

AASHTO ARTBA JOINT COMMITTEE TASK FORCE 13 PERDIDO BEACH RESORT ORANGE BEACH ALABAMA September 19, 2005

Co-Chair **Pat Collins** of the Wyoming DOT welcomed Task Force 13 members and AASHTO Technical Committee for Roadside Safety (TCRS) guests to the Fall 2005 joint meeting. He introduced and thanked our host, **Steve Walker** of the Alabama DOT who advised members that the meeting was occurring in the room and not outside at the pool...

Collins then introduced the Executive Board members, Co Chair **John Durkos** of Roadsystems, Inc, Secretary **Nick Artimovich** of FHWA, and **Art Dinitz**, Chairman Emeritus. He noted the support we have received from our AASHTO Headquarters liaison **Jim McDonnel** and hoped he would be here soon. **Collins** noted that the fall meetings that have been held jointly with AASHTO TCRS have turned out to be a very good arrangement since we have such a close tie with roadside safety. He also asked us all to remember victims of Hurricane Katrina in thoughts and prayers, and donations.

Collins read a letter received subsequent to last meeting, from Battelle Labs of Columbus and the Transportation Research Center of East Liberty, Ohio, thanking us for meeting at their facilities last spring.

Keith Cota, Chairman of the TCRS reiterated his invitation for TF13 members to attend overview presentation on the status of the NCHRP Report 350 update on Wednesday. Panel members and SCOD members will also be in attendance.

Housekeeping items. **Collins** noted that typical walk-in registration is normally on the order of 5 to 10 per meeting. This time we had about 25 in addition to the 60 who were pre-registered. Walk-ins are always welcome, but pre-registration makes it easier for the site planners to tailor the facilities to our needs. After a round of self-introductions **Collins** asked for additions or corrections to the minutes, which had been posted on our Internet site <http://www.aashtotf13.org>. **Durkos** motioned and **Dinitz** seconded. The Task Force voted to approve.

Artimovich summarized the minutes of the various subcommittee activities from the spring meeting in Ohio. **Collins** then summarized agenda for the next two days, and **Durkos** discussed the Monday evening dinner at Louisiana Lagniappe.

We then continued with agenda and got into the Subcommittee meetings. This year the Barrier Hardware Subcommittee wanted to report on the progress of their 20-7 project to establish a protocol for putting drawings on the TF13 web site, receiving comments, and

voting on changes. Since the other subcommittees could also use this process for posting their publications, Subcommittee #2 met as a whole and met first.

Subcommittee # 2 Barrier Hardware

Will Longstreet of Penn DOT reviewed the April subcommittee meeting notes. The contractor, **Dr Malcolm Ray** discussed his guide for updating hardware drawings and how it will continue in the future. Presented subcommittee mission statement.

Ray then discussed the drawing review and update process. The web infrastructure is complete and numerous drawings have been posted and open for comments. All non-proprietary hardware drawings and specifications have been revised and are ready for approval. Many proprietary drawings and specifications are also ready. Comments have been solicited and rec'd for all the drawings. **Ray** expressed his thanks to those who took the time to review and comment. "Today we shift into another mode by approving drawings and move into operational mode" he noted. We begin this with our vote on the draft systems. We then need to transition this to a volunteer effort, as his contract will expire soon.

As an example of the website and how we use it, **Ray** showed the Crash Cushion page and followed links for the Energite system. Based on the comments received he recommended all ten systems be moved from DRAFT section to APPROVED section. Do not want line weights and font sizes to get in the way of the approval process. There were minor comments, including one on misplaced "#" sign and broken links. **Ray** promised to have those fixed. **Dick Powers** also noted that Cushion Wall II does not have an acceptance letter. That item was pulled from the voting. Another member noted the BEAT-SSCC shows it is acceptable for back side hits. **Durkos** indicated that the test was run and passed, but was not redirected. This shows that person responsible for drawing is also responsible for watching discussion board and resolving the comment. If you sign in as a member you can sign up to have emails sent to you on that discussion thread. BEAT SSCC was also pulled from the voting until the comments can be resolved. Remaining 9 systems were voted and approved for moving from Draft to Updated area.

End Terminals were reviewed next. In this initial go-around **Jennifer Weir** and **Ray** responded to non-proprietary systems as they developed them. In the future the submitter should answer comments. **Powers** asked about the variations in proprietary systems. **Ray** indicated that the varieties can be shown on different drawings, and showed that there were three different FLEATs. **Durkos** indicated that most have a table detailing the variations. Voted on 11 GR end terminal systems that were approved.

Next we discussed the non-proprietary longitudinal barrier system section consisting of 13 median barriers.

The StopGate index page indicates it is a TL-5, but it is actually a TL-2 system. That will be corrected, but it was pulled from voting, as it is more properly located in the crash cushion category. W beam GR with RubRail was tested under NCHRP Report 230 and

not retested under 350. This was pulled. Thrie Beam was also pulled, as it will be split to highlight the Modified Thrie Beam. Voted on remaining 7 barrier systems, which were approved.

