



## Thursday 29th September 2022

8:00 am–8:15 am Welcome & Introductions

8:15 am–10:00 am **Joint Meeting Agenda and Notes**

States participating (in person) were TN, CT, PA, DE, UT, WS, ID, MI

### Remaining MASH Needs

Presentation and Discussion led by Dr. Roger Bligh, TTI

- Breakaway Support Structures
  - FARS data (2018-2020) – more fatal crashes with Sign Structures than with End Terminals and Crash Cushions combined.
  - Changes associated with testing as a result of MASH
    - Windshield criteria and roof crush criteria.
    - CIA
    - 90-degree impacts
  - MASH Implementation
    - MASH Testing lagging
    - Complexity of family of products
    - Industry awaiting results of NCHRP study on testing matrix.
    - NCHRP Project 03-119
      - GMU with MwRSF
      - Various types of support post – wood, tubular (sq/rd), wing posts
      - Various sign sizes
      - Various materials (substrates) for signs
    - Luminaire Poles
      - Limited testing under 350
      - Cast aluminum transformer bases are largely accepted currently based only pendulum tests conducted in the 80s.
      - Break-away 40ft pole, 10ft arms failed to break-away, OIV exceeded.
      - Break-away 35ft pole, 20ft arms, roof crushed.
      - Break-away 50ft pole, 10ft arms – activated, but >6” roof crush.
      - Break-away 40ft Pole, 10ft Arms – activated but pole remained for 3-4 seconds upright, then came down. OIV exceeded.
    - MASH Portable Work Zone Trailers
      - Including arrow boards and changeable message signs.
      - Widely used in WorkZones (“WZ”).
      - There is some language in MASH – recommend shielding them.
      - Evaluated as a subset of TMA Matrix, but no known testing.



- Discussion:
  - How to address the 90-degree tests? 90-degree tests are to replicate a sign being placed near/at intersections.
    - Change sign heights
    - Industry is looking to change the projection of the sign, when impacted.
    - Match sign heights and size to the type of base utilized.
    - Some of these signs are not being used in 90-degree orientation – so perhaps those should be excluded from testing.
    - Are the vehicle manufacturers participating in testing? NO
      - Karla noted that vehicle manufacturers are tweaking some of the vehicle designs, that anecdotally appears to be as a result of the testing – example ... Floor pans are getting thicker again.
    - Any work on making a more forgiving substrate for the signs? Some work, yes – but wind loads, etc. are problematic.
    - Why was roof crush changed in MASH from 350? There was no roof crush criteria in 350, now there is due to data reviewed after 350 publication. Perhaps an ISPE should be made to see if these current roof crush criteria are appropriate – perhaps the 4” doesn’t result in actual injuries, but 6” does ... so MASH criteria could be changed to 6”?
    - No MASH Matrix for vehicle arresting systems? Testing houses do not know how to evaluate these systems – yet they appear on high-speed roadsides.
    - Any crash data available on Category 4 devices? None that anyone was aware of. John noted that under 350, FHWA was preparing to issue testing criteria, but did not. Roger noted that any device weighing over 2,000lbs in close proximity to the high speed roadway, is GOING to potentially have issues when impacted.



**Training needs for installing/maintaining proprietary safety devices**

Presentation and Discussion led by John Durkos, Road Systems

- AASHTO TCRS has looked at the need for a support program for MASH implementation, including training requirements.
  - Some robust state/other training programs – FastACT, ATSSA, NHI, PA, IN, UT
  - Proprietary devices have training programs, provided by manufacturers.
  - Delivery options have been:
    - In person, Online, Virtual, Videos/Apps, Workshops, Publications like manuals and drawings.
  - Successful examples of training include:
    - Certified individual on the jobsite
    - Commitment needed from top management of project owner
      - ie. shall vs. should.
    - Guardrail Garden
    - Quality training programs can recue liability.
  - Problems Encountered:
    - Top management not committed
    - Installers or Inspectors not well trained and/or have no training manual
  - Training vs Certifications
    - Certification is beyond training – perhaps 1000-2000 hours on the job experience.
    - Requires verification, by testing and supervisors confirmation
  - Certification Process Issues
    - Training, Budgets, Tracking, Employee Turnover
  - The Problem:
    - Improper Applications – Designers and Consultants
    - Improper Installation – Usually a contractor
    - Improper Maintenance – DOTS and privatized maintenance
  - GRIT programs – currently ATSSA, FastACT
  - How often is retraining required?
    - Example A
      - Experienced installer, products are simplistic, products haven't changed, low employee turnover – retrained every 5 years?
    - Example B: Opposite of the above ... perhaps every 2-3 years?
  - Utah DOT – (Shawn)
    - Recommends more training needs to happen – Utah has two main contractors – with lots of experience and then some newer companies that are less interested. UDOT possibly moving to a guardrail garden training program that requires the contractor to install the unit in front of UDOT before being allowed on the roadway.
    - Certified installer is now required at jobsite, as of few years ago, because of bad installations.
    - Training needs to be improved throughout the “System”.



