TASK FORCE 13
TORONTO, ONTARIO
OCTOBER 2 AND 3, 2006
Meeting Minutes

To Do List – These are specific tasks that are in addition to the regular duties of Subcommittee co-chairs and members:

- Co-chairs are needed for two subcommittees: #1 Publication Maintenance (State DOT person) and #8 Rail Highway Crossings (Industry person.)
- Future agendas are to include a slot for TRB Committee AFB-20 report.
- Task Force Secretary to add a "To Do List" at the beginning of the minutes (apparently your secretary has already noted this.)
- Frank Julian will draft letter to TIG re: cable barrier issues.
- Heimbecker will advise the Task Force on website updates and improving visibility with online search engines. [He has already sent out a request for admin. info for website and is still awaiting response.]
- Note to future hosts of Task Force 13 meetings: network with the state to increase local attendance, especially from the State DOT but from local agencies as well.
- Subcommittee # 6 needs to submit the draft warning label guidelines to ATSSA for comments.
- Finally, Subcommittee # 2 sincerely asks that all Task Force 13 members get involved in the hardware review process. See their minutes, and take the few minutes to go thru' the brief log-in process on the ProBoards website and review the drawings we discussed in Toronto.
- All members are to review these minutes! Those who did not attend, and / or have not attended in some time need to keep up to date. Those who did attend may want to see what was said about you. Corrections or additions may be sent to yours truly, Task Force 13 Secretary at nick.artimovich@dot.gov

Minutes:

Co-Chairman **John Durkos** opened the meeting by welcoming all to Toronto, and noted this is the first time TF13 has held a meeting outside of the United States. **Durkos expressed** our sincere thanks to **Mark Ayton** of the Ontario Ministry of Transportation for the exceptional arrangements and accommodations. The Task Force is always looking for new hosts for our spring meetings. We meet twice a year and in the fall meet with AASHTO Technical Committee on Roadside Safety, who sets the location. In the fall of 2007 we will meet jointly in Seattle, Washington. Spring meeting 2007 is still officially open. [Editor's note: the Task Force eventually set Jackson, Wyoming, as the site for our next meeting in late April or early May, 2007.]

A moment of silence was called to note the recent passing of the fathers of Task Force members **David Little** and **Karla Polivka.** Co-Chair **Pat Collins** of the Wyoming DOT was unable to attend due to a critical funding meeting.

Durkos introduced **Nick Artimovich**, Task Force Secretary, who handed out a "Nonresponsive member list", a compilation of nearly 40 individuals who have been on our mailing list for years for whom we had not been able to obtain a working email address. Please review this excerpt and send an email to nick.Artimovich@dot.gov if you can provide a current email address for any members, or let me know if they should be removed from the list (Let's be fair: if they are an active competitor, please do not suggest that I delete them from the list!)

Tom Barber, Interstate Highway Signs
Steve Barratt, Cyro Industries
Timothy Beach, Con/Span Bridge Systems
Joseph Bowman, HAPCO Aluminum Poles
Rodney Boyd, Trinity Industries
Willard Douds, Midamerica Extrusion
Bernard Jenkins, United Lighting Standards
Clarence Mabin, Custom Engineering
Kenny Okamura, Nippon Steel USA
Alfred Owen, Bala International Sales
Bill Perry, Southern Anchor Bolt
John Pressley, Nucor Steel
Mark Pulver, Syracuse Castings
Graham Sciafe, Stoney Brook Mfg.

Durkos noted the standard procedure for breakout sessions and other ministerial notes including a count for dinner. Acknowledged **Artimovich** as secretary, Chairman Emeritus **Arthur Dinitz** who was unable to attend, and then asked all present to introduce themselves. The usual diverse group of industry representatives, academics/researchers, state and federal DOT personnel, and association representatives were present. And that, dear readers, is one of the great strengths of Task Force 13 – the twice-yearly opportunity to engage in meaningful discussions with highway safety experts both within and outside of your typical associates.

Durkos discussed the subcommittee format of TF 13. We are always open to new ideas thru New Standardization Areas subcommittee. Each subcommittee has two co chairs, one industry one from state DOT when possible. The end product for most subcommittees is the publications of Standardized Guides. Thanks in large part to the participation of **Jim McDonnell**, our AASHTO representative; NCHRP funding is helping us put 3 of our guides on the Internet.

Artimovich summarized the activities of the various subcommittees from the Spring 2006 meeting in Sarasota. The full minutes of that meeting, plus all other meetings beginning with our

Spring 2001 meeting are posted on line at our website www.aashtotf13.org In future minutes, Action Items will be pulled out of the text and summarized at the beginning of the minutes. **Durkos** appreciated bullet points as opposed to Jim Hatton's reading of the minutes, word for word.

The Task Force subcommittees then proceeded to meet, beginning by meeting as a committee-of-the-whole with:

Subcommittee # 2 Barrier Hardware Co-Chair **Will Longstreet** of PENNDOT showed the Power Point Presentation:
http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_Will_Sub2.ppt

The subcommittee had progressed some drawings to the point where they were ready for review and discussion by the entire Task Force for inclusion into the Guide. Longstreet reviewed updates to "Standard Operating Procedure" (SOP) as per existing SOP Sections A.1.7 and A.1.8 and Sections S.2.3 and A.2.4. Copies of the updated SOP and list of Technical Representatives / Hardware Review Groups are available at the Task Force website http://www.aashtotf13.org/Work-in-process.asp

Longstreet presented the following SGR drawings:
1. SGR 20ab_R1
2. SGR 21ab_R1
3. SGR 22ab_R1
4. SGR 23ab_R1
5. PDB 09_R1
6. PDB 10ab_R1
7. PDB 11ab_R1
8. PWE0607_R1