Finally we reviewed the Work Zone barrier systems. Triton barrier systems were pulled because one acceptance letter appears to be missing. Remaining 2 were voted on and approved.

Ray then discussed the steps necessary to transition from his contract, which is ending in October 2005, to an all-volunteer effort by Task Force 13. **Lance Bullard** noted that volunteer efforts rarely continue successfully. **Longstreet** asked various members of the Barrier Subcommittee to volunteer to be the contact people for crash cushions, guardrail terminals, longitudinal barriers, and work zone barriers.

Ray noted that anyone can submit drawings and comment, but who has right to vote? Is it limited to the Exec Board? AASHTO/ARTBA/AGC?? **Collins** indicated that the Exec Board would need to deal with this and with the Joint Committee and **McDonnel**. **Collins** believes that the drawing must first be approved by the subcommittee, then by the Publications Maintenance Subcommittee, then by the Executive Board.

Once a drawing is approved by TF13 it really needs to be approved by the Joint Committee and/or AASHTO itself through **Dinitz**'s Subcommittee. We need to have an official body vote on what we come up with. If the Joint Committee had something in its charter as to how to deal with this approval process we must follow it. If not we should establish a path of authority and present that to AASHTO. **Dinitz** later noted that the Joint Committee was the venue for seeking approval from all three organizations. John **LaTurner** noted that there might be some changes that we can get by without voting.

Ray noted that at the AFB20 summer meeting we discussed marking up drawings using Adobe 7, and **Longstreet** then walked us through the details. Adobe Version 7.0 costs \$450 but the Adobe Reader is free through Internet download. With Reader you can highlight, strikeout, comment on any "enabled" documents. All comments on a single drawing can be merged onto one comment block. Members are encouraged to go to www.adobe.com/products and download the reader for free. PDFs with redline comments cannot be posted on aashtotf13 site but we can post a link and TTI can set up an FTP site that they can be posted to. No objections were raised to posting these drawings with comments onto our site.

Collins called for a round of applause for **Weir** and **Ray** for all their good work in compiling this process and putting in into operation. He also noted that **Harry Taylor**'s comment that we need funding to keep this going is highly appropriate.

Subcommittee # 1 Publications Maintenance

Matt Leahy noted that **Nancy Berry** will no longer be associated with the Task Force. Her efforts in developing the website from **LaTurner**'s initial draft, posting it, and

maintaining it as a means of communication as well as a location where the Task Force can refine and “publish” our documents are invaluable. **Berry** will introduce a replacement at the next meeting, a person who has been working with her on the website. **Leahy** is not sure where we are with respect to sending the website to TTI from VDOT.

The model that Subcommittee #2 has developed is a good model for the other subcommittees to follow, and most agree. The Publications Subcommittee will go on hold until the other subcommittees come up with pages to post. We will need a long-term source of funding to maintain the website in the future once TTI gets fed up with us.

Durkos: There were some changes to the subcommittee chairs, mission statements, etc that needed changing on the website. Subcommittee #4 noted that their changes have been made, which leads us to believe that the other requested changes have probably been made. All subcommittees have been asked to post needed changes.

Subcommittee #5 Sign and Luminaire Support Hardware.

Since neither co-chair could attend this meeting, **Collins** served as acting chair. The Subcommittee is responsible for two publications, one on Luminaire supports and one on sign supports.

The RFP for the Wyoming-run pooled fund study on Luminaire Support Study will be posted in the immediate future.

We were successful in getting NCHRP Project 20-7 funding for the Ground Mounted Small Sign Support Hardware Guide. **Chuck Niessner** said they are now putting panel together for this. **Ray** did the last update but will be in Italy until July 2006. **Niessner** will write statement of work for panel to review. We asked for \$75 K and got \$50 K, and suggestions for potential contractors are welcome. **Ray** is logical choice but his travels may be a problem. **Weir** may be interested. TTI is not.

NCHRP 10-70 study on connections for ancillary structures was just put out on the street. **Carl Mochetto** is familiar with this effort and indicated that the panel addressed categorizing the fatigue resistance of welds vs systems. Categorized standardized connections are used in industry. Each connection would have to be analyzed in parts and use the worst case as controlling the design. Not sure that we can categorize a system as a whole. Bridge designers do not categorize a whole structure; rather they look at the component parts. **Artimovich** questioned which states have anted up their \$\$\$ and it was not known. New highway bill has increased the SP&R money.

Artimovich then read the minutes of the Ohio meeting. The major outstanding issue was the lack of Key Benefits for the Sign Support guide. **Rick Mauer** crafted a statement and will send it to **Berry**.

Subcommittee #3 Bridge Rail and Transitions Hardware

Notes provided by **Mark Bloschock**, who also summarized their meeting.

Bligh reviewed issues related to the new Bridge Rail Guide, which has \$100,000 funding under NCHRP 20-07. The contractor, Dr. Malcolm Ray, presented an update and discussed the format and content. The intended users are different from the Barrier Hardware Guide as there will be more users from the public, e.g. architects using it as visual type reference.

