TF13 October 14th -16th, 2025 **www.TF13.org**

Tuesday Evening October 14st

Meeting was held at the Washington Dulles Airport Marriott

Quick Links to all of the presentations that were presented during our meeting:

Update - AASHTO Technical Service Program (TSP) for AASHTO Safety Hardware Management Discussion with manufacturers – Safe Roads Research & Dev.
Presenters: Albin / Rasmussen

Topic: Manufacturer Self-Certification, Third-Party Review, and Use of Simulation
Sponsor: AASHTO (Voluntary DOT Contributions)

Purpose

- Facilitate a **peer exchange**, not new research, focused on:
  - Manufacturer self-certification
  - Third-party review options
  - Use of modeling and simulation
  - Education and training for the AASHTO Technical Committee on Roadside Safety (TCRS)

Survey Summary

- Responses from ~**50% of states** and ~**30 manufacturers**.
- Survey reopened to collect **additional DOT input only**.

- Survey explored:
  - DOT review practices
  - Definition and role of manufacturer self-certification
  - Self-certification as an alternative to FHWA eligibility letters

Key Findings

- **Self-Certification**
  - **~2/3 of DOTs** would consider self-certification.
  - **95% of DOTs** and **85% of manufacturers** expressed concern about potential abuse.
  - DOTs and manufacturers both favor **third-party review**.
  - DOTs continue to want:
    - Independent state review
    - **FHWA eligibility letters**
  - FHWA is viewed by both DOTs and manufacturers as the **preferred third-party reviewer**.
  - Alternative reviewers (universities, labs, ASTM, pooled funds) have funding and willingness challenges.
  - FHWA has resumed issuing eligibility letters.
- **Computer Simulation**
  - **~2/3 of DOTs** are not currently open to using simulations for minor design changes.
  - Increased training and guidance could improve acceptance.
  - Concerns remain regarding accuracy and internal expertise.

Discussion Highlights

- ATSSA Temporary Traffic Control – MASH Task Force has met 2–3 times.
- Task force is divided on self-certification for **Category 2 devices**.
- **72%** of participants still want FHWA approvals.
- Concerns raised about:
  - Manufacturer liability without third-party oversight
  - Risks of fraudulent self-certification, including non-performing imported products and falsified documentation.

Conclusions

- Both DOTs and manufacturers are **interested in self-certification** but share strong concerns about abuse.

Caltrans – Recent Activities

Topic: Recent Safety Innovation and MASH Activities
Presenters: David Whitesel, John Jewell, Vue Her, Chris Calwell

Purpose

- Provide an update on **Caltrans-led safety innovation and research activities** supporting:
  - MASH compliance
  - Development of new roadside safety hardware

- Use of simulation and testing guidance
- Coordination with national research efforts

Key Activities

- **Large Sign Support Development**
  - Development of a **MASH-compliant replacement** for breakaway supports on large roadside signs.
  - Focused testing on **soil performance using bogie force–deflection methods**.
  - Required force levels achieved; challenges remain with deflection criteria.
  - Testing to date includes **5 static and 10 dynamic tests**.
  - Incremental adjustments underway, including bogie ballast redistribution and increased soil compaction.
- **Barrier Systems**
  - **Cal F-23 PCP barrier** completed MASH testing across multiple configurations with improved performance.
  - **Caltrans K-rail** is expected to be phased out, with new barrier options taking its place.
  - Development of a **surface-mounted thrie beam bridge rail standard plan**, modeling performed by Midwest testing.
- **Textured Surface Evaluation**
  - Evaluation of textured surfaces for MASH compliance.
  - Simulation typically requested for **minor modifications to previously approved products**.
  - Simulation used as a **validation tool**, not as a replacement for physical testing.
- **National Research Participation**
  - Active participation in multiple **national safety research initiatives**.

Key Findings

- Soil performance is the **primary technical challenge** for large sign support testing.
- Incremental testing and compaction adjustments are yielding progress.
- Simulation is increasingly used to support validation where physical testing alone is not efficient.

Discussion Highlights

- Calspan noted similar soil testing challenges, requiring extended test durations.
- Caltrans anticipates meeting performance requirements in upcoming test rounds.
- Test results and guidance will be publicly available, consistent with existing Caltrans practice.
- A deliverable aligned with updated MASH specifications is currently in development.

Conclusions

- Caltrans continues to advance MASH-compliant roadside safety solutions.
- Physical testing remains essential, with simulation serving a supporting role.
- Transparency and practitioner guidance remain key priorities.