There was a discussion on the SGR20ab_R1 drawing as reviewed by the entire General Session, and the question of tolerance of GR height, also to the precision of dimension - ie 24 7/8 inches is too fine for installers. **Ron Faller** noted that this dimension to the post bolt gives you 31 inches to the top of the rail, so either one or the other has to be specified. Co Chair **Bob Takach** noted these aren't meant to be design drawings – they are part of a guide, and user needs to go to additional sources for more info. (There was some comment on the possibility posting a "disclaimer" about the intent of the drawings/information in the Guide.) **Keith Cota** noted that RDG is where this info belongs. State DOT representatives present believe that the tolerance ought to be on the drawing. **Mark Bloschock** notes these installation tolerances are included in the TXDOT maintenance manual. **Dr. Mac Ray** noted that the question of tolerance is wider than just the discussion over the MGS. **Longstreet** concurred and noted the discussion was meant to deal with the question broadly. **Roger Bligh** noted that tolerances only come from crash testing. **Durkos** noted that 350 Update will test with small car at the test barrier's top height, while the pickup will impact the barrier at lowest allowable installation height, and this tolerance will be included in the test report. Some states will cut and paste the TF13 drawing; other states will do more work to develop their own standard drawing. Tolerances were preferred on the drawing page rather than on specifications page. **Longstreet** noted that the addition of tolerances are to be based upon actual crash testing and will be something that is worked into Guide drawing over time.

There was a proposal to include with every item of hardware a link to the crash test report. This may be very sensitive to manufacturers in the case of proprietary devices. It could stymie development of new products if all this info is made public. **Keith Cota** noted that the information that supports an FHWA letter is public information necessary to state DOTs. **Artimovich** explained that such information, including the test report itself, is available for

inspection at FHWA headquarters. **Alberson** added that creating hot-links to proprietary crash test reports might infringe on copy write law. **Longstreet** wrapped up General Sessions' consensus for all future submitted drawings regarding hot-links to crash test report as 1) required for 'generics'; and, 2) at owners discretion for all 'proprietary' drawings.

It was decided to require all comments to SGR 20ab_R1 drawing, and all other drawings distributed to Main Session at this meeting for individual review and to post all individual comments on ProBoards before voting [each drawing for 'ready' status at the spring 2007 meeting.]

See http://barrierguide.proboards31.com

Individual hardware components presently do not have a place on the ProBoards site. **Longstreet** asked if it would be a good idea to add the ability to add this. The Task Force agreed for components like offset blocks that are applicable to a number of guardrail systems. Heimbecker noted this is easily achieved by starting a new sub-topic.

Subcommittee #1 Publications Maintenance

Co Chair **Chad Heimbecker** has stepped up into a spot that is of critical importance, and two co-chairs have resigned, so we need a state DOT co-chair to assist him. **Heimbecker** pointed out that the Task Force has talked about where we are going, but want to talk about where we are heading. Need TF13 to get on board with ProBoards. He has reviewed the Task Force website and ProBoards and has already come up with some suggestions to improve the operations.

As **Heimbecker** was new in his position, he did not use all the time allotted to the Subcommittee. As **Dr. Ray** was prepared to give a presentation on his efforts to produce the guides for Bridgerails and Transitions as well as Small Sign Supports, he was asked to address the entire task force. Here is his PowerPoint:
http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_MalcomRayUpdate.ppt

Subcommittee #3 Bridgerails and Transitions

Co-Chairs **Roger Bligh** and **Mark Bloschock** (provider of these subcommittee minutes). Mac Ray addressed the subcommittee regarding his work to date on the Bridgerails and Transitions guide. The document will include those items with an FHWA Acceptance Letter or have been successfully tested to Report 350.

The subcommittee discussed the search capability in pulldown menus. "Other material type" may be needed if composite rails are added in the future. The term "combination rail" meaning a traffic rail and pedestrian rail combined may be confusing. Perhaps "Parapet/metal" or some other term may be used to designate this type of rail. Additional pulldown keywords should include:

- Rail "integral with deck" vs "bolted to deck"
- Side mount
- Parapet mount
- Curb mount

Other criteria suggested for inclusion:

- Weight per linear foot for each rail
- Name of state, owner, or manufacturer
- Cost data are not to be included

Test levels, TL-1 thru TL-6
Temporary bridge rail
Will rails meet “Old TL-3 or New TL-3”?
Test laboratory that performed the test(s)

Transitions should have the same search words as the bridgerails with the following exceptions:

Search by preferred bridge rail
Switch guardrail type to:
Strong post
Wood post
Steel backed timber

Other discussions and recommendations:
Add dimensions to thumbnail and cross section view
Limit the number of photos, criteria on photo size, downsize resolution of very large photo files for storage/download reasons. 50-60 kb list file size. Thumbnail photo should be about 200 x 200 pixels at 96 dpi for easy loading, which links to full size image “as provided”.
Submitter is the ‘contact person’
Should the rails accepted through equivalency be listed?
From Bridge Rail Guide Specs?
With a PL designation?
Reference 3 FHWA memos

Ready for information on:
Bridge rails, Transitions, Test Reports
Ready to populate with data and ask Jim McDonnell of AASHTO to “shake the trees of the state bridge engineers.

Subcommittee #4 Drainage

Minutes from your subcommittee are needed, or let me know in what format you provided them.

Subcommittee #5 Sign, Luminaire, and Traffic Signal Supports

Chairman **Fredrick** opened the subcommittee meeting at 1:00 and circulated a sign in sheet.