The subcommittee discussed and agreed upon:

Format to be similar to the current Barrier Hardware Guide

Information sources

- Barrier Hardware Guide
- CALTRANS / FHWA Bridge Rail Guide
- Known individuals, not a mass email to all states

Categories

- metal
- concrete
- metal on concrete
- timber
- retrofitted rails (new category)
- composite materials (for future use as none yet exist)

Information to be included

- photos: 1 from each side (additional pics to be in a “folder”)
- test levels, approval letters, weight per foot
- details, links to multiple states for common rails and for variability in those state’s details
- costs will not be included as the variability limits the value

All crash tested rails accepted under Report 350 to be included

Time to completion: 18 months.

Other discussion questions:

Paper copy vs solely web based document?

Which bridge rails should be completed/posted first?

Include older rails tested to prior criteria but now used at a lower test level?

Subcommittee # 4 Drainage

Summarized by **Nathan Paul**. They reviewed the minutes of the last meeting and discussed lack of the original document electronic format. It appears they will have to begin from scratch. It was decided to break it into segments and have members from those industry segments will begin the rewrite. They also decided to add stormwater management / treatment as it is a hot topic due in part to new EPA regulations. They also looked at Task Force 22 document on subsurface drainage under transportation facilities. They discussed meeting protocol and have some questions to ask AASHTO for guidance. In order to include more members the subcommittee plans to also do summer and winter phone conversations.

Subcommittee #6 Work Zone Hardware.

Notes taken by **Kurt Brauner** of the Louisiana DOTD:

The meeting opened with a review of the notes and issues from the April 2005 meeting in Columbus, Ohio and focused specifically on contractors incorrectly using water filled barricades as barriers. This led to a discussion regarding the proper terminology for the different systems and the various inconsistencies in the guides, specifications, and various manufacturer's product literature. Nick Artimovich agreed to write a letter to the various manufacturers instructing them to use the correct terminology when describing non-gating BARRIERS as opposed to BARRICADES, which allow vehicle penetration. It was also recommended that this issue be referred to and discussed by ATSSA's Temporary Traffic Control Committee.

This discussion about terminology led to a proposal to label the various products. The following issues with the use of warning labels were discussed:

1. Adhesiveness of the label to the product (needs to last the life of the product)
2. Durability of the label (needs to last the life of the product)
3. Readability of the label (needs to be concise, but accurate in terms of use and warnings)
4. Location on the label on the product (needs to be readily visible and accessible for reading)
5. Verbiage on the label for multi-use products (some devices can be retrofitted to elevate performance from a barricade to a barrier by attaching extra hardware. The wording on the decal needs to address this).
6. Standard wording for the labels (manufacturers of these devices should use common nomenclature).

Donna Clark (w/ ATSSA) recommended we invite the manufactures of these work zone devices to our next TF-13 meeting to get their input and to educate them on how/when to adopt these recommendations. **Barry Stephens** and **Leo Yodock**, manufacturers of these devices, volunteered to work together to proposed standard wording for these labels. When they finish their proposed wording, it will be reviewed and a notification letter will be issued to manufacturers. **Nick Artimovich**, FHWA, agreed to participate in this process.

New Topics:

1. Different glare screen colors for work zones. After some discussion, it was agreed that this would be an item for the MUTCD to authorize / adopt.
2. Standard colors for all work zone devices. The sub-committee showed no interest in this and the issue was dropped. It could possibly be another item for the MUTCD to adopt.

3. Flat panel signs versus round channelizers in work zones. Various states and customers are using these items incorrectly. Either they are placing them too close to traffic lanes or are using the incorrect bases. Also, some state specifications are incorrect in their requirements of certain work zone channelizers. The sub-committee agreed that NTPEP may be the best group to look into this and offer some recommendations.
4. Misuse of sand barrels in work zones. It was decided that this could be an AASHTO item and that the Work Zone Clearinghouse could develop some use warrants describing the proper use of these sand barrels. Also, we could include information and / or ask for input on the website.
5. New ADA requirements for channelizing pedestrians. There was some concern that the industry does not yet comply with the continuous barrier requirements for channelizing pedestrians. It was determined that there ARE adequate devices out there and Leo Yodock and Barry Stephens volunteered to send this information to anybody who might need it.
6. Allowing work zone signs to be mounted to Type III barricades. It was mentioned that lightweight signs were acceptable but that rigid signs might need to be crash-tested. It was also mentioned that the MUTCD does outline the requirements for sign heights, just not the materials to be used.

Subcommittee # 7 Certification of Test Facilities.

Faller provided the following minutes:

At the Spring 2005 subcommittee meeting, the crash testing laboratories were asked to examine their measurement uncertainty with respect to impact speed determination. Previously, E-TECH Testing Services, Inc. and Safe Technologies, Inc. completed this analysis as part of the third-party accreditation process and had reported their findings to the subcommittee. At the 2005 Fall meeting, two other test laboratories, MwRSF and TRC, Inc., provided PowerPoint presentations for each of their impact speed measurement systems and associated uncertainty in measurement. In the future, the other U.S. test laboratories are requested to investigate their speed measurement systems and report their findings to the subcommittee.