## TASK FORCE 13

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- Joe Yodock – w/ Powell Contracting out of Ontario
  - They “planted” a Guardrail Garden
  - They take training seriously ... safety and training are their main focus.
  - They also offer training to other contractors
- John showed a Maine DOT training video from their guardrail garden.
- WsDOT (Tim) made general comments on a roadside survey that was conducted by WsDOT a few years ago. They engaged the inspectors and ensure they were trained etc. Also began to require the inspection checklists be submitted after installations, for the project file. Much better results afterwards and continuing the process. Still need additional tools to ensure training remains paramount. Comment from Utah Shawn, in response to D. Price question about timing on project that he recognizes that even though UDOT specs indicate grading must be in place before installing the safety devices ... UDOT forces are not enforcing their own specs and he is actively working to resolve ... as grading is necessary for safety devices.

### Work Zone Devices Sunset Date

No formal presentation – Tim Moeckel facilitated discussion.

- WZ devices do not currently have a sunset date that is being enforced – FHWA/AASHTO Memo indicated 2017.
- Traffic barriers, WsDOT is considering 2030 for full MASH requirement for temporary barriers.
- David (CTDOT) indicates that all temporary barriers must have a manufacturing date for all MASH devices and they are enforcing it – he believes the date is March 2021. They also allow submittals for alternate devices – including steel barriers. PennDOT (Nina) is using ~~01-01-2026~~ 12-31-2026 as their manufacturing date for full MASH implementation. Other states mentioned dates in 2025. The forward dates for these states were established to ensure that the manufacturer has appropriate inventory available on those dates.
- “Useful Life” discussion
  - Joe Yodock – what type of process is in place with DOTs to evaluate the barriers to the “useful life” criteria? Ask that perhaps they reach out to him. Roger commented that there is a recently issued TxDOT study 7059 that is available as to the “useful life” criteria/evaluation – perhaps others can utilize as a reference.
  - J.J. Hooks – he sells concrete WZ barrier in all 50 states. Commented that the ATSSA brochure published is really an ascetic evaluation, with no structural evaluation. He suggests following the PCI criteria – it defines sizes of cracks etc. Also reported that one state does not allow ANY repairs, of any size/scope. Art indicates MASS went to MASH already and inventory of complying devices is in short supply.
- Temporary Traffic Devices – “sunset date”, as identified in [AASHTO/FHWA Joint Implementation Agreement dated Jan 7, 2016](#) has passed, most states looking at 2025-2030 range for full MASH implementation.

Joint session concluded at 9:55am



### Thursday, September 29, 2022

- **10:20 am Begin Task Force 13 Meeting**
  - Approval of Minutes from April 2022 meeting Durkos
    - Motion made by Durkos, 2<sup>nd</sup> by Pyde and motion passed
  - Treasurer's Report Smith
    - Address change for anything being mailed – please ensure accounting departments of your company/agency are notified ... also the payment is to be made to “Task Force 13”.
    - Soon to be taking credit cards and online registration.
    - Balance of @\$28,000 in TF13 account.
      - Major expenses since April 2022:
        - Website upgrades
        - Quarterly Guide Maintenance
- **10:30 am Subcommittee Reports and Discussions**
  - Subcommittee #1 Publications Maintenance Lohrey
    - Tf13 Guides Website has been moved to WordPress during the last 6 months ... as of Tuesday of this week, it is fully operational and secure. Old host/server was outdated and was being discontinued.
    - Various search features largely updated / improved.
    - Next up to begin to backfill information on various MASH systems – looking for manufacturers and agencies to review their items and advise of information/devices to be added, deleted, etc.
    - 3 systems added since Spring 2022 – a CTB and 2x REBLOC
    - Discussion on inclusion on TF13 website.
      - Majority of recent FHWA letters issued for proprietary devices
      - Non-Proprietary system trending towards State DOT Certification
      - Some systems are being developed by DOTs, Pooled Fund Group, National Organizations with less MASH testing, use of simulations, ISPE, and/or engineering judgement.
      - Compliance is no longer determined by a single non-affiliated agency.
      - What is the criteria for including systems on the TF13 website without a FHWA letter?
        - Deemed eligible by a single DOT or multiple DOTs? How many is needed?
        - Is there a formal process used by Pooled Fund Groups to designate a device as MASH compliant?
        - Do we allow devices which have simulation in place of test or tests?
      - Variations to existing systems/devices – are those new systems/devices?



