



Task Force 13

Thursday, September 20th, 2018

Venue – Hyatt House Denver/Lakewood at Belmar in Lakewood, CO

- Welcome and Introductions Durkos
 - Walk through of agenda for the meeting.
 - Dinner will be at Brodo Italian Scratch Kitchen
 - Various vacancies remain for Subcommittee Chair/Co-Chair
 - Will Longstreet has asked to remain as the co-chair for SC#2 (Barrier Hardware)
 - Dr. Bligh (#3 Bridge Railings) and Derwood Sheppard (#2-End Terminals) has resigned their respective co-chair positions.
 - #6 Work Zone co-chair – both – are vacant.
 - Continued website reassembly
 - Work continuing on non-profit for TF-13, officers in place
 - Newsletter published since April meeting.
 - Draft Memorandum of Understanding (MOU) between TF13 and AASHTO has been revised and is under review by AASHTO.
 - Early Registration fee structure is working – THANKS!
 - Self-Introductions
- Recap of Lincoln, NE Subcommittee Meeting (April 2018) Neece
- Approval of minutes from Spring 2018 meeting Durkos
- Update from the Roadside Safety Pooled Fund Group Meeting, held this week Bligh
 - 25 states are part of the group and all 25 states participating, some by WebEx during the last two days of meetings.
 - Received a FHWA Update from Will Longstreet
 - MASH Implementation Round Table and Implementation Needs
 - Prioritization of Research Needs – prioritized, not necessarily funded, as of this date
 - Support Engineering Evaluations and Justification for MASH Compliance
 - Summary ... TTI will provide engineering support for their pooled fund states in regards to non-proprietary products. Reviewing process to do so.
 - During the discussion, Karla indicates the Midwest pooled fund states are pursuing a similar path.
 - Continued discussion on topic ... Consensus from states and testing facilities in the room that in the future the states will be receptive to proprietary products not running the full suite of tests, with appropriate engineering evaluations/justifications.
 - Acceptable Sidewalk Heights and Widths for Bridge Railings
 - Review and Investigations of W-Beam Terminals with Curbs
 - Critical Flare Rate for Cast-in-Place Concrete Barrier
 - Fence on Top of Permanent Concrete Barriers
 - Evaluation of Large Guide signs on Slopes
 - Offset Requirements for Pedestrian Rail on Traffic Barrier
 - Shorter TL-3 W-Beam Transitions



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- Guardrail Evaluation on 6:1 Slopes
- LON for Guardrail with End Anchorage
- Buried-in-Backslope Terminals ... Terrain Variations and effects on product
- Subcommittee #2 (Barrier Hardware) Smith
 - No activity to report
- Contract for Website Services & Publications – Subcommittee #1 Lohrey
 - Website and Guide was restored 3 days prior to last meeting.
 - Changes made Main & Guide websites to show organizational changes.
 - Domain email addresses established:
 - GuideManager@TF13.org (Eric)
 - WebMaster@TF13.org (Olaf)
 - Since last meeting focus has been on identifying & entering new systems into the Guide, updating GR Component drawings, and guide improvements.
 - New Systems – 23 new systems added, all with FHWA Letters
 - 1 Crash Cushions
 - 4 End Treatments/Terminal
 - 3 Guardrail/Median Barrier
 - 2 Transitions
 - 13 WorkZone Barriers
 - SGR02b, Modified Weak-Post Guardrail was tested & upgraded to MASH TL-3.
 - Many new FHWA letters have TF13-style drawings attached. Those are used to begin the drawing review process.
 - Homepage of each device category now shows items added since the last TF13 meeting.
 - Discussions on posts, holes and grade of steel used for PWE01-04 again. Drawings will have slight modifications incorporated made and then sent for review.
 - Recap of clipped/non-clipped guardrail bolts. A revised FBB01-05 drawing is now posted in the Components section of the Guide.
 - FPA01, Guardrail Anchor Bracket: concerns were identified regarding the location of the hole for the swaged fitting. Drawing was modified slightly and will be sent thru the review process.
 - Designator nomenclature for Components was update & posted on the Components homepage, and drop-down search menus were updated to match.
 - Archive section was added to each designator page to post past TF13 drawings and other archived materials.
 - Revised standard drawing templates and posted them in a new section with instructions on how to submit Guide material.
 - Future planned activities include:
 - Obtain guide materials for all MASH systems.
 - Populate attribute data for all MASH systems when drawings are available.
 - Enter cross-reference links between MASH Systems & Components.
 - Develop criteria to include state-certified hardware that does not have an FHWA letter.