Although the group discussions on measurement uncertainty for speed determination will continue in the future and within this subcommittee, other areas of collaboration between the test laboratories were recommended. These collaborations may consist of either inter-laboratory comparisons (ILC's) or in-house investigations on measurement uncertainty for the following focus areas: TL-2 work-zone devices; occupant compartment deformation; measurement and evaluation of windshield damage; effects of accelerometer mountings; and measurement of the vertical c.g. of test vehicles. These future ILC's and/or measurement uncertainty investigations will give test laboratories a greater understanding of their measurement processes as well as an increased confidence that measurements are within the specified tolerance.

To date and as part of this subcommittee, several ILC's have been conducted with U.S.

and International test facilities. More recently, a high-speed film and video analysis ILC was conducted by TTI. Final results for this film/video analysis ILC were provided to the subcommittee attendees in hard copy form. It was noted that the results for all of the prior ILC's have been made available on a MwRSF server location. Instructions for accessing this server location are found on the AASHTO Task Force 13 website under Subcommittee No. 7.

Harry **Taylor** of FHWA provided an update for the document containing the future laboratory accreditation requirements. It is anticipated that draft information may be available by the end of 2005. Co-Chairs **Faller** and **LaTurner** noted that in the future, FHWA will require test laboratories to become third-party accredited and also comply with additional FHWA requirements that are yet to be finalized. Although these requirements have yet to be formally released, test laboratories have been expected to participate in the Subcommittee No. 7 activities in an effort to increase a laboratory's consistency, quality, and competence. Since there are several crash test laboratories that test, evaluate, and have their results submitted to FHWA as part of an approval request, it is the opinion of the Co-Chairs and subcommittee members that all U.S. crash test facilities should participate in the subcommittee activities. As such, FHWA was requested to provide a list of U.S. test laboratories that are not currently participating in Subcommittee No. 7 to **Faller** and **LaTurner** so that those organizations can be formally re-invited to attend and participate in our AASHTO TF 13 meetings.

[TASK FORCE 13 SECRETARY'S NOTE: Please see the FHWA web site http://safety.fhwa.dot.gov/roadway_dept/road hardware/crashtst.htm for domestic test labs that FHWA has dealt with. All those on the list that are not participating in ILC's should be invited to attend. Updated / corrected information from TF13 member labs would be appreciated.]

Finally, Co-Chairs **Faller** and **LaTurner** stated that a hard deadline from FHWA will help to advance and encourage all of the U.S. test laboratories to become third-party accredited.

Subcommittee # 8 Rail Highway Crossing Hardware.

Mauer provided the following minutes *on the evening of the Subcommittee's meeting.*

- Refreshing of our RR Contact List.
 - TTI send an email all of the contacts on the to check the validity. Had a 50 % response and updated the directory.
- Contacting some Key RR FRA and DOT contacts.
 - Existence of a FRA Contact lists
 - Do we maintain our list or defer to them – *We will remove the RR State DOT Contacts from our list and insert a link directly to the FRA – State DOT Contact list*
 - Should we merge our list – *Yes we are merging- We are maintaining our list with RR Suppliers, RR Associations, and N. American Rail Roads.*

- FRA RR Crossing Meeting in November at TTI
 - Attendance – Dean Alberson will attend meeting
- Vote to disband formal group. *We have not disbanded.*

Special Subcommittees: Marketing:

Andy Artar thanked **Durkos** for providing the measuring tapes as a marketing device. This meeting held jointly with AASHTO big success as evidenced by 85+ participants. Our spring meetings are usually scheduled at test facility or at a real major vacation location both of which are good for drawing participants. With passage of SAFETEA-LU we have to question whether State DOT people will be able to attend at their present rate. 21 state people attended the meeting today. Better than half from state, fed, research.

New Standardization Areas: Would like new co-chairs for this subcommittee.

FHWA Issues:

Artimovich presented proposed FHWA Category II procedures. This proposal calls for developers to use a form developed by the FHWA to request acceptance of their hardware. The test house would certify that the testing met NCHRP Report 350 requirements, and that the tested device met the appropriate evaluation criteria. The lab would also certify that the tested device was accurately described on the request form. Based on these certifications, the developer would certify that the device meet Report 350 criteria. FHWA review the submittal and the attachments, including a checklist of required information, and post the form to our website with a “WZ Number” and the date. FHWA would also conduct occasional spot-checks to ensure the process is working properly. Revisions to previously tested and accepted hardware would need to be certified by the original test house or an engineer familiar with crash testing.

Executive Board Meeting Monday, 5:00

Collins, Walker, Bloschock, Tackach, Longstreet, Durkos, Neuwald, Paul, Cota, Stephens, Dinitz, Artar, Ayton, Leahy, LaTurner, Faller, Alberson, Bligh, Mauer

Review and Approval Process for Task Force 13 publications.

Internal: Mechanics, Technical

External: Joint Committee, AASHTO

Collins said we need to talk with **McDonnel** regarding how Joint Committees are to handle business with respect to AASHTO approval of their products.