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- Showcased the revamped website.
  - Contacts
  - Guides
  - Timeline
  - Agency contacts
  - Test Facilities
  - Announcements / Meeting documents
  - Historical documents
  - Resource Charts
  - Officers
  - Sub-Committees and Co-Chairs
- MOU with AASHTO for the next 5 years and TF13 will be listed in the rewrite of the AASHTO RDG as the “go-to” locations for standardize drawings, etc.
- Subcommittee #2 - Barrier Hardware Review Groups Pyde/Eicher
  - NEED ALL AGENCIES, MANUFACTURERS, POOLED GROUPS TO REVIEW THE INFORMATION ON THE TASK FORCE 13 WEBSITE.
  - Guardrails/Median Barriers
    - Discussion on the current status of AASHTO M180 rewrite
  - Crash Cushions
    - Proposed changing the nomenclature of the designator to reflect current trends in the crash cushion market – for MASH devices.
  - End Treatments/Terminals
- Subcommittee #3 - Bridge Railing & Transition Hardware (Virtual) Ghoidi
  - Chris Guidry has accepted the co-chair with Tony Ghoidi
  - Removed weight PF from guide, as it added little value
  - Developing / Revamping the reviewer’s criteria
  - Recently approved the PennDOT PA 10M Bridge Barrier and it was added to the website.
  - Tony/Chris are requesting help for reviewing the devices/systems submitted.
  - Topics for next meeting

**12:00 pm LUNCH – Buffet served in The Stables II (75min)**



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- Subcommittee #11 – Delineation Schulz
  - NTPEP
    - Revision to current testing working plan was recently balloted and approved
      - Device name now includes tubular markers
      - Shift from small sedan test vehicle to mid-size sedan test vehicle
      - Updated testing schedule and submission process
      - Require testing of caps if the device is installed in the field with caps
      - Update to failure criteria
    - Delineation of roadside hardware (NCHRP 22-53)
      - Investigate effectiveness of delineating roadside hardware, obstacles
      - Develop guidelines for delineation of roadside hardware and obstacles
    - Some DOTs have reported reduced crashes when installing a yellow rubrail
    - Are there are other success stories for installing and implementing delineation for hardware or obstacles (slopes, culverts, etc.)?
    - Any known issues with current delineation practices in MUTCD or other documents?
- Subcommittee #7 Certification of Test Facilities (Virtual) Lechtenberg/Kovar
  - Record of active participants
  - <http://s.alchemer.com/s3/TF13S7>
    - Today's participants are:**
      - Allen Beavers and Elliot Mueller of SwRI (both in person) with Jenny Ferren online;
      - Joseph Nagy and Eliseo Campos-Hernandez of Safe Technologies;
      - Karla Lechtenberg and Brandon Perry of MwRSF;
      - Alex Beltran and Brandon Ubina and Antonio Reyes of IDIADA KARCO;
      - Fadi Tahan of FOIL;
      - David Whitesel and Bob Meline (both online) of Caltrans;
      - Jim Kovar (in person) of TTI, Bill Griffith and Will Schroeder of TTI (both online);
      - Matthew McNeil and Emerson Ryder of Holmes Solutions;
      - Tim Mortensen of E-Tech Testing;



ILCs:

- Satisfy proficiency testing requirement of laboratory accreditation
- Must have 5 year plan
- Labs determine schedule
- Choose an area of interest to conduct a comparison task that all interested labs can participate in
- Current ILC(s) ... **concurrently**
  - Safe Technologies and Calspan lead
    - Impact Speed/Angles, Exit Speed/Angle, Loss of Contact, etc
    - Data being assembled – need labs to send information requested ASAP.
  - MwRSF lead
    - Lab interpretation of lab results, per MASH evaluation criteria
- Schedule of next ILCs:

Interlaboratory Comparison Task	Time Period	Lead Organization
Impact Speed, Impact Angle, Exit Speed, Exit Angle, Loss of Contact, WW, Parallel Time, Film Speed, Etc.	2021-2022	Safe Technologies, Inc. (STI) & Calspan
Lab interpretation of test results and evidence according to MASH evaluation criteria	2022-2023	MwRSF
Documentation of ballasting locations and their weights	2023-2024	E-Tech Testing Services, Inc. (E-TECH)
Uncertainty in Measurement	2024-2025	Caltrans
OIV, ORD, THIV, PHD, ASI, Roll, Pitch, Yaw	2025-2026	TTI
How impact speed is calculated	2026-2027	Turner-Fairbank Highway Research Center (FOIL)
SUT box attachment, ballasting, length of truck, etc. Is hydraulic lifting kit OK?	2027-2028	Southwest Research
CIP selection of given barrier system and selection of angle for test with a range (potentially CIP for 3-34/36/37 & angle for 3-32/3-33)	2028-2029	TBD