The group discussed the presentation made by Dr. Mac **Ray** this morning in the joint session regarding the Update to “A Guide to Small Sign Support Hardware”. The subcommittee discussed including small sign supports that do not have an FHWA letter. Artimovich noted that if Federal Funds were used in the development of the support, the FHWA would produce an approval letter. He noted that if it were developed by a manufacturer or with private funds, that the FHWA may not write an approval letter unless requested. In the latter case, the states can use this device if they deem the crash test appropriate. **Artimovich** noted that the Federal Highway Administration requires crash testing of roadside devices, but they do not require all of these to be approved through the FHWA office by letter. The discussion turned to generic devices and it was noted that in one state, a crash tested sign support had been modified by several manufacturers and each one of these modifications had been patented and are included on the State’s prequalified product listing. It was also noted that throughout the life of a product, several iterative changes may have occurred to get the product to its current configuration.

The Subcommittee agreed to the following.

- Small sign support hardware to be included in the update would need to be tested by an approved, accredited lab.
- "Material" changes from the original device design, would require the device to be crash tested to verify compliance.
- Previous approval letters on products that support its evolution will be referenced in the updated guide.

Based on the above discussion, the Subcommittee will recommend that following search capabilities be added to the web based update of the Guide:

- The web based document did not need to search based on the various test levels as only TL3 was applicable to small sign support hardware.
- The following approval categories should be included: 1) Tested and approved by the FHWA, 2) Tested but not approved by the FHWA (crash testing completed at a certified test facility), 3) FHWA approval of a generic device, and 4) all devices.
- Omni vs unidirectional bases
- Crash testing requirements on which the approval was based, ie NCHRP Report 230, Report 350, or the update to Report 350.

The subcommittee discussed the update to 350 and how that would affect the implementation and certification of small sign supports. It was noted that several devices were tested under Report 230 and grandfathered in under Report 350. With the update to 350 prohibiting windshield intrusion, it is uncertain of some of these devices would puncture the windshield and fail the new criteria. Lance Bullard working with Rick **Mauer**, Joe **Frazzetta**, Nick **Artimovich** and Karla **Polivka** will develop a problem statement to work through the Technical Committee on Roadside Safety to complete a study to determine the effects of the new provisions on small sign support hardware.

Artimovich noted that he thought there were two possible scenarios to implement the requirements of the update to 350. The first would be that within a given time frame all hardware installed must comply with the new requirements, and the second was that the new criteria would apply to new hardware or changes to existing hardware. He noted that this would be an issue that the Technical Committee on Roadside Safety would be considering later this week.

The group was encouraged to send the product submittals to Dr. **Ray** at mhray@wpi.edu to get the update under way. It was emphasized that we need the information to get the manual updated. To this end, **Artimovich** will draft a letter to all manufacturers that have an FHWA approval letter for small sign support hardware asking if the device is still being produced and if they would like to be included in the updated guide. **Stenko** will send the letter and the current information to the manufacturer. The subcommittee would then review the responses and make recommendations as to which details and product would be included as there was some concern that minor variations would overemphasize one manufacturer's group of products.

The subcommittee also discussed **Ray**'s consideration to use Wiki as opposed to proboards. In general, the group was reluctant to support this as there was some concern that the ability to change previous comments could jeopardize the authenticity and validity of comments and question the credibility of the entire review process. **Fredrick** discussed this with **Ray**, who assured him that changes were tracked and approved by a moderator, and there was no real issue with respect to these concerns.

Fredrick noted that the RFP to update "A Guide to Standardized Lighting Pole Hardware" is currently being advertised. He noted that the document had been sent to the committee and if they knew of anyone that might be interested in the proposal to have them contact **Fredrick**

and he would get a copy of the RFP to them. He noted that the RFP is written such that the final product would be a web based document and that the RFP did not include any maintenance of the manual. **Fredrick** noted that the RFP needs to be received at WYDOT prior to October 20, 2006.

Fredrick provided a brief update on the signal pole research underway at Texas, Wyoming, and Lehigh Universities. **Fossie**r indicated that after Hurricane Katrina, Louisiana DOT inspected over 100 sign bridges and that 5 of the aluminum overhead sign structures were damaged. He indicated that in general, their sign structures performed well in this event. He did note there were some cantilever sign failures and that they are currently inspecting their highmast towers.

After the meeting **Fredrick** visited with **Ray** to resolve the outstanding questions from the last meeting. These are summarized below.

Ray indicated that

- There is no minimum resolution required for the photographs.
- The hinged slip bases will be included under the systems chapter.
- Ray will detail the generic systems.

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Subcommittee #6 Work Zones

1. Meeting was called to order by Co-chairman, **Paul Fossier** at 2:15 pm.

2. Approximately 20 persons attended the meeting.

3. The mission statement for the committee was reviewed. As per the Sarasota WZ subcommittee meeting in May 2006, 3 additional statements noted below were proposed to be added to the mission statement. It was agreed that these 3 statements in addition to the current WZ clearinghouse mission would be officially added to the mission statement. It was also agreed that these additional mission statements be added to what already exists on the TF 13 website by notifying the WZ secretary Nicholas Artimovich and the Virginia DOT (website maintenance).

    a. Propose standards be written for WZ devices when justified.
    b. Propose a forum to express concerns and views pertaining to WZ devices.
    c. Provide a forum to review new WZ hardware proposed for addition to the web based Roadside Hardware Guide.

4. **Fossier** reviewed the minutes from the Spring, 2006 meeting held in Sarasota, Florida. No changes were made to the minutes and they were approved.

5. Old Business:

    a. Suggested Warning Label Guidelines for Channelizing Barricades: A final draft of the proposed warning label guidelines for plastic water filled channelizers was passed out to all attendees and is attached to the minutes. **Fossier** reviewed the proposed guidelines and accepted comments. Designers are often specifying WZ devices that are not used properly in the field. Leo Yodock used the proposed guidelines and developed a draft warning label that was handed out to all attendees. The draft Yodock warning label is attached for reference. It was agreed by the attendees that the warning label guidelines be forwarded to TF 13 for approval and for possible placement on the TF 13 web site. In addition, the warning guidelines should be submitted to ATSSA for any comments.

b. Barrier labeling: During the discussion of the warning labels for channelizers, Owen **Denman** discussed the need for positive longitudinal barriers to also have some type of warning label and to have deflection information for end users in the field. It was felt that further discussion was needed at the next WZ meeting.

