignments will be made with the goal of reviewing draft revisions at the fall 2004 meeting.
Clear Zone Discrepancies in AASHTO documents

Albin initially prepared a summary of discrepancies in AASHTO/FHWA documents regarding the definition of clear zone and subsequently prepared a problem statement for the 20-7 program to address this matter. This project was funded as NCHRP Project 20-7 (Task 171) and should be completed in late 2003. Upon completion, appropriate members of the Task Force will review the results and determine needed revisions, if any, to the RDG.

New York State DOT Concerns

Wilder distributed two handouts for discussion. The first addressed the issue of clear zone definition and was intended to differentiate between “design” clear zone and available recovery area. Design clear zone is intended to be a minimum dimension that the highway authority is committed to maintaining, whereas the “available recovery area” can be a highly variable distance depending on roadside topography. The second handout addressed alternative methods for determining barrier length of need, depending on the type of hazard being shielded (i.e., point or by-passable hazard vs. continuous hazard. Both issues were discussed and will be considered further as the AASHTO Roadside Design Guide is updated.

Domestic Scanning Tour Proposal

The Task Force agreed that there seemed little to be gained at present from an international roadside safety scanning tour, but believed that there were some areas of interest here. Taylor agreed to request funding through FHWA’s Road Departure Safety Team and to work through the Task Force to identify U.S. practices to review should monies be available.

Barrier Run-out Lengths

As assigned, this task was to be undertaken by Rod Lacy who would review the original Nebraska Dept of Roads study done by Dean Sicking, and related articles published in the Transportation Research Record by Sicking and Dick McGinnis. The goal was to summarize the issues concerning Sicking’s proposed run-out lengths using the AASHTO method of barrier design and develop a proposal for addressing this issue. Jim Tenaglia, Rick Wilder and Dick Powers were to assist. This task has been delayed pending results from NCHRP Project 17-22 which may yield better information on vehicle encroachment speeds and angles.

Proposed RDG Chapter on Roadside Design for Low-Volume Roads

Powers presented a draft version of a proposed new RDG chapter to address roadside design on low volume roads and streets, and requested members of the Task Force to review it and offer comments on both format and content. These comments will then be consolidated by the Task Force members assigned to this chapter and a second draft will be prepared for full Task Force review. The initial set of comments should be sent to Powers via e-mail by December 1.
Guidelines for Attachments to Bridge Rails and Median Barriers – Zone of Intrusion Study

Several Task Force members had read and commented on the study conducted by the Midwest Roadside Safety Facility wherein most large truck crash tests conducted in the past on rigid barriers were reviewed to quantify the vehicle overhang distance in each case. This information was then tabulated to identify the desired offset from the face of the barrier to sign supports or bridge piers on top of or immediately behind the barrier. The question addressed was how much of this information should go into the RDG, and where. Powers stated that this concept itself was already discussed in the RDG under concrete barriers and suggested the discussion could be simply expanded to include numbers (i.e., expected intrusion distances for various barrier height/shape combinations). Taylor said that this overhang distance is called “working width” in European testing and simply reported. He anticipates that the Report 350 update will also require that this data be reported.

Work Zone Type II Device service life/labeling

Artimovich reported on the issues of service life for type II work zone devices and marking for NCHRP 350 accepted devices.

The AASHTO/FHWA agreement of August 28, 1998, permits the continued use of non-crashworthy work zone traffic control devices that were in a vendor’s inventory as of October 1, 1998, until the end of their normal service life. At the Task Force 13 meeting it was noted that some vendors are extending the life of devices beyond what may be considered “normal” by replacing major components when damaged or destroyed. Many states have already set “drop dead” dates, after which these obsolete devices will no longer be allowed. However, there are still many states that have not addressed this issue. A request was made that FHWA issue better guidance on “normal service life” and/or establish a nationwide deadline to prevent obsolete hardware from being kept in use indefinitely. FHWA was going to check with their field offices to see if this is seen as a major problem in the field. This may become a moot point as the 2003 edition of the Manual on Uniform Traffic Control Devices requires that work zone sign supports, channelizing devices, Type I, II, and III barricades, and Longitudinal Channelizing Barricades meet crashworthiness criteria by January 17, 2005 for all roads in the United States. This will, of course, mean that pre-2000 devices will no longer be allowed.

The American Traffic Safety Services Association passed a resolution recommending an optional label for use in identifying work zone traffic control devices that meet the requirements of NCHRP Report 350. The label would include the text “NCHRP 350 Compliant”, the FHWA Acceptance Letter number(s) covering the device, and the manufacturer’s name and / or model number. Task Force 13 endorsed this optional label for Category 2 devices. ATSSA’s intent is that this label would be accepted by any and all states that require labeling of NCHRP 350 hardware, thus avoiding a manufacturer needing as many different labels as there are different state requirements.
Summary of On-going Testing Efforts

Lacy reported on testing currently underway at the Midwest Roadside Safety Facility as part of their multi-state pooled-fund program. It was agreed that that agency’s quarterly report would be made available to Task Force members so each person can remain aware of information that may need to be incorporated into the next RDG update. Some on-going projects include a new 4-strand cable system (on sloping terrain), drainage grates on transverse slopes, flare rates for w-beam guardrail, and grading for guardrail terminals. The Task Force was also interested in keeping apprised of generic testing done by TTI as well.

Fall 2004 Annual Meeting

The meeting convened at 10 a.m. The next TFRS meeting will also be held in conjunction with the Task Force 13 fall meeting, and has been scheduled for the week of October 11-15, 2004 at the TRB facility at UC Irvine, near Newport Beach, California.
### AASHTO Task Force for Roadside Safety - Current Assignments

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## AASHTO TFRS Member NCHRP Activities

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AASHTO TASK FORCE FOR ROADSIDE SAFETY
UPDATE OCTOBER, 2003 ROSTER

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