Are we going for approval of each document / drawing or for total publication?

LaTurner: No need to print a “Final Document” as anyone can produce a hardcopy of the drawings they want. We can post a notice that the web site has the latest approved

version of the drawings. “Approved” by Task Force 13 doesn’t mean the high level AASHTO approvals.

Dinitz: With the Barrier Guide we are working on an update of a current entity. We should not post that piecemeal. The update should be posted all at once after AASHTO approves it as a final document.

Durkos: Existing guide will remain on line as a historical reference. This updating process will take a long time to approve all the barrier drawings. We can produce an index of approved and future drawings

Bligh: We already have AASHTO approval for this process. Why do we need AASHTO approval for a final document?

Dinitz: The option is AASHTO’s. They will send to all 50 states, OR send to a technical committee for approval, at their option.

Faller: Reviewing a website is very difficult.

Cota: The process to get AASHTO approval of RDG Chapter 6 has taken 6 months.

Bligh: TF13 is not a standard and should not need AASHTO approval of every drawing.

Collins: How much does Ray have left to do?

Longstreet: Hundreds more drawings are left to finalize.

Collins: How long should we wait before asking for AASHTO approval? If our documents pass through TF13 then they are valid, and the Joint Committee should have little review to do.

Durkos: 11 CC, 11 end treatments, 21 GR or Median Barriers on web site today. The old book has hundreds of drawings. It will take a long time before the guide is “finalized.”

Faller: how much work will it take us to finalize the “update” to the original Barrier Guide?

Dinitz: What value is having 25 percent of the drawings on line?

LaTurner: Ask AASHTO to approve the formalized procedure for our development of the barrier guide.

Alberson: We should present the document to AASHTO every so many years for their formal approval. Otherwise it will take forever to finalize the guide, and we may very well lose steam if we aren’t working toward documents that are immediately useful.

Bligh: Are we satisfied that all parts and capabilities are in place, index, search engine, etc.

Collins. We need to approach a partial AASHTO approval of our process and documents we have approved to date.

Cota: What are AASHTO's expectations of this document? What guarantees are there that the document will become stale on line? Ask **McDonnel** how AASHTO will take to having it updated so frequently? What about the stack of non-proprietary drawings that are ready to be added to the process? Can Ray be contracted to put these through the process?

LaTurner asked if we have the goal of eventually doing this ourselves? Or not?

Collins: i.e. \$50 K a year for a grad student to do? Now we are still talking about hundreds of drawings before the book is "complete."

Longstreet: Contract was to develop the process. It would be best now to have DOT involvement in this process. Will check with **Ray** on searchability of drawings, and how much of the drawings completed and ready to go?

Spring Meeting 2006

The following sites were discussed: San Antonio, Lincoln, Sacramento, Seattle, Nashville, Sarasota.

In the Fall of 2006 it is proposed that we meet with the TCRS in Toronto, Ontario.

Action Items

Collins and **Durkos** will talk to **McDonnel**

Longstreet and **Tackach** will talk to **Niessner** re **Ray** and 20-7

New areas of standardization were discussed. Security Barriers? Sound Walls? Breakaway Utility Devices? Stuff on top of barriers? "Barrier Mounted Hardware" Noise Walls, Poles, Glare Screens, Sign supports,

Durkos: What about non-hardware issues: Crash test labs. Software. Procedures... To **Longstreet** and **Tackach**, what have you learned about this process that would lead to standardization of this process? This is the responsibility of the Publications Maintenance committee too.

Tuesday, September 20, 2005

Durkos thanked **Steve Walker** and **Chris Massey** for all their work in planning the meeting venue, especially considering the extra work that Alabama DOT employees are dealing with in the wake of hurricane Katrina.

Cota invited Task Force 13 members to attend the Wednesday afternoon session of the TCRS meeting to hear of the update of NCHRP Report 350.

Niessner presented his usual excellent summary of Roadside Safety related NCHRP studies. If you are reading the MSWord version of these minutes you may click on the links below to be taken directly to the NCHRP web page for the subject project. If you are reading these in PDF format taken from the www.aashtof13.org web site, please go to <http://www4.trb.org/trb/crp.nsf> and look for NCHRP.