Two example lableling guidelines (click to open separate PDF)
1) Yodocak barricade label
2) Warning label guide

Subcommittee #7 Certification of Test Facilities

Co-chairs: **John LaTurner** / **Jeff Shewmaker** .

LaTurner led the meeting off with a historical overview of the committee dating back to the committee's inception in the 90s.

The main points expressed were:

In July 2000 the SC7 members voted overwhelmingly for the resolution *"Crash test laboratories should be accredited by a third-party accreditation organization conforming to the general requirements of ISO Guide 58"*

SC7 also unanimously passed a second resolution *"The best method for achieving test consistency, improved test quality, and continuous improvement is for the crash test laboratories to participate in ILC's and proficiency test programs. The subcommittee will begin immediately to arrange for ILC's since this effort is easily accomplished, of great value to existing laboratories and an important component of third-party accreditation requirements"*

He then reviewed the different activities of the committee that have focused primarily on Interlaboratory Comparison Activities (ILC's). The ILC's will continue in a variety of different areas and much progress has been made in this area. All agree that the labs have benefited by the sub committee activities to date and that the committee activities should continue.

Ron Faller was recognized for his 6-year contribution as the co-chair of the committee. He was presented a "virtual" certificate of appreciation that will be replaced with a framed original as soon as possible.

Artimovich with FHWA restated the position of his office and confirmed that the process of laboratory accreditation was continuing and would be implemented. There has been a delay in the progress due to the recent retirement of **Harry Taylor**.

Next we had a presentation from Mr. **Steve Medellin**, Program Director of A2LA (American Association of Laboratory Accreditation). Steve delivered a comprehensive overview of the ISO 17025 process and the MRA structure (Mutual Recognition Agreements) for the accreditation bodies world wide. Steve covered all of the program benefits and then hit on the costs associated with implementing the ISO 17025 system.

John **LaTurner** gave this presentation:
http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_JohnLaTurner.ppt

Steve Medellin of the American Association for Laboratory Accreditation gave the following presentation: http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_LabAcc_SteveMedellin.ppt

Subcommittee #8 Rail Highway Crossings
Co-Chairs Dean Alberson and Rick Mauer

The subcommittee checked our mission statement to insure that we are continuing to meet the mission. The product that the committee created is still current and will be rechecked. **Dean Alberson** has resigned as co-chair. **Mark Ayton** was elected as new Co-Chair of the RR committee. **Mike Stenko** volunteered to be co-chair in **Maue**r's stead. We didn't think that we could let a person be a chair for 2 subcommittees so **Mauer** will stick around until an industry person volunteers take his place.

The committee will only meet once a year when TF 13 meets with TRCS.

Subcommittee on Marketing

Andy Artar discussed that International travel did not seem to cause a problem for TF13 members. In the future, the State where meeting is hosted ought to publicize our meeting for greater attendance by locals.

Durkos asked about measures to increase attendance by State DOT people. TF considered scholarships if necessary to pay for travel of state people. **Cota** noted that hosting the meeting at a state DOT HQ would attract local participation. Should there be one big mega-show on highway safety and hold the TF13 meeting in conjunction with that? We have been holding our Fall meeting each year with the AASHTO TCRS.

Subcommittee on New Standardization Areas

We discussed this as a committee of the whole. Topics that have come up in the past include noise walls, connections on top of barriers, ADA compliant crosswalk markings (safe routes to school has got a lot of $$$). So far, none have been considered needing a separate subcommittee.

FHWA Activities

Artimovich briefly noted recent activities in the Office of Safety Design. Of particular note is the addition of **Mary McDonough**, Team Leader for roadside design. The DVD "Highway Safety and Trees – The Delicate Balance" will be distributed nationwide in the near future, as will Dick Powers' video on W-Beam Guardrail Terminal selection and design. **Dean Alberson** asked, "who gets to review these FHWA outreach efforts?" Initially considering the question absurd, as in "who would dare question the FHWA?" **Artimovich** noted that the Office of Safety Design was beginning a new effort on highway safety and trees that would involve experts from safety, environment, and design in order to present a balanced picture. FHWA Office of Safety Design is also contracting out some of the paperwork process involved with submission of crash tests and the writing of FHWA Acceptance Letters.

Ken Opiela discussed FHWA activities at the Turner-Fairbank (no "s" at the end of Fairbank, thank you) Highway Research Center and the National Crash Analysis Center. NCAC has been on board since 1992 running Finite Element Analyses and the Federal Outdoor Impact Labs.

There has been a turnover in the leadership and staff at NCAC. New equipment has been installed at the FOIL, and a new laser scanning arm was obtained for digitizing vehicles at the NCAC lab.

A recent expert review of the TFHRC roadside safety labs found:

1. Foil is state of the art facility run by highly qualified NCAC staff.
2. NCAC has undertaken cooperative efforts to develop FEA models to improve highway safety, but outreach has been inadequate.
3. NCAC has effectively partnered with outside agencies and groups but needs to outreach and coordinate to more state people and universities.
4. Supports mission and goals but has no strategic plan.
5. Library is a valuable resource but does not place enough emphasis on research and findings.
6. FHWA team is knowledgeable, conscientious, etc. but shorthanded.
7. New approach to management of NCAC activities.

Concern expressed that NCAC was in a competitive position among test / FEA facilities in private industry and university.

McDonough noted that Safety's goal is to get TFHRC and NCAC products out to the field.