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- Add TMAs to Work Zone section of the Guide.
- Add Delineation Systems to the Guide when Subcommittee #11 is ready.
- Upgrade Main website and Guide with more modern look and functionality.
- Subcommittee #3 (Bridge Railing and Transition Hardware) Minutes Brauner
 - Welcome to attendees, announcement that Roger Bligh would be stepping down as co-chair of the subcommittee. Brauner thanked Bligh for his hard work and dedication over the years and asked for a volunteer to take his place.
 - Updated the subcommittee on the status of the online bridge rail guide.
 - Participant consensus was that all available bridge rails should be shown but that review efforts should be focused on the MASH tested railings and bringing them up to full “Review Complete” status. Then, for those NCHRP Report 350 systems in the guide that are missing information, reviewers should consider accepting them as “Review Complete” provided that enough information is present to be useful.
 - A quick review was made between the online database of MASH tested systems being maintained by the Texas Transportation Institute through the Roadside Safety Pooled Fund group, which has several bridge rails that do not appear in the Task Force 13 (TF-13) guide. The subcommittee agreed that these additional rails should be imported into the TF-13 guide despite the fact that some of them do not have an FHWA eligibility letter. It was suggested that these rails include a standard disclaimer or note stating that the FHWA letter is not present.
 - Discussed the relevance of NCHRP Report 20-07, Task 395 which assigned a MASH equivalency to bridge rails previously tested under NCHRP Report 350. This equivalency was determined analytically, not through a crash test, and thus if any rails were to appear in the TF-13 guide, they would require a new designator or disclaimer to alert users to this fact. Brauner volunteered to compare NCHRP Report 20-07 to the TF-13 guide, gauge its impact, and report his findings at a later date.
 - Renewed the request for volunteers to serve as co-chair and reviewers.
- Subcommittee #11 (Delineators) Minutes Schultz/Gentry
 - Paul Gentry and Nathan Schulz introduce themselves
 - Review of old NTPEP testing procedure. Brief review of new NTPEP standard and FDOT testing project.
 - Datamine is in the works. What data is there and what format is needed?
 - Review of FDOT express lane marker testing report. 36-inch tall and 3-inch diameter posts.
 - Review of current NTPEP testing submission.
 - FDOT third state to develop MASH implementation process and schedule.
 - Are we missing anything with work zone devices? Sign stands, barricades, etc.
 - Steel delineator posts on roadside – u channel posts – how to implement steel delineator MASH posts - how to test posts – roadside buttons – roadside reflectors – permanent steel device – what tests would need to be conducted
 - Who do manufacturers contact with their products – do they know who to contact? - Usually just look up engineers contact