**RECENT AUDIT EXPERIENCES**

- KARCO (Alex) audited earlier this year. Regarding measurement uncertainties – reports to be issued must state as to whether they do or do not include measurement uncertainties and/or whether they were considered. Karla reviewed MASH and she indicates it isn't required. Most labs indicate they have had similar experiences with audits
- TTI (Bill) stated that their audits were highly focused on calibration.
- TTI (Jim) indicated they had a FHWA letter kicked back (2 weeks ago) because the summary sheet was not 508 Compliant.
  - 508 Compliance is specification that deals with disability readability.
  - Karla indicates there was a concern from their pooled fund group a number of months ago, but when MwRSF researched it with the FHWA, they were given no guidance. They are still reviewing, but currently trying to maintain the current format and “add” the 508 compliant portion to the report.
  - Clarification from Bill/Jim of TTI that they believe they will soon be 508 Compliant.
  - [508 Compliance | What is Section 508? | Be Inclusive! \(508-compliance.org\)](http://508-compliance.org)





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*STANDARDIZATION OF INFORMATION – MWRSF COMMENTARY ON THEIR POOLED FUND GROUP*

- Objective
  - Ability to compare the critical test parameters & evaluation criteria in deliverables between all labs
  - Similar video views
- Action Plan – looking for input from manufacturers, DOT, FHWA, TCRS, etc
  - Several persons have volunteered already
  - Create list of needs/wants
  - Develop justification for each need
  - Refine list & justification to TCRS
    - Test Summary Sheets
      - Critical test parameters
        - IS, OIV, ORA, Roll, Yaw
        - Evaluation criteria
        - Limits/boundary values
      - Key elements table
      - Test article damage summary
      - Soil Strength / Exit box
      - ASI / Material certification
      - Consistent views
        - Orientation
        - Scale
      - Minimum duration of event
        - When the vehicle came to a rest?
        - When system movement ceased?
- Subcommittee #5 Sign, Luminaire & Traffic Signal Support Hardware Lohrey
  - Sign Supports
    - Currently 5 MASH Systems in the Guide, ALL with a FHWA Letter
  - Luminaire Supports – as Frangible Base Components
    - What is considered a “System”?
    - Often they are combinations of Poles, Signals and mounted Signs
  - Relevant Research
    - NCHRP 03-119
      - Application of MASH Test Criteria to Breakaway Sign ...
    - NCHRP 22-43
      - Proposed AASHTO Guidelines for Implementation of MASH for Sign Supports ...
    - NCHRP 22-55
      - Implementation of MASH Surrogate Test Vehicles for Sign ...
    - NCHRP 15-67
      - Wind Drag Coefficients for Highway Signs ...



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- Subcommittee #6 Work Zone Hardware Lohrey
  - Two new systems added, both REBLOC products – distributed by Hill&Smith
  - Eric Perry was at a meeting earlier this year and from a TxDOT Design Manual, Chapter 7 ...

“Temporary work zone devices (including portable barriers and water-filled crash cushions): Devices manufactured after 12/31/2019 are required to be MASH 2016 compliant. Such devices manufactured on or before 12/31/2019, and successfully tested to NCHRP 350 or MASH 2009, may continue to be used throughout their normal service lives. Note that certain temporary sign supports do not meet MASH 2016 criteria. Testing is on-going with these products. Also, trailer-type work zone devices such as arrow boards, and electronic portable message signs are not MASH 2016 compliant, but FHWA has currently exempted these devices due to safety benefits offered by their use.
  - Discussion Topics:
    - Conversion of MASH to a spec, effect on WZ devices?
    - Any new information on testing families of devices
    - Are FHWA Eligibility Letters still being required by DOTs?
    - How to get WZ devices implemented quicker?
    - Are there any gaps in WZ devices?
  
- Subcommittee #9 Marketing Mauer/Perry
  - Looking for submittals and suggestions for the next newsletter.
    - Retiree announcements?
    - BLOG posts are now possible from the website.
      - Shift to the BLOG format instead of a newsletter?
      - 508 compliant? LOL
    - Feature on Sub-Committee #7!!
      - Important work that gets little recognition.
      - Would this be another way to also obtain additional persons to help with the SC?
  