Executive Board Meeting

In attendance were **Mark Bloschock, Paul Fossier, Andy Artar, Jim McDonnel, Nathan Paul, Mark Ayton, Greg Frederick, Bob Takach, Will Longstreet, Keith Cota, Chad Heimbecker, Mike Stenko, John LaTurner, Jeff Shewmaker, Roger Bligh, Dick Albin, John Durkos** and **Artimovich**.

Topic 1. WebSite hosting/updates. At some point we need funding for these efforts.

Topic 2. Spring Meeting Location: Costs of Jackson Hole will be comparable to Seattle. Lincoln Nebraska volunteered, also Chicago, College Station, Denver, North Carolina, New Orleans. This will be put to a vote of the members on Tuesday.

Our Fall 2007 meeting will be hosted by **Dick Albin** in Seattle, in conjunction with the TCRS. Two hotels have responded that they will give government perdiem rate of $136. One is at the airport, and the other is in Downtown Seattle. Parking will be expensive downtown, but free at airport. From the industry side there's not a strong preference. From the state side they would prefer downtown location as closer to points of interest. There are very often cheaper ways to get from airport to hotel than renting a car and parking it for two or three nights.

Topic 3. Co-Chairs for Publication Maintenance. We are looking for a state DOT person to co-chair with **Heimbecker**.

Topic 4. **Dinitz** last year reported AASHTO TIG wanted clarification of cable barriers. Albin is on TIG and was unaware of this effort. **Albin** said there is a TIG conference call next week and is not sure where they are going with cables. **Julian** will be asked to report back to the TF regarding status of letter to proposed letter to TIG. **Bligh** saw Art's effort as a way for TF to get themselves in front of TIG.

Topic 5. **Paul** has prepared a survey for sending to State DOT Drainage people and wanted our OK to use AASHTO letterhead. **Frederick** said state people get a lot of surveys, and AASHTO has a format that could be followed. **Paul** said his company has many representatives in a number of states who can hand deliver survey forms to their state, municipality, and county

engineer contacts. **Durkos** asked that **Paul** provide copies of the survey to certain exec board members.

Topic 6: Task Force 13 name. **Artimovich** mentioned that on a couple of occasions people have noted that TF13 is not descriptive, and leads to confusion. **Albin** noted that getting approval for travel funding is difficult because name is not descriptive. **Artimovich** suggested that TF13 finalize its efforts by proposing the creation of a Technical Committee rather than continue as a task force.

La Turner asked if there was something we could do to get more visits to our website other than changing our name? Heimbecker noted that he is webmaster for his GR company and his comes up first on Google searches whenever anyone plugs in "guardrail." He will look into our website and see what can be done for www.aashtotf13.org

Tuesday, October 03, 2006

Update on Relevant NCHRP Projects

Chuck Niessner of TRB gave us an update on each of the following NCHRP projects relating to roadside safety.

16-04 Developing data collection plan

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

17-22 Reconstructing case studies

17-22 Identification of Vehicular Impact Conditions Associated with Serious Ran-Off-Road Crashes

20-7(196) draft website

Task 196	**Development of a *Guide to Crashworthy Bridge Rail Systems***

20-7(210) completing draft final report

Task 210	**Guidelines for the Selection of Cable Barrier Systems**

22-12 (02) B/C analysis with RSAP and preparing draft guidelines

22-12(02) Selection Criteria and Guidelines for Highway Safety Features

22-14 (02) Revised draft guidelines completed. Appendices to be reviewed. Panel may be done by end of 2006

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

22-20 Phase 2 underway.

22-20 Design of Roadside Barrier Systems Placed on MSE Retaining Walls

22-21 Phase 1 underway.

22-21 Median Cross-Section Design for Rural Divided Highways (Pending)

22-22 Contract pending

22-22 Placement of Traffic Barriers on Roadside and Median Slopes (Pending)

22-23 Work plan submitted

22-23 Criteria for Restoration of Longitudinal Barriers (Active)

Approved last march:
22-14(03) Additional testing/evaluation for 350 Update. Proposals received 9-28-06
22-24 RFP issued.

22-24 Guidelines for Verification and Validation of Crash Simulations Used in Roadside Safety Applications
(Posted date: 9/28/06) (Proj. Statement)

Cooperative Research Program homepage http://www4.trb.org/trb/crp.nsf

Affiliated Committee Activity Reports

Greg Frederick brought us up to date on the AASHTO Subcommittee on Bridges and Structures. There are two Technical Committees of interest to us. T-7 on Bridge Railings revised bike railing heights to 42 inches minimum rather than 54. This was a long-standing conflict. T-12 deals with sign and luminaire support structures. Next bridge subcommittee meeting is in Delaware in July 2007.

AASHTO: **McDonnell** explained the AASHTO organization and noted that the Roadside Design Guide Chapter 6 was being published this week. In addition to this presentation (which has been edited to cut the file size) he discussed the TIG and the Tech. Committee on Roadside Safety. A notice of proposed rulemaking on Temporary Traffic Control Devices is expected this fall.

PPT: http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_ASSHTO_JimMcDonnell.ppt

Question regarding the name of our Task Force publications. Guides, Manuals, etc? **McDonnell** recommended they be called "Report" because they did not need to go thru the AASHTO balloting process and may go on line.

Durkos noted a recent NACE effort to update some FHWA local roads publications. He suggested anyone who wanted to participate was welcome to contact **Tony Giancola** of the National Association of County Engineers.