16-04	
Design Guidelines for Safe and Aesthetic Roadside Treatments in Urban Areas (Active) Revising interim report	
17-11(2)	
Determination of Safe/Cost Effective Roadside Slopes and Associated Clear Distances (Completed) Follow on contract (2) to develop guidelines is pending.	
17-22	
Identification of Vehicular Impact Conditions Associated with Serious Ran-Off-Road Crashes (Active) Working on reconstructing approximately 1000 crashes.	
20-07 (192)	
Task 192 Update of <i>A Guide to Standardized Highway Barrier Rail Hardware</i> , 1995 Web based infrastructure in place	
20-07 (196)	
Task 196 “Development of a Guide to Crashworthy Bridge Rail Systems – Contract pending	
20-07 (210)	
Task 210 “Guidelines for the Selection of Cable Barrier Systems” Contract awarded August 2005	
20-07 (214)	
Task 214 “A Guide to Small Sign Support Hardware” Contract Pending	
22-12(02)	
Guidelines for the Selection, Installation, and Maintenance of Highway-Safety Features Currently preparing draft guidelines	
22-14(02)	
Improved Procedures for Safety-Performance Evaluation of Roadside Features (Active) Currently revising guidelines. Completion likely in the Spring 2006	
22-18	
Crashworthy Work-Zone Traffic Control Devices (Crash Testing Done) Revised draft final report submitted.	
22-19	
Aesthetic Concrete Barrier and Bridge Rail Designs (Active) Revised draft final report submitted	
22-20	
Development of AASHTO LRFD Design Methodology and Load Transfer Mechanism for MSE Walls with Top-Mounted Traffic Barrier / Anchor Slab Under Vehicular Impact Load (Work plan submitted) Phase 1 Completed.	

AASHTO SCOR approved four new projects for FY 2006
22-21 “Median Design and Barrier Considerations for High Speed Highways

22-22 “Effectiveness of Traffic Barriers on Non-Level Terrain”

22-23 “Barrier System Maintenance Procedures

Affiliated Committee / Activity Reports

Collins reported for **Greg Fredrick** who usually briefs us on the Technical Committee activities of the Subcommittee on Bridges and Structures

T-7 Bridgerailings Clarified the definition of low-speed or high-speed roadway. The bridge definitions are now compatible with RDG. Low speed is 45 or less. Discussed the minimum height of different test levels for railings. These would be absolutes and designers may not even use a crash tested railing if its height is lower than the minimum. This proposal was withdrawn. T-7 forwarded a resolution recommending that upper range of bicycle railings include 54 inches.

T-12 Sign and Luminaire Support structures. Panel met and developed wording for an RFP in support of NCHRP Project [10-70](#) Cost-Effective Connection Details for Highway Sign, Luminaire, and Traffic Signal Structures (Posted date: 08/29/05)

Durkos introduced **McDonnel** of AASHTO Headquarters and noted that **McDonnel** has been the “missing link” or the “gasoline on the fire” that has helped TF-13 get our publications underway. McDonnel took the anthropological reference in good humor, and expressed pleasure in being able to be of assistance to the Task Force. He had just participated in the AASHTO Annual Meeting and gave a composite presentation on that organization’s activities.

The long awaited highway bill, “SAFETEA-LU” finally passed, two years late. It provides 286 billion dollars over the next 5 years. Some of the interesting provisions include a requirement that temporary traffic control must be a separate pay item, and it must be in place per MUTCD for federally funded projects (Section 1110). Provisions for Older drivers and pedestrians are included in Section 1405. Section 1408 covers the improvement and replacement of highway hardware on the NHS and requires joint guidance from AASHTO and FHWA Other noteworthy sections are:

Work zone safety grant section 1409

Highways for life 1502

Highway Bridges section 1114

Buy America Sec 1903 and 1928 The new law applies the percentage threshold to ENTIRE project, not just incremental cost of steel.

Work zone clearinghouse 1410

Motorcyclist advisory council 1419

The greatest change over previous highway bills is the inclusion of highway safety core funding. This is money that must be directed towards safety improvements. FHWA is still working on the details.

McDonnell also mentioned the AASHTO TIG Technology Implementation Group. There are three focus technologies this year: Road safety audits, ITS in Work Zones, and cable median barriers. He noted the rapid progress through the voting process for the new median Barrier Guidelines – Revisions to Chapter 6 of RDG. NTSB will think that they are responsible for this.

Metric plans and specifications. Only New York State DOT and Puerto Rico will continue in Metric units.

National Association of County Engineers

Randy Cole, County Engineer, Shelby County Alabama. Current President of NACE. Cole welcomed us to the Alabama Gulf Coast. NACE is pleased to partner with organizations that deal with highway safety. Since about 61 percent of fatalities occur in rural areas NACE promotes safety activities and coordination among counties. They have promoted the Safety Circuit Rider with LTAP. NACE is represented on numerous safety related committees including the AASHTO Standing Committee On Highway Safety, the National Committee on Uniform Traffic Control Devices, etc. **Cole** invited us to attend the NACE national conference in April in Grand Rapids, Michigan, and to visit their website www.countyengineers.org for info on the organization and on the annual meeting.

American Traffic Safety Services Association

Donna Clark noted that the ATSSA Guardrail Committee was looking for new members. Their training focus has shifted to courses on webinars rather than on-site instruction open to the public. (Closed courses are still being offered.) Webinars deal with legal liability for contractors, best practices guide on guardrail using state strategic highway safety programs, work zone safety, and many other topics.

The ATSSA Legislative Fly-in will be in September of 2006. **Clark** also noted ATSSA's Annual Meeting and Traffic expo will be held in Ft. Lauderdale, Florida, March 5-7 2006, the National WorkZone Safety Awareness Week scheduled for next April, and that the Work Zone Memorial wall is still available for travel.

OLD and NEW Task Force 13 Business

Review and Approval Process of TF13 documents.