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- CalTrans and North Carolina first two states to develop MASH implementation schedule and procedure
- Type I or Type II Barricades MASH tested – are all going to need full matrix of testing – DOT response – yes
- Subcommittee #5 (Sign, Luminaire & Traffic Signal Support Hardware) Lohrey/Jollo
 - Sign Support Guide.
 - Review was completed for one (1) system (SSS21a-b), and the final drawing was posted.
 - Eight (8) systems still with “No Drawing”. Will leave them in the Guide since they have an FHWA letter.
 - “Systems” include breakaway components only, not entire structure.
 - Luminaire Support Guide.
 - No new luminaire systems have been added to the Guide. Need to reduce complexity of the Guide in order to cover wide range of pole configurations without attempting to include full catalogs from all pole manufacturers.
 - For the Luminaire Guide, breakaway bases are labeled as “Components” and overall structures are considered to be “Systems”. Inconsistency from Sign Guide must be resolved so that both guide categories use the same definitions. Results from NCHRP Project 03-119 may provide some guidance.
 - MASH Implementation for Sign & Luminaire Support Systems.
 - Need guidance to determine reasonable number of MASH crash tests to cover large, diverse families of breakaway structures. NCHRP 350 effectively only evaluated vehicle Delta V of breakaway bases.
 - Structures mounted on breakaway bases are typically supplied from different sources. Need guidance to determine which component supplier is responsible for demonstrating MASH compliance.
 - An NCHRP problem statement directed at evaluating crash performance of “families” of devices is planned to be submitted by TCRS. Breakaway sign and luminaire supports encompass large ranges of structure configurations, and hopefully will be addressed if/when the project is selected to move forward.
 - There has been some discussion and precedence for extending MASH implementation dates. There may be a need to extend the December 31, 2019 date for breakaway hardware.
- Subcommittee #6 (Work Zone Hardware) Perry
 - Deadline is approaching fast for work zone devices.
 - We still need a co-chair for this subcommittee.
 - Reviewed California memo, NC memo, and FL memo
 - CA: After 12/31/19, must have been successfully tested to MASH
 - NC: NCDOT recognizes and adopts the categorization of temporary traffic control work zone devices as recognized in NCHRP 350. NCDOT is recognizing that Category 1 devices are “self-certified” by each Manufacturer and no testing of these devices is required to meet MASH-16 requirements. NCDOT is “grandfathering” all Category 2 temporary traffic control devices that passed NCHRP 350 testing. No retesting of these devices is required unless major modifications have been made since the time of the test. If this has occurred, the device shall be retested according to MASH-16 requirements. Category 4 devices were not tested in NCHRP 350 and its NCDOT’s position they don’t need to be tested according to the requirements in MASH-16.
 - FL memo: recognizes NCHRP categories



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- Cones, Tubular Markers, Plastic Drums, STOP/SLOW Paddles - Channelizing Devices (Standard Plans, Index 102-600): Manufacturer must submit a Self-Certification that the device meets MASH-16
- What does a self-certification letter look like? Does this letter just state how “great” their product is?
- Agencies are asking for the justification for why the manufacturers are certifying. Engineering judgement, historical records, in-service performance?
- Paul Gentry discussed some items that are needed for FL self-certification letter
- Wait for more TMAs systems to get FHWA letters and then put these in work zone area of the guide.
- **Subcommittee #7 (Certification of Test Facilities) – Broadcasted** Lechtenberg/Bullard
 - Introductions
 - Soil Strength ILC
 - 4 labs participated. Some declined as they do not perform tests of products installed in soil.
 - No upper limits on static soil test, must meet 7500lbs baseline pull.
 - There is a significant spread in the soil strengths being reported by the labs.
 - ILC will continue through a few additional meetings, as there is not enough information yet to determine conclusion.
 - Work to continue on T-0 ILC as it is not finalized.
 - Programmed ILCs

➤ T=0 – start date Round 3 of MASH Sec5.3	Caltrans	Fall 2018
➤ Soil strength, Round 2	Karco Engineering	Fall 2018
➤ Lab interpretation per MASH criteria	MidWest Roadside Safety	Fall 2019
➤ Soil gradation	Safe Technologies, Inc.	Fall 2020
➤ Ballasting locations and weights	E-Tech Testing Services	Fall 2021
➤ How impact speed is calculated	Turner-Fairbanks (FOIL)	Fall 2022
➤ 3-32/33 angles & CIP for 3-34/36/37	To be determined	Fall 2023
➤ SUT attachment/dimensions for TL4	To be determined	Fall 2024
 - Karco shared a recent FHWA letter that was sent to a Vendor stating a product could not receive an FHWA eligibility letter because enhancements were made to the product during the developmental testing. The May 26, 2017 FHWA Open Letter was cited as the reason. The test labs and the manufactures were not aware of this requirement. Much spirited discussion ensued.
- Recap of Subcommittee Meetings Durkos
- MASH Implementation Discussion Durkos
 - Durkos notes that by his count, there have been 13 memos/documents in the last two years and seven months having to do with MASH implementation.
 - During ATSSA MidYear meeting recently held in Williamsburg, VA a meeting was held with various stakeholders where the six FHWA options for letters going forward was discussed. ATSSA will be sending a response to the FHWA/AASHTO. Board meeting in November to authorize the issuance of a letter.