ATSSA: **Loris Pichin**, the Deputy Director for Technical Assistance, described ATSSA organization and charge. He summarized their principal mission as ABCD: Advocacy, Books, Communication, Development (business development.) Their Guardrail Committee is recruiting more members; they want more engineers, designers, consultants and contractors. Nearly all current guardrail manufacturers are members. They also want to focus on webinars to teach barriers placement.
Have training courses on guardrail, including webinars, which last one to one and a half hours. ATSSA was awarded a four year $11.9 million grant to provide roadway safety training nationwide that is aimed towards the FHWA Focus States.
Other ATSSA activities include the April 16 and 17, 2007, legislative fly in. The 2007 National Work Zone Awareness week will be hosted by Virginia DOT. The National Work Zone Memorial is very popular and should be booked well in advance for important meetings and gatherings. Annual convention and traffic expo will be held from January 26 to 31 in San Antonio. The ATSSA midyear meeting will be in Portland Oregon Aug 23-25
New publications: include a primer on low cost local road safety solutions and two dealing with the safe routes to school program – one for local agencies and one for ATSSA members.

Members have been involved in Strategic Highway Safety Program development in 46 states. They have revised and updated "Funding 101" and have a new website www.retroreflectivity.net

New and Old business:

Spring 2007 meeting choices were presented to the membership: Jackson Hole, Wyoming (overwhelming support), Lincoln, NE (13 votes), New Orleans (0). The meeting in Jackson will be in late April or early May.

A co-chairman is needed for the Publications committee. If you have any recent experience with organizing publications and want to give some of your time and talents back to this organization, please consider volunteering.

At the last meeting, **Dinitz** mentioned that a state CEO group had expressed an immediate concern over confusion on cable barrier issues. He felt TF13 should address this to ally concerns of CEOs. D**urkos** charged **Frank Julian** to get his group together to write letter to TIG thru TF exec committee. Because of the work underway by **Alberson**, **Albin** didn't think any more was needed, nor was he sure that TIG would be able to do anything with this letter.

Drainage subcommittee wants to conduct a survey to get a feel for who is using Drainage guide and what changes might be needed. They also want to solicit participation in updating the manual. **Paul** will send it to the field as soon as he gets approval from TF Exec Board.

Regarding a possible name change for the Task Force we reached no conclusions. What would be gained? Can we accomplish something? Improve attendance? Improve funding? **Durkos** will follow up with **Dinitz** and **Collins** to see if they have a special perspective on the issue. **Heimbecker** suggested that the Task Force name stay the same but we would all have to change our names. **Durkos** would henceforth be know as "**NITRO**." [A couple of people have suggested that this sounds like somebody has not been getting enough sleep. If you have read this far, congratulations, you are a winner! If you write the word "Nitro" on your Spring 2007 Registration form you will qualify for a $25 discount. No kidding!]

Durkos thanked membership for all the good work the volunteer members have put in.

It was suggested that we should update members on TRB / AFB20 meeting activity. **Artimovich** will add this as an agenda item in the future, under Affiliated Committee Activity Reports.

Ken Opiela TFHRC and NCAC: He complained that Artimovich dropped him from the program and was pleased to have been "fit in" before the break. Your secretary apologizes for this lapse. **Opiela** noted a one-pager that was recently issued on guardrail inventories, and a DVD on FEA and FEA Crash Testing of portable concrete barrier testing by NCAC. Opiela's presentation: http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_Will_NCAC_Opiela.ppt

Efforts are also underway to develop a generic high-tension cable barrier system.

Technical Presentations

Richard Baker Tyregrip non-proprietary high friction surfacing by Prismo Universal Corporation. Cold applied surface treatment for site-specific locations especially horizontal curve departure.

Mark Bloschock on Bats.
Standardized the size of openings under bridges and culverts that will attract bats. Dispelled bat myths, discussed bat benefits. Very interesting presentation that shows standardization of highway and bridge details can benefit more than people.

Carl Ochoa: Design of new barrier hardware systems. GMS Gregory Guardrail System uses Gregory Mini Spacer allowing w beam without a blockout. Uses conventional W6x8.5 posts. with conventional w beam. No back up plates are needed either. Fundamentally improves guardrail performance by making the guardrail release more predictable by reducing the number of variables. Position of bolt head with respect to the slot affects the ability of the rail to let go of the bolt. Also eliminates concern about post attachment bolt. Height is 31 inches to top.

Dynamic deflection was .94 meters with pickup. When posts are connected by rail the posts are very rigid. When the rail can release the post offers very little resistance. Pick up truck impacted single face rail and the small car tested on double face rail.

Karla Polivka: Recent testing at MWRSF: Tested 5:1, 7:1, 13:1 flare rates on Midwest Guardrail System. 2000P tested on 5:1 flare effectively hit at 4:1. Had a little snagging but passed occupant risk. Small car spun out as it left the flare. MGS Long Span design was successfully tested 1 foot from headwall without nesting the w beam. It was also tested with back of post in line with headwall.

They also examined the approach slope to MGS. When on 9:1 the vehicle was redirected. Steeper than 6:1 slope vehicle rolled. Researched MSG on 8:1 slope where the pick up truck was redirected but very unstable. The small car was OK.

Lastly, they tested a culvert grate on larger culvert. The pickup test on a 3:1 slope was deemed successful.

Kevin Sylvester of the NY and New Jersey Port Authority gave a presentation on NJDOT cable barrier for a NJ DOT person who could not attend. NJDOT typically used NJ shape for concrete barriers or W beam. NJ agrees that barriers are needed on wider medians. At same time median cable was getting a lot of attention, they put a 1 mile test section on I-78. Then in Sept 2004 they began some long sections of cables. It experienced 22 impacts in 7 months on a 1094 LF section of barrier. Repairs only cost $13,500. Over 15 months they had 4 car penetrations with 2 fatal crashes and 8 injuries. No one in the department could recall any penetrations of w beam. They did a life cycle cost analysis of the barriers. Did not include costs of crashes, just installation and maintenance and repair. On the high volume freeway (15000 VPD) the life cycle cost over 15 years is $520,000 for cable barrier, and $360,000 for w beam. Another project showed costs about $250,000 for both designs. Cable requires repair for every hit but w beam can withstand many impacts without repair. NJDOT concluded that cable was not economically feasible on hi volume freeways. They were more comparable on low volume freeways. NJ is no longer considering 3-cable barrier. Median widths of 26-60 feet will use dual faced strong post w beam. On medians 13-26 feet wide concrete is preferred. 13 feet or less NJ requires concrete. Radius less than 3000 ft use modified thrie beam on the high side. Need better guidance on where various barrier types should be used.