- **3:30 pm** Intelligent Pole Base (IPB) Presentation Lovley
  - The Intelligent Pole Base is a structurally engineered light pole base, AND a secure and weatherproof housing for communication, data and EV charging technologies.
  - Standard Sizes
    - 24” W x 28” H, Parking Lots & Roadways
    - 18” W x 22” H, Pedestrian Walkways & Piers
    - Manufacturing features all welded Tab & Slot Construction w/ 4 colors offered
    - IPB allows for add-on solutions from the past, but also capacity for intelligent solutions of the future.
  - The IPB provides site owners the ability to truly provide edge technology on their properties, now and in the future.



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- **3:45 pm** Update from the *Roadside Safety Pooled Fund Program Meeting* Schulz
  - Overview and priority of projects in 2022/23 program
  - Current TPF5343 closing in Dec 2023
  - Phase III Solicitation started
  - 16 ongoing projects with 4 projects prioritized for funding remaining from TPF5343 and 8 projects prioritized for funding with new TPF 501 funds.
    - 4 projects prioritized with existing TPF 5343 funding:
      1. Portable Sign Supports for aluminum signs with variations on mounting height.
      2. Evaluations of four bolt slip base for breakaway luminaire support for various pole configurations.
      3. MASH TL3 Compliance for Median Guide Rail Transition to a F-Shaped Barrier
      4. MASH TL3 Evaluation of shorter thrie beam approach transition.
    - 8 projects prioritized with TF501 funding
      1. Performance Enhancements of Shortened Blockouts (6" x 8" x **10"**)
        - a. This research request came out of the need for ½ post spacing testing and that research is finalized.
          - i. ½ post spacing did not pass with a 14"H block
          - ii. NO testing has been completed, currently, with full or ¼ post spacing.
        - b. This research proposal is to possibly to expand this to other systems (W/T at various post spacings), by utilizing rounded edges, different depth, different width, etc.
        - c. Question was asked why these blocks were timber when ~90% of the market uses plastic blocks. Answer: Timber blocks are generic and typically used for testing. Proprietary products are not used unless specifically requested.
      2. Beam Guardrail by Retaining Wall or RipRap
      3. Barrier Deflections at Lower Speeds
      4. Phase 2 Thrie Beam Retrofit w/o curb for TL3 and Performance Enhancements for TL4
      5. MASH Testing of Sign Posts with Flashing Beacon Equipment
      6. Investigation and Testing of the Shallowest Embedment or Footing for CIP Concrete Median Barrier for TL5 Conditions
      7. MASH TL3-20 Evaluation of the Transition with Strom Inlet
      8. Guidelines for Overlapping Precast Concrete Portable Barrier



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- **16 Ongoing Projects**
  - MASH testing on a 1to1 Slope with 31” guardrail and 9ft posts
  - Study of Acceptable Sidewalk Heights and Widths – bridge parapet system with 8” curb under MASH TL2 conditions.
  - MASH TL3 Transition Design with a Storm Drain Inlet
  - MASH 4-12 Evaluation of a Fence Mounted System for Attachments to Concrete Bridge Barrier
  - Exploration into Variations in Guardrail Approach Transitions to Rigid Barrier
    - Evaluating effect of missing a post using computer simulation.
  - Attaching MASH-Compliant Thrie Beam Transitions to Rigid Concrete Barriers
  - Design and Testing of a MASH TL3 Thrie Beam System for Roadside and Median Application
    - 34” Mounting Height, 6ft posts – using 6” x 8” x 14”H W-Beam Blockouts
  - MASH Crashworthy Pedestrian and Small Traffic Signals, schedule for completion-2023
  - Buried-in-Backslope Terminal Variations in Foreslope, Backslope and Ditch Configurations
  - Length-of-Need Guardrail without Anchorage
  - Design and Testing of a Thrie-beam System at a Fixed Object
    - Testing completed, report being finalized
  - Multi-Directional Base Design for Steel Beam Non-Proprietary Large Sign Supports
  - Testing of Type 3 Barricades with Aluminum Panels and Mounted Signs
  - MASH TL3 Testing and Evaluation of the Flared MGS System
    - 7:1, 11:1 conducted and failed.
  - MASH TL-3 Testing and Evaluation of Large Signs Slip bases Support on Slope
  - Development and Evaluation of a Non-Proprietary Sign Support System for MASH TL-3
  - Anchored PCB to Guardrail Transition