The Barrier Guide is started, and it is about 25-30 percent complete. Not only need to complete the job, but need to get AASHTO's approval either in part or in whole. It will take a while yet to complete but we cannot afford to wait until it is done before we seek approval. **McDonnell** will be asked what is AASHTO's position. AASHTO SCOH is the highest approval that is necessary. Partial acceptance should be OK as long as it is a logical process.

Dinitz will submit it to the three member organizations that are part of the Joint Committee's Subcommittee on New Materials. Those representatives will bring it up through their organizations and we will get the three concurrent reviews.

Albin: Is this for approving the final document or for individual drawings?

Collins: Once we get all drawings of a segment of the Guide done we can send them through the AASHTO chain. Only then can we put those on the site for general consumption.

McDonnell suggested we get agreement for a lower level approval, as we are not proposing a standard.

Spring Meeting 2006

We will meet in conjunction with the AASHTO TCRS in Seattle in the Fall of 2007 so it is off the list for 2006. The remaining cities were voted on with the following results: Sarasota 16, Lincoln 8, Sacramento 12, and Nashville 19. Although it appeared that Nashville was the favored site, subsequent discussions indicated that certain recent events concerning w-beam barrier installation in Tennessee have made the location unacceptable to some of our members who deal with guardrail. Add to this **Dinitz's** gracious offer to coordinate another meeting in Sarasota and we decided to follow the path of least resistance. Plan on meeting in Florida next spring, tentatively scheduled for the 27th and 28th of April.

TECHNICAL PRESENTATIONS

Barrie Burke of Pole Tech Systems

There are no breakaway poles, posts, etc. in the UK, as such hardware is shielded with barrier when though necessary.. However, legal claims are increasing greatly, and people realize there are better systems. They now like breakaway, but don't like our breakaway systems. They need systems that absorb energy and capture the vehicle. Presented the UK standard for energy absorbing poles. Developer must prove their device conforms to BS EN 12767

Energy absorbing: post deforms and slows vehicle but does not separate at the base. There are two categories, Low Energy and High Energy absorbing. Burke described numerous post systems coming into use in Britain. Lattice structures being used for stand-alone poles and for overhead sign bridges. They are working on a breakaway sign bridge that will span both roadways, and a vehicle will be able to take out both legs on one end of the bridge and the sign bridge will not collapse.

Rick Mauer Nucor Steel.

US High Tension Cable Barrier system. They have crash tested it with varying post spacing to determine change in deflection. Have looked at both direct drive and concrete socketed. Tested 326 foot long segments with deflections ranging from 5-foot 3inches for socketed systems and up to 9 feet 4 inches for soil mounted posts. Posts hang on to cable because of locking hook bolt. The barrier is installed with cable tension at 5600 pounds

pre tension at 70 degrees F. Nucor also sells conventional low-tension cable on u-channel post, and the Slip safe Supreme system for u channel signposts. They are currently working on a TL-4 design and a cable to w beam transition.

Dean Alberson. Recent Research at TTI.

MWRSF testing showed the G4-1S Modified with Wood Blockout w-beam guardrail to have very marginal performance at best.. TTI revisited all GR components from the ground up and developed a new strong post system that omits the block out. It uses the standard 12 ga rail, a steel yielding line post, splices at mid-span, and a simple but consistent connection between the rail and post. It was tested successfully with new small car and pick up vehicles. This system is similar in concept to another barrier presented at our spring meeting in Ohio in that it is supposed to reduce cost and improve performance by omitting the blockout in favor of a reliable rail to post connection.

Ron Faller Midwest Roadside Safety Facility

MWRSF has tested the Midwest Guardrail System with flares of 13: 1, 7:1, and 5:1 with the 2000p and/or 820c vehicles. (Showed tests of 13:1 2000p, 7:1 2000p, and 7:1 820c) They will also look at other critical impact points for this system.

Don Johnson, Trinity Industries.

Discussed the new ETPlus-31 Terminal for 31” high w-beam guardrail systems, and the CASS Cable Safety System which has successfully prevented crossovers by 18 wheelers in real-world “testing.” Johnson also announced the introduction of the “T-31 Guardrail System” as tested by TTI and discussed above. Because the system uses no blockout, there is less site grading required in many installations.

Leo Yodock, Yodock Wall Company

Discussed Longitudinal Channellizing Barricades. They have developed a shorter 18 inch tall articulated LCB and conducted a TL-2 test. The system passed when bolted to the pavement.

Ken Opiela, FHWA Office of Safety Research

Gave an Overview of the National Crash Analysis Center in 2005. This federally funded arm of the George Washington University began in 1993 with FHWA and NHTSA as sponsors. Now includes the Departments of State and Homeland Security, and the Federal Lands Highway Program.

During its restart NCAC is striving for Improved product delivery. They will have a review of their program and priorities and continue development and application of finite element models. They will begin by completing work in the pipeline. They hope to

enhance reporting and accessibility and continue to participate in Inter Laboratory Comparisons and related activities. They are also looking for feedback from users.