Dick Albin Washington State DOT Cable Barrier Performance.

Cross median crashes are relatively rare, but catastrophic. WA began in 1990's and have 150 miles under contract or in place, most of it recent. He discussed a case study of an early installation where two penetrations occurred. Publicity caused WA Dot to look into cable standards before they let a large number of projects. Found 18 cases over 6 years where vehicles got thru cable in median. In vast majority of cases sedans went thru bottom of ditch before hitting cable that was located 4 feet from ditch line. Public asked why use cable rather than w beam or concrete? Analysis of Single Vehicle crashes shows more than twice the injury rate for w-beam and concrete vs cable. He has been asking maintenance people to send him a picture and cost details for repair. Washington State had 120 incidents since beginning of 2006. Photos make it obvious that at least 18 would have crossed median were it not for the cable. Finally, he read a number of email messages from grateful citizens who saw the benefits of the cable median barriers.

Roger Bligh, recent testing at TTI

Concrete median barrier on slopes. The RDG recommends a maximum slope of 10:1 However, this limits CMB to narrow, flat slopes. If placed closer to roadway on wide medians it cuts down the clear zone width. They studied the maximum slope you could put a CMB on,

beginning with 6:1 slope off of a 20:1 6-foot wide shoulder. Did analysis and found where vehicle bumper would be at its greatest height and where it would be the least. Selected that point where barrier is offset 7.5 feet from the shoulder break and vehicle bumper would be the highest.

The cast in place F shape barrier was located where pickup is beginning to return to grade. Offset was about 13 feet from break point. Fairly stable redirection resulted. Height of barriers was 32"in both cases.

TTI also conducted an evaluation of small sign supports under 350 update criteria. Weights up to 1100 KG and impact speed down to 30 kmh. The proposed 350 changes are not expected to affect impact performance. However, the proposed criteria include evaluation of the pickup at high speeds. There are concerns that these supports would not function with taller vehicles. Looked at wedge anchor system and omni directional slip base. Quarter point offset test slipped off the side; they then used a 2nd test to do both slip base and wedge anchor. Used 5/8 inch thick plywood substrate as heavier, likely worst case sign. Bolts did not pull out of the plywood. Both tests were successful.

Mark Hodgins Dent Fuse Plate for wide-flange steel posts. The fuse plate is the weak part of the I beam sign post system. It requires less energy to break this new plate on the flange, yet post can hold more wind load. Could also take a side hit. The Dent Plate fits inside the web rather than sitting on the face of the post.

Dave Chrisman of AnteRapture Engineering spoke on Aluminum composites for permanent traffic signs. This material consists of thin sheets of aluminum separated by polyethylene. SC DOT asked to use Alpolic for permanent signs. Showed wind load tests of aluminum composites up to110 mph wind. The aluminum composite material might be called "Inherently crashworthy" as it has been tested on numerous stands and by various manufacturers. Signs are tested with small vehicles. Aluminum Composites make supports safer for all those vehicles and scenarios you can't test for. Aluminum Composite signs have no recycle value so are not stolen, in addition they are bullet tolerant.

Jim Kennedy of Battelle Transportation Pooled Fund website. He gave background information on Centers of Excellence for roadside safety and discussed Battelle's FEA simulation and full scale crash testing at East Liberty. Battelle and Ohio DOT are initiating a pooled fund program for solving roadside safety problems. See TPF website.

Keith Cota introduced members of the AASHTO Technical Committee on Roadside Safety. Our shared meetings have been very valuable. TCRS was working on Chap 6 rewrite and it is now in printing. Now as we proceed into 350 update we will try to do a very quick review of the document, as the NCHRP Panel is still the responsible party. AASHTO and FHWA will draft an Implementation Plan for adopting the new test criteria. TCRS is also looking into rewriting the RDG. Hope to get it done in Summer 2007 or in 2008. Will also work on some Research Problem Statements. TCRS 1st two priorities have been funded most of the time.

Dean Alberson of TTI discussed his cable barrier research project. 20-7 (210) Status about 70 percent, survey complete. Information load has increased once people realized what TTI was doing, and now has more info than came in with the survey.

Presentation is on AASHTO web site:
http://www.transportation.org/sites/design/docs/Alberson,%20Guidelines%20for%20Cable%20Barrier.pdf

Showed antique films of 2,3,4, cable systems with old car.

Enumerated current cable systems:

U.S. Generic Low Tension
Safence
Brifen weaves cable and top cables penetrates the post.
Gibraltar alternates post direction
Nucor Marion uses u-channel posts
Trinity penetrates center of post

Crash history is a big reason for installing cable.

When specifying prestretching the states should specify an EFFECTIVE modulus of elasticity.

Showed NC data on cable benefits. While severity goes down, number of crashes increases.

Emergency Services groups were initially opposed to cable barrier systems. They have changed their opinion and are now in favor of cable because there are fewer incidents they need to respond to.

Alberson enumerated a number of Cable barrier issues:
Horizontal curvature
Vertical Alignment – underride
Lateral placement
On slopes
Pre stretch vs non pre stretch – how long does it take to loose prestretch?
Cable and post interaction
Tension vs temp vs modulus of elasticity-tension should be set based on temperature of the cable itself, not the ambient temperature.
Post spacing and effect on performance
Sources of tension loss.
Footing design based on local soil conditions.
Cable heights. Top, bottom, tolerance
Installation length between anchors.
Low tension compensators
Field applied vs factory applied fittings
Small car on TL-4 top cable may be a problem-may need more cables.
Higher encroachment angles may exceed capacity
Does a lower profile heavy auto have a greater tendency to penetrate than light vehicle specified for testing?