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- King Gee reports that there have been discussions between AASHTO and ASTM, about taking over the FHWA role of issuing eligibility letters.
- “There is more certainly to the uncertainty” ...
- Lots of spirited discussion, to include history of industry and many differing thoughts on how to go forward and how we got to where we are at today.
- Task Force 13 Executive Meeting
 - Criteria for insertion into the TF13 Guide(s) discussion. No consensus today – we will see how the Bridge Railing Guide progresses and make a decision at a later date as to what is the “litmus test”.
 - Post specifications – materials, hole size, etc. Eric to clarify drawing based on discussions during main session and send back the drawing(s) to the review group. **(ACTION ITEM)**
 - Jeff Shewmaker approached John about how he could assist within TF13. John to reach-out to Jeff Shewmaker to ascertain his availability to be co-chair for WorkZone Subcommittee. **(ACTION ITEM)**
 - Drawing review is back online, but must be implemented – some challenges associated with compatibility of software. Eric will look into BlueBeam (software) costs and advise **(ACTION ITEM)**
 - Eric to discuss with Olaf the top priorities for the website and report back, so that a decision can be made as to what to implement. **(ACTION ITEM)**
 - *LinkedIn* ... Eric Perry did start a TF13 group. He will continue to test the waters.
- Dinner at Brodo Italian Scratch Kitchen, which was within walking distance.



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Friday, September 21st, 2018

Venue – Hyatt House Denver/Lakewood at Belmar in Lakewood, CO

- Affiliated Committee and Activity Reports
 - AASHTO HQ / TF13 Status of MOU Durkos
 - Continued communication about MOU, as recent as yesterday. John believes the MOU with AASHTO will be in place by next meeting. **(ACTION ITEM)**
 - ATSSA Perry
 - Social Media feeds – ATSSA is on various sites and expanding.
 - ATSSA represents over 1,400 member companies with 27 chapters covering 42 states. 9 Standing Committees and 4 Councils covering the industry.
 - Mid-Year Meeting recently in Williamsburg, VA
 - 45 participants
 - MASH Meeting to discuss the six options to replace the FHWA Eligibility Letter process. Letter will be issued by board, after November meeting.
 - Legislative Fly-In Recap – meeting held May 2018, well attended.
 - 90 participants met with 125 congressional representatives covering 32 states.
 - 2019 Fly-In is scheduled for May 1-2, 2019 in Washington D.C.
 - National WZ Awareness Week, scheduled for April 8-12, 2019
 - Convention/Expo in Tampa, February 8-12, 2019
 - Typically 3,500 attendees
 - 35 educational sessions scheduled for 2019
 - 550 exhibitors
 - Signals Open Forum scheduled for February 11th, 2019.
 - Roadway Data Safety Forum scheduled for February 11th, 2019
 - NEW ITEM → Enforcement of Specification Open Forum, scheduled for February 12th, 2019
 - 28th Golf Classic Tournament scheduled for February 8th, 2019
 - 7th Sporting Clays Event scheduled for February 8th, 2019.
 - Public Agency Scholarships are available
 - A new Case Study is available on Median Barrier and Roadside Guardrail
 - Recently updated their quality guidelines
 - ATSSA's Tuesday Topics (webinars) – Upcoming
 - September 25, 2018 – Automotive Safety Council (ASC) Debrief and Update
 - October 2, 2018 – Every Day Counts, On-Ramp to Innovation
 - November 20, 2018 – Wrong Way Driver Detection Systems (special hour-long webinar)
 - ATSSA Foundation Update – unfortunately 12 names were added to the ATSSA National WZ Memorial in 2017.
 - NACE – next meeting is scheduled for April 14-18, 2019 in Wichita, KS Durkos