Future NCAC:

All electronic library

New vehicle models

New reporting requirements

Updates to the website

Model enhancements

Participation with others

Catalog of efforts

Art Dinitz, Transpo Industries

Transpo has begun testing Break Safe breakaway system for omni directional impacts. They discovered a problem with sign faces that were too flexible to permit successful performance of the upper hinge. Can either stiffen system to ensure hinge activation, or to purposely design sign face to be flexible and allow support leg to release from the back of the sign.

He also discussed the AASHTO TIG Technology Implementation Group. Art has a lot of experience in getting “niche” technology implemented. TIG goal is to get priority technology or systems for use in the transportation field. Asked all members if they have new products that have worked for you please bring them forward to TIG committee. Nominations are open now.

Bill Neusch, Gibraltar. New Cable Barrier System

A 350 TL-3 Terminal and TL-3 and TL-4 length of need cable barriers have been developed. The bottom cable is the same height as conventional cable. The middle cable of the TL 4 system is at the same height as TL3 top cable. See www.gibraltartx.com Median barrier version keeps cable in line, but posts alternate on either side. It was tested with posts driven directly into the soil but it can also be used with a socket. The terminal has a cable release post at the end.

John Durkos, RoadSystems Inc.

Presented a Life Cycle Cost Analysis ... An Apples to Apples Perspective. It shows the benefit of analyzing all the costs of a barrier system, including the initial cost, cost to repair, frequency of repair, frequency of routine maintenance, etc. All these factors should be considered whenever choosing a device to install in order to ensure the most economical system over time.

Pat Collins, Task Force 13 Co-Chair

Discussed SAFETEA-LU and highlighted a few of its effects on the highway program. You may want to check this out. Bridge program funds may now be used for bridge

maintenance, not just construction and reconstruction. There is no longer a minimum % of funds to be spent on local roads. CMAQ funds may now be used to prevent a violation of air quality standards, i.e. spreading dust palliative before trucks head on out to drill.

JOINT DISCUSSION BETWEEN TCRS AND TASK FORCE 13

Durkos began with an introduction on NCHRP Report 230's crash test angles and how they have changed. Under Report 350, barrier terminals and crash cushions are now tested at 20 degrees while barriers at impacted at 25 degrees. Under the 350 rewrite the terminal tests are proposed to be at 25 degrees. The increase in angle and vehicle mass is 1.7 times for the pickup and 2 times the energy for a small car. What do you think about this increase in impact energy for testing systems that have generally been performing well?? What effect will this have on industry? On States? New specs will likely be implemented ca 2012 +/-

Johnson: With such high gas prices it seems unlikely that vehicles will continue to get larger. Will extra cost be justified if we just are going to scale back again in the near future.

Durkos. One of the reasons for 350 changes is to eliminate the inconsistencies in impact angles between LON and terminals and transitions.

Soneji Jiten. In 1994 adopted LRFD and a "model" vehicle rather than a real vehicle. Increased from 72,000# vehicle to a 80,000# vehicle to design vehicle structure. What impact did that have? No one here versed in this.

Durkos asked about in service evaluation of highway hardware. If we had good evaluation data it would make these decisions easier. Unfortunately there is rarely an opportunity for manufacturers to visit the site of a crash involving their hardware.

Dean Sicking gave a presentation describing important changes in 350 update.

Test matrices and conditions
Test installations
Test vehicles and specifications
Test Documentation
Evaluation Criteria

Barry Stephens noted that Test 34 is actually shallower and wanted an explanation. **Sicking** stated that for non-energy absorbing terminals the shallow angle impact is more severe. A steep angled impact easily breaks through the end, but the shallow angle has a greater potential to roll, launch, or impale the vehicle.

The NCHRP 22-14 panel discussed TMA tests for arrow boards. FHWA supports the inclusion of that test even though we will not mandate such testing until the relevancy of testing Category IV devices is demonstrated.

Dinitz: Critical impact angle for breakaway devices does not consider omnidirectional breakaway supports. Omnidirectional should be used for all supports.

Sicking: Based on panel input, zero to 90 degrees is for supports used near intersections only. Zero to 25 degrees is consistent with rest of crash tests.

Minimum test installation length? 100 meters is too short for cable.

Leahy: Will bogie or pendulum tests be allowed with windshield damage criteria??

Sicking: surrogate vehicles / pendulums have been used for large breakaway supports, not small supports that lead to windshield damage.

Durkos: Where are we as an industry with respect to computer simulation?

Sicking: Simulation is best used currently to identify the critical impact point. Simulation cannot be used to replace full scale testing yet. First, we need tools to measure validity of a test. Video and measurements are this evidence for full scale testing, but we do not have this for simulation.

Chad Heimbecker: Should we require FEA along with tests to build up validation?

Sicking: No, the cost of modeling every new device would be prohibitive.

Cota: Comment on implementation? TCRS will have an implementation plan to send along with the AASHTO Test Guidelines. TF13 members are welcome to send their comments to TCRS on implementation on this subject. Also looking at consistency and validity of computer simulation.

Meeting adjourned at 3:30 pm.