Good news is that injuries seem to be going down. Both TTI and MWRSF have done simulations on slopes.

Richard Butler of Brifen: most questions can be answered by using longer cable length for testing. Most states are specifying cheapest cables.

Sicking: no question that 600 ft does not eliminate end effects, but the curve really flattens out at 600 ft. It is also a practical limit.

Robert Vidaurri with Gibraltar: His company has successfully tested two small cars to their TL-4 cable.

Albin: Which are the top two or three questions? What effect do end anchors have re test length? TL-4 has not been of major interest to WA. Placement issues are his major concern.

Joe Jones of Missouri. Barrier placement on cross slope is greatest issue of concern, and **Alberson** concurs that slope is among top two.

Durkos: The specification that cable barriers should be used "where appropriate" is a very important comment. What criteria are being used to discriminate between cable systems sold by the various manufacturers?

Albin: WA spec is fairly open, but discusses what number discriminates between hi and low tension. Their specifications detail the sockets and have a limit of 17 ft on post spacing.

Jones: Missouri specifies the U.S. Generic but allows hi tension as approved equal. They do specify hi tension cable where they have steeper slopes or require less deflection, or in locations where two runs of generic would be used, one on both sides of the median. Put it in the hands of the contractor within these limits.

Second most critical area after placement on slopes? **Cota** asked "What is the optimum post spacing?" to which **Sicking** replied "is there an optimum deflection? "

Artar: Why select cable over W beam with all these questions?

Alberson: We should never stop looking for better ways to safeguard motorists, and cable barriers stop vehicles with softer impacts. **Albin** noted that we know that W beam fails on slopes, so we don't argue where to place it.

Durkos asked what was the maximum slope that the MGS was tested on, and **Sicking** replied 8:1

Julian agrees slope is the issue, and that 4th cable may be mandatory.

Butler: Most of their soil tests have shown that soil is inadequate for the design loads.

Heimbecker concurs that soils are a problem. Everybody's posts and sockets are different.

Alberson: Rope tension of prestreched systems drops to nearly zero when at high temperatures.

Heimbecker: How is the tension in the ropes determined? Should we require calibration of the tension-measuring device relative to its usage in measuring either pre-stretched or field-stretched cables tensions?

Sicking: Modulus is affected by lay length of cable of both the rope, and of the strands in rope. The prestretching method affects performance. Prestretch is not effective unless you have loaded it enough times so that it does not change with additional stretching.

Dean Sicking 350 update.

PPT: http://www.aashtotf13.org/pdf/TF13_2007Fall_TorontoMinutes_350Update_Sicking.ppt

Latest test showed that the 10000 kg Single Unit Truck failed for TL-4

Sicking believed that the FHWA WZ sign criteria applied to ground mounted signs as well as portable sign stands. FHWA did not intend that the "no holes in the windshield" standard for work zone devices to apply to ground mounted signs that happen to be placed in a work zone. It only applies to portable signs and sign sands that are often place in the traveled way. Any ground mounted sign support, whether used in a work zone or not, is a Category 3 device subject only to delta v since 1985.

Mauer: Is there any way to standardize on the strength of the front bumper? **Sicking** looked at SUT tests and saw little, if any, affects from bumper. Besides, variety of bumpers is infinite. **Mauer** noted that the effect of vehicle's bumper on cable tests is very significant.

Almanza asked why was lightest support truck selected for certain TMA tests? It is to ensure that the trajectory of the truck with respect to roll-ahead and the construction workers is evaluated.

Sicking recalled that we were seeking to make Quantum Leaps in roadside safety. The adoption of NCHRP Report 230 reduced small vehicle size – that was a minor change. The establishment of NCHRP Report 350 was a quantum leap because it had to be implemented, being adopted by the FHWA. This change to the next crash test guidelines will not be a major change.

Discussion ensued about increasing the occupant compartment deformation criteria. Isn't this reducing safety? A NHTSA study showed that minimal injuries resulted when deformation of floor panel was less than 9 inches.

Sicking saw that accident data showed increasing injuries and fatalities with BCT and MELT terminals compared to ones that meet Report 350.

Durkos: What will TCRS do with the 22-14 report?

Cota: This will be discussed this week. NCHRP Panel will be giving TCRS a final draft document. TCRS goal is that draft will be sufficient to pass on for balloting.
TCRS needs 100 percent support of draft in order to pass on. Unfortunately TCRS will not have the final draft until later this year. The final format will depend on AASHTO as well.

Durkos: What teeth will this new document have?

It will become an AASHTO approved document for all testing, then the FHWA will adopt it as national policy.

The next question is implementation. When will currently accepted systems have to be recertified, if ever? TCRS must have a firm agreement with FHWA for implementation before it is passed on to AASHTO for balloting. TCRS will formalize a subcommittee to develop the implementation plan.

Sicking: After some date FHWA will no longer review crash tests conducted under 350.[Editor's note – crash testing should begin to follow the new criteria as soon as it is adopted. FHWA will refuse to consider 350 tests if submitted more than 24 months after publication.] What about hardware that met 350, will that become obsolete some day? [Editor's note: The current draft implementation plan permits hardware accepted under Report 350 indefinitely. Crash tests of new or revised hardware will be subject to the new test criteria, but recertification of 350 hardware will not be mandated by FHWA or AASHTO. *This is no guarantee that individual states will continue to accept 350 hardware indefinitely.*] Costs of crash testing under the new criteria should be within ten percent of tests conducted under 350. [Editor's note: testing for sign supports, both permanent and portable, will more than double as the pickup truck test will be required in addition to the mini car.]

- The End -