- **4:30 pm** Scheduled adjournment for Day 1, adjourned at 4:28pm



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- **4:45 pm** TF13 Executive Meeting – started 4:53pm, adjourned at 5:50 pm
  - Attendees ... Pyde, Mauer, Smith, Neece, Durkos, Lohrey, Kovar, Eicher, Lechtenberg, Schulz
  - Time and location of next meeting in Lincoln, NE with MwRSF Pooled Fund Group – Karla checking details and will advise
    - Tentatively the 3<sup>rd</sup> week of April
    - Joint Meeting on Wednesday evening
  - Discussion on future meetings with the Roadside Safety Pooled Fund Group
    - Turnout and participation was great during today.
    - Engage the Pooled Fund earlier in the process.
    - Schedule a joint meeting for Thursday morning 8a–10a/10:30a
  - Criteria to put devices/systems into the guide
    - Unresolved, Lohrey will evaluate and report findings
  - Fee for broadcasting TF13 meetings discussion
    - Research costs of virtual program access (to do it “right”). Eric?
    - Questionnaire to gauge interest. Greg?
  - Crash Cushions designators change to “G”, “R”, and “N” from “I” and “T”
    - Perhaps 25 systems would be affected (only MASH).
      - Will need a note on the TF13 page indicating the affected systems, the old/new designator and the effective date.
    - Motion made by Neece, Pyde 2<sup>nd</sup> – passed.
  - BLOG vs Newsletter
    - Motion made by Smith to go the “BLOG” route, Durkos 2<sup>nd</sup> and motion passed.
    - Mauer will prepare information and Smith / Lohrey will implement.

### **Task Force 13 Dinner at Longhorn Tavern**

- **6:30 pm** Longhorn Tavern and Steakhouse (Back Room)  
201 E. 24<sup>th</sup> Street Bryan, TX 77803, which is about 5 miles from The George.  
Portions were HUGE and tasty; pies were FABULOUS!
-



**Friday, September 30th, 2022**

- 8:00 am **Begin Task Force Meeting – Day 2**

The remainder of the meeting was offered virtually.

**Affiliated Committee/Activity Reports**

- American Traffic Safety Services Association (“ATSSA”) Durkos
  - Over 1,500 member companies & public agencies; 28 Chapters covering 45 states & D.C.; 10 Committees & 5 Councils
  - Annual meeting and Expo is February 17-21, 2023 in Phoenix, AZ
  - Mid-year in 2023 is August 15-18 in Chicago, IL
  - W-Beam Guardrail Identification & Repair Guidelines publication is available for download.
  - ATSSA Update
    - 04/14 – Fuel cost and inflations letter to DOTs requesting contract price adjustments.
    - 04/29 – ATSSA completed a Manufacturer Material Shortage Survey
    - May/June – Special Report on Raw Materials Shortage
    - May/June – Letter to update DOTs on Raw Materials Shortage
    - Created Roadway Worker Protection Council
    - Developed Recommendations for Effective Vulnerable Road User Program
    - Assisting industry on flicker rate safety issue for TCD equipped with LED’s to be read by automotive cameras
    - ATSSA CEO sent a letter on QPL & APL standardized submittal form.
    - Letter to AASHTO requesting a seat as Technical Advisor on AASHTO’s Technical Service Program (“TSP”) in process

- TRB Committee AKD20 Roadside Safety Donahue  
Goals

Foster research - research needs, scopes, funding, monitor, data  
Share information - outreach, awareness, education  
Implementation - obstacles, interpret, assess, foster understanding, measure  
Collaborate - TRB, manufacturers, organizations  
International harmonization - mechanisms, practices, workshops  
Computational Mechanics - V&V, sharing info, RNS, tech advancements

Members who rotated off this year (9 year maximum):

- Donna Hardy, WVDOT
- Doug Gabauer, Bucknell Univ.
- Joseph Cheung, FHWA
- Richard Butler, Brifen, Inc.
- Erik Emerson, WisDOT
- Roger Bligh, TTI
- Francesca La Torre, University of Florence





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- AASHTO Technical Committee on Roadside Safety Durkos  
Roadside Design Guide
  - AASHTO contracted with Leidos earlier this year to pull together the next edition of the Roadside Design Guide, expected to take 2 years.
  - Followed by AASHTO's review and ballot, and the editing and preparation for publication (+ 6 mo?). Publication is expected in 2024.

Manual for Assessing Safety Hardware – converting MASH to a specification

- Work began on this effort this summer. AASHTO has contracted with TTI to implement.
- Will involve outreach to stakeholders beyond TCRS and state DOTs, including research and industry representatives.
- Converting MASH to a specification is expected to:
  - Increase the level of certainty for device developers, manufacturers, and crash test facilities when they conduct crash tests by clearing up as many gray areas in the current guidance as possible (e.g., the “should” and “may” statements)
  - Provide greater consistency in the results, which would allow users of roadside hardware to make more confident decisions based on more clearly-defined crash-testing criteria.
- This work is scheduled to take two years and would be followed by the AASHTO review and ballot process.