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- TRB Committee AFB20 Roadside Safety Bligh
 - Joint meeting with AASHTO-TCRS in July 2018 in Austin, TX
 - 4 technical sessions
 - 5 research needs statements submitted, which were prioritized by AASHTO-TCRS
 - Assessment of Barrier Performance at High Speeds
 - Development of Protocol for Testing Families of Devices (including work zone)
 - Development of Crash Data Collection Tool and Guidelines
 - Crashworthiness of Barrier Attachments
 - Crashworthy Treatments for Drainage Features
 - AFB20 Meeting during TRB annual meeting in January 13-17, 2019.
 - AFB20 Committee Meeting
 - Subcommittee Meetings
 - Paper Sessions
 - Group Meeting – Roadside Safety Data Needs and Applications
 - Workshop – Modeling and Simulation for Design and Evaluation of Roadside Safety Hardware
- AASHTO – TCRS Bush
 - Poole is resigning from TCRS, due to new assignment with Iowa DOT
 - Will need a new vice-chair ...
- Reports from Special Subcommittee Co-Chairs
 - Subcommittee #9 – Marketing (newsletter and social media) Mauer/Perry
 - Possible Newsletter topics for next publication, prior to next meeting (**ACTION ITEM**):
 - WZ Letters for Self-Certifications from various states(FL, NC, CA)
 - TTI Pooled Fund “top priority” information
 - MOU with AASHTO when consummated
 - Website Update
 - FHWA Accredited Laboratory
 - Where are they now – update on previous TF13 Chairs and what they are doing now.
 - Call for Co-Chairs for Subcommittees – list open positions.
 - *Linked In* update. Open up the group to all, instead of a closed group (**ACTION ITEM**)
 - New Standardization Areas
 - Connected vehicles?
 - Standardized process for product approval? Butler
 - Gripne suggests reaching out to AASHTO.
 - Bush recommends Durkos contact AASHTO-TCRS to discuss getting on their agenda. Durkos will contact Keith Cota (**ACTION ITEM**)



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The remainder of the meeting was broadcasted via Zoom.

- Update on ongoing research projects related to Roadside Safety and/or Safety Hardware
 - NCHRP Activities Bush
 - Projects under Contract
 - 17-82 Proposed Guidance for Fixed Objects in the Roadside Design Guide (\$500,000) 2020
 - 22-32 Development of Methods to Evaluate Side Impacts with Roadside Safety Features (\$500,000) 2021
 - 22-33 Development of a Collaborative Approach for Multi-State In-Service Evaluations of Roadside Safety Features (\$650,000) 2021
 - 17-86 Estimating Effectiveness of Safety Treatments in the Absence of Crash Data (\$600,000) 2022
 - 22-34 Determination of Zone Intrusion Envelopes under MASH Impact Conditions for Barrier Attachments (\$400,000) 2021
 - 22-35 Bridge Rail Testing Program to Confirm MASH Compliance (\$500,000) 2021
 - 22-36 Development of the Next Generation MASH, Portable Concrete Barrier (\$400,000) 2019
 - Approved Projects, FY2019 NCHRP, RFPs in development:
 - 03-134: Determination of Encroachment Conditions in Work Zones (\$500,000)
 - 22-37: Development of a Barrier Design to Accommodate Vehicles, Pedestrians and Cyclists (\$500,000)
 - 22-38: Development of MASH TL-3 Deflection Reduction Guidance for 31 in Guardrail (\$500,000)
 - 22-39: Guardrail Performance at Various Offsets from Curb for MASH TL-3 Applications (\$600,000)
 - 17-90: Validation of Roadside Crash Injury Metrics in Real World Crashes (Correlation of Actual Injury Outcomes to Predicted During Crash Testing) (\$400,000)
 - Traffic Safety related 20-07 status
 - Task 368 Development of a Roadmap for Use of SHRP2 Safety Data to enhance Existing AASHTO Publications \$100K
 - Task 372 Evaluation of MASH Test Vehicles \$90K
 - Task 383 Review and Update of the AASHTO Roadside Design Guide \$100K (Added continuation \$120,000)
 - Task 395 MASH Equivalency of NCHRP 350 Approved Bridge Railing \$75K (Active)
 - Task 401 A Systematic Approach to Hardware Replacement Analysis to Support AASHTO MASH Implementation