### Other TCRS Activities

- There are a number of issues related to MASH implementation. TCRS is identifying priorities from the state DOT perspective and considering ways to start addressing these needs. These issues include training and knowledge management, encouraging innovation, communication and outreach, and analysis of policy issues, among other broad topics.
- The effort needed to work on these items is more than what a volunteer committee can accomplish, thus AASHTO created a new Technical Service Program to allow the hiring of consultants to complete.
- TCRS, along with Design committee leadership, have initially prioritized training and peer exchange for state DOT staff, and analysis of modeling and manufacturer self-certification.
- AASHTO Technical Service Programs are funded by voluntary contributions from state DOTs. The MASH TSP started July 1 of this year. States make contributions to the program throughout the year rather than all at the beginning, so it will be some time before there is a sense of the funds that will be received.





- For any given year, it is not known in advance how many states or which states will contribute.
- In addition, during the first couple years of a TSP, state contributions are typically lower than what ends up being the average for that program.
- It will likely be into calendar year 2023, possibly into FY24, before enough funds will be secured to contract for 1st task.
- When the TSP funds are available, TCRS expects to start planning a state DOT peer exchange and to explore modeling and manufacturer self-certification to get more detailed input on how these could help move MASH implementation further along.
- Update on NCHRP projects Durkos
  - R&I approved:
    - 61 new projects
    - 12 continuation projects
    - 3 contingency projects
    - Total project budget: \$40.5 million
  - Panel member nomination ended June 30, but some panels are still being finalized
  - Problem statements for FY 2024 program due November 1

### Completed/In-Publication Projects (2022)

Proj.	Title	Report
15-53	Roadside Barrier Designs Near Bridge Ends with Restricted Rights of Way (McKenney)	1013
17-43	Long-Term Roadside Crash Data Collection Program	(1033)
17-82	Proposed Guidance for Fixed Objects in the <i>Roadside Design Guide</i>	(1016)
22-26	Motorcycle Crashes into Traffic Barriers: Factors Related to Serious and Fatal Injuries	(1005)
22-31	Selection and Placement Guidelines for Test Level 2 Through Test Level 5 Median Barriers (McKenney)	996
22-33	Multi-State In-Service Performance Evaluations of Roadside Safety Hardware	1010



## In-Progress Projects

Proj.	Title
17-11(03)	Development of Clear Recovery Area Guidelines
22-38	Development of MASH TL-3 Deflection Reduction Guidance for 31-inch Guardrail
22-39	Guardrail Performance at Various Offsets from Curb MASH TL-3 Applications
22-40	Update to AASHTO M 180-18 and Associated Highway Guardrail Specs. (McKenney)
22-43	Proposed AASHTO Guidelines for Implementation of MASH for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices (Abu-Hawash)
22-44	A Transportation Agency Data Collection Practice for Use with In-Service Performance Evaluations (Barcena)

## Pending Projects

Proj.	Title
07-33	Evaluate the Benefits of Increasing Clear Zone at Higher Speed/Traffic Volume/Crash Locations (Crichton-Sumners)
15-79	Development of Guidance for Non-Standard Roadside Hardware Installations
22-32A	Development of Methods to Evaluate Side Impacts for Next Edition MASH
22-42	Impact Performance Assessment of Barrier Performance at High Speeds
22-50	Crashworthiness of Roadside Hardware on Curbed Roadways
22-51	Impact of Soil Stiffness on the Performance of Crash Testing and Roadside Safety (McKenney)



Proj.	Title
22-52	Development of a Crashworthy Tangent End Treatment for Low Speed Curbed Roadways (Hartell)
22-53	Delineation of Linear Roadside Hardware Systems and Roadside Obstacles (Hanna)
22-54	MASH Hardware Evaluation with New Proposed Test Vehicles
22-55	Implementation of MASH Surrogate Test Vehicles for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices (Abu-Hawash)
22-57	Development of MASH Full-Scale Test Matrices for Additional Roadside Safety Devices
22-58	National Guidance for Defining Acceptable Roadside Hardware Field Performance through In-Service Performance Evaluations (Barcena)

- Texas A&M Transportation Institute Schulz
  - TL2 Permanent Concrete Low-Profile
  - Desire to have a MASH TL-2 compliant version of a permanent concrete barrier (low-profile)
  - Typical height range of 18 to 22 inches
    - MASH Test 2-10 and 2-11 was conducted
    - Permanent Concrete Low-Profile Barrier met the performance evaluation criteria of MASH TL-2
  - Thrie Beam Barrier for Roadside and Median applications
    - Develop and evaluate a cost-effective MASH compliant thrie-beam guardrail for median and roadside uses
    - Conduct finite element simulations to improve crashworthiness of system and finalize design
    - Performed critical MASH Tests 3-11 and 3-21
    - Roadside Thrie-Beam Guardrail met the performance evaluation criteria for MASH Test 3-11 and 3-21
    - MASH Test 3-10 also performed on Median application and was successful
    - Thrie-Beam Guardrail satisfactory for MASH TL-3 (roadside and median applications)