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- Texas A&M Transportation Institute Schultz
 - 31" Buried in Backslope Terminal Testing with mid-span splices
 - System IS MASH compliant when installed on V-ditch on 4:1 or flatter foreslope and 2:1 backslope
 - Investigate implementation of BIB system on different foreslope /backslope conditions – as well as flat bottom ditch rather than V-ditch
 - MASH TL3 Low Profile Concrete Barrier
 - A 26-inch tall, T-shaped free-standing low-profile portable concrete barrier was developed and evaluated according to MASH TL-3 standards.
 - MASH Tests 3-11 and 3-10 PASSED
 - Maximum dynamic and permanent deflections were 25.0 inches.
 - This LPCB can be implemented for work zones in high speed area, and provide sufficient visibility for drivers especially at night (26" Tall).
 - Keyed-In Single Sloped Barrier
 - 40-ft segment keyed-in SSB is considered TL-4 compliant
 - Shorter than 40-ft segment lengths will need additional testing
 - TxDOT C402 Bridge Rail
 - The TxDOT C402 Bridge Rail performed acceptably according to the *MASH* TL-4 evaluation criteria
 - TxDOT C412 Bridge Rail
 - The TxDOT C412 Bridge Rail performed acceptably according to *MASH* Test 5-12 evaluation criteria
 - Tests 10 and 11 were successfully performed for the TL-4 evaluation that was previously conducted
- Midwest Roadside Safety Facility Lechtenberg
 - Optimized TL-4 Concrete Bridge Rail
 - Successfully met MASH 4-12 test
 - MASH 4-10 and 4-11 not conducted
 - Near vertical slope, Less impact loading
 - Connection Hardware for PCB Gaps
 - Nested 12ga Thrie Beam, 10ga terminals connectors, 16' Toe Plates and 3 x Steel Stiffeners
 - Successfully met MASH 3-11 test with 12.5-ft gap and CIP 72" upstream of PCB on DS end
 - Successfully met MASH 3-11 with 3-ft gap and CIP 12" downstream of gap
 - Small car test is deemed not critical
 - Steel Post Downstream Anchorage System
 - Objective was to develop a steel post alternate for the wood post version.
 - Successfully met modified MASH 3-37a test
 - CIP at post 6 upstream from end, LON based on previous wood post version
 - Successfully met modified MASH 3-37b test



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- Midspan between 2nd and 3rd post from end, Same CIP as previous wood post version
- Bullnose with UBSP (full test suite completed), will not be submitted for FHWA Eligibility Letter due to FHWA's position on making enhancements during testing.
- Cost-Efficient, TL-2 Bridge Rail for Low Volume Roads
- MASH TL-4 Steel-Tube Bridge Rail and Guardrail Transition
- Iowa DOT Combination Bridge Separation Barrier with Bicycle Railing
- MASH TL-3 Standardized Concrete Buttress for MGS Thrie Beam Transitions
- MASH TL-3 34-in. Tall Thrie-Beam Approach Guardrail Transition
- MASH TL-3 Culvert-Mounted, Strong-Post MGS
- Box Beam to Weak-Post W-beam Transition (NYDOT)
- Generic Type III Barricade (MASH 3-10)
- George Mason University / CCSA Marzougui
 - NCHRP 03-119 Application of MASH Test Criteria to Breakaway Sign & Luminaire Supports & Crashworthy Work-Zone Traffic Control Devices Update
 - Dodge Ram Model Development
 - Tractor Trailer Model Update
- Technical Presentations
 - "MBEAT" MASH Box-Beam End Terminal Presentation Durkos
 - Some components are similar to previous generation, some different
 - 1/8" thick wall tube is used within the first 10' of terminal.
 - Standard S3x5.7# posts begin at post #3.
- New/Old Business Durkos
 - Task Force 13 Spring Meeting with the Midwest States Pooled Fund Program is scheduled for April 17-19, 2019 in Lincoln, NE
 - IRF Meeting in Las Vegas, November 7-9, 2018.
 - Executive Committee Summary Durkos
 - Congrats to Jeff Shewmaker and Eric Perry for agreeing to fill the Subcommittee #6 Co-Chair positions. These positions have been vacant for some time.
 - Review of Task Force 13 "To Do" (**ACTION ITEMS**) generated from meeting. Neece
 - Durkos will contact Keith Cota about getting on the AASHTO-TCRS agenda to discuss standardization of state approval process.
 - Perry to open up the *Linked In* group to all.
 - Durkos to continue AASHTO/TF13 MOU with goal to complete by next meeting.
 - Perry/Mauer will publish newsletter prior to next meeting.
 - Lohry to clarify post drawings based on discussions during main session and send back the drawing(s) to the review group. Finalize before the next meeting.
 - Lohry will look into BlueBeam (software) costs and advise if it is more compatible.
 - Lohry to discuss the top priorities for the website with Olaf and report back, so that a decision can be made as to priority of items.
 - Meeting was adjourned at 12pm