## TASK FORCE 13

[www.TF13.org](http://www.TF13.org)

Thursday and Friday ○ September 29th – 30th 2022 ○ College Station, TX

- Midwest Roadside Safety Facility Brandon Perry
  - Modified Delaware Bridge Rail (Hawaii DOT)
    - Evaluate Hawaii DOT retrofit thrie beam bridge rail on sidewalk & transition to MASH TL3.
    - 10ga Thrie beam, W6x25# posts
    - Three successful TL3 tests – 3-10 and 3-11 w/ 6” curb and 3-11 w/ 9” curb
  - Preliminary AGT Configuration
    - Nested 12ga Thrie Beam, 6.5ft W6x15# posts @ 37.5ft spacing, HSS 8x6x1/4 blockouts on 6” curb, elevated sidewalk
    - MGS Upstream Guardrail Transition (10ga W to T segment, 6ft x W6x8.5 posts 12” blockouts)
    - 31” to 32” height transition
    - Ran 3-20 / 3-21 successfully
  - FDOT Single Post Sign Supports
    - Evaluate single-post sign supports to TL3 criteria
    - Unidirectional slip base, 4”OD post, Sign panel = 45” x 48”, S-shape wind beam at top/bottom of sign, 7ft clear distance, 25-degree impact angle @ ¼ point.
    - MASH 3-61 and 3-62 conducted – failed.
    - Future testing to be completed:
      - 3-61 with 8ft clear distance and add 10lbs at top of post
      - 3-62 with 8ft clear distance and add 10lbs at top of post
      - 3-62 with 8.5ft clear distance and add 10lbs at top of post
- CCSA/George Mason University Tahan
  - CTDOT Existing Bridge Barrier Modeling
    - The preliminary computer simulations showed that all CTDOT retrofit designs meet both Report 350 and MASH criteria for all 64 of the barrier variations.
    - CTDOT is currently reviewing the final report and the analysis results.
  - Crash Testing NPS Aesthetic Barrier–TL3 Stone-faced Concrete Median Bridge Rail
    - Rough stone-faced walls are widely utilized on roads within the National Park Service jurisdiction.
    - Two crash tests were conducted, 3-10 and 3-11, at the FOIL facility and both were successful.
  - Hyundai Accent Modeling Update
    - New 2022 1100P Vehicle Model
    - Suspension tested completed at FOIL
    - Currently digitizing the data
    - FE Model will be available in 2023
- New/Old Business Durkos



**TASK FORCE 13**

[www.TF13.org](http://www.TF13.org)

**Thursday and Friday ○ September 29th – 30th 2022 ○ College Station, TX**

- Location/Dates of Various 2022 Industry Meetings
  - AASHTO Annual Meeting in October 19<sup>th</sup> – 23<sup>rd</sup>, 2022 in Orlando, FL
  - TRB Annual Meeting will be January 8<sup>th</sup> – 12<sup>th</sup>, 2023 in Washington DC
  - ATSSA Expo & Annual Meeting is February 17<sup>th</sup>-21<sup>st</sup>, 2023 in Phoenix, AZ
  - Task Force 13 Spring 2023 meeting will be in Lincoln, NE, most likely in April.
  - ATSSA Mid-year is 2023 is August 15-18 in Chicago, IL
- Executive Committee Summary
  - Discussion on a fee for virtual broadcast for TF13 meeting. Tabled for now – survey will be sent out to determine the interest.
  - Shift to a BLOG format for the newsletter – passed.
  - Change the crash cushions designations – passed.
  - Update/formalize the process for getting on the TF13 website. Tabled.
- Review of Task Force 13 **“To Do List”**, generated from meeting
  - Add pooled fund group to the contact listing for TF13 distributions, add Jim Kovar (did he get dropped somehow?) and add anyone new from Eric Smith’s registration list.
  - Tony/Chris are requesting help for reviewing the devices/systems submitted
  - Karla/Jim are looking for input from the various stakeholders on “Standardizing the information on the summary page and testing reports”.
  - Need the 6” x 8” x 10” block drawing from TTI, for the TF13 Guide.
  - Send survey to TF13 membership to gage interest on collecting a fee for broadcasting TF13 meetings.

- **12:00 Noon** Scheduled Adjournment, adjourned at 11am.

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2022 1013: Minutes of meeting are respectfully submitted for approval  
 2022 1015: Revision/clarifications made to **highlighted** portions

*Gregory A. Neece*  
 Gregory A. Neece  
 Secretary, Task Force 13.