Next Steps

- Complete remaining sign support testing iterations.
- Finalize and publish guidance aligned with updated MASH criteria.

- Continue coordination with national research partners

Progress (or Lack Thereof) in Curtailing Large Truck Fatalities

Presenter: Rick Mauer, Gregory Industries

- Presented FARS data comparing large truck fatalities from 2012 to 2023, highlighting minimal progress in reducing fatalities over the past decade.
- Emphasized key contributing factors, including fixed-object collisions and rollovers.
- Shared a personal near-collision experience involving a large truck to underscore the real-world risks and importance of highway safety improvements.
- Discussed the availability of existing tools and roadside barrier systems capable of mitigating these incidents, noting that much of the current infrastructure is outdated and in need of modernization.
- Suggested leveraging AI and predictive analytics, including LiDAR mapping, to identify high-risk locations and optimize the selection and placement of appropriate barrier systems.
- Encouraged prioritization of heavy-truck routes, adoption of cost-effective countermeasures, and consistent application of updated safety standards across states.

Truck Fatalities Perspective from the Truck Safety Coalition

Presenter: Zach Cahalan, Executive Director, Truck Safety Coalition

- Presented national data on truck-related crash fatalities, noting approximately 5,500 fatalities annually.
- Highlighted that 96% of fatalities occur to occupants of passenger vehicles rather than truck drivers.
- Identified key safety concerns, including distracted driving, driver fatigue, and drug use.
- Emphasized the need for stronger enforcement of weight limits and speed limits, along with broader implementation of automatic emergency braking (AEB) systems.
- Stressed the importance of using the term “crash” instead of “accident” to reinforce accountability and the preventable nature of many incidents.
- Concluded with a call for increased partnerships, collaboration, and support across the industry to advance truck safety initiatives.

Wednesday Morning October 15th

Introduction

Durkos provided an overview of the background of TF13 and the progression to its current status as a 501(c)(3) organization. Three first-time attendees were present. All subcommittees have now been fully staffed, with chairs assigned. A brief recap was given of the tour conducted at GMU the previous day.

Approval of Minutes

The minutes from the Spring Meeting were approved.

- Motion: Seconded by Don Pyde
- Result: Approved

Treasurer's Report - Smith

Current Balance: $58,300

Annual Expenses:

- Website maintenance and oversight (Binary.net):$ 900
- Counseling Guide Manager: $12,000
- New web design / maintenance (as needed, contracted): $750
- Zoom subscription and domain name fees
- 501(c)(3) tax preparation
- General meeting expenses

Subcommittee #1 – Publications Maintenance -Lohrey

Website Services Contract & Publications Maintenance

Chad Heimbecker was introduced as Co-Chair and Webmaster. Lohrey will continue focusing on hardware-related content.

Website & Hardware Guides

- Reviewed navigation of the Hardware Guides and page access.
- Highlighted the "Recent Updates" section under *What's Been Updated*.
- Discussed systems added during 2024–2025, with a review of several new systems.

FHWA Letters & Posting Practices

- Discussion regarding FHWA no longer including test summaries within approval letters and delays in posting letters online.
- Eric noted that TF13 is open to posting new systems prior to FHWA letter publication.
- TF13 can request data sheets directly from FHWA once letters are posted.

Archived Pre-NCHRP 350 Systems

Approximately 10 years ago, pre-NCHRP 350 systems were removed from the Hardware Guides. It was noted that newer engineers have expressed a need for these systems for field identification.

- 28 legacy systems have been identified.
- A prior vote approved reintroducing them as "Archived Pre-350 Roadside Hardware."

Hardware & Component Updates

- Updates focused on Thrie-Beam and components currently used in MASH systems.
- M180 components were updated, reversing prior hard metric conversions from the 1995 guide back to U.S. customary units (with soft metric equivalents).

Concrete Barrier Classification Updates

- Proposal to split the existing *Closed Profile* category.
- Longitudinal Barrier – Rail Type updates:
  - Rename *Closed Profile* to:
    - Concrete
    - Stone
    - Gate
- Safety Shape Median Barrier to be renamed:
  - "New Jersey (NJ) Safety-Shape Barrier"

Composite Barriers

- Identified the need for a new Composite barrier category.
- Noted that work zone guides already include plastic, steel, and water-filled barriers.

Schwartz noted that 8-inch blocks are nominal dimensions (actual dimension ~7¾ inches), similar to standard lumber sizing.

- Motion: John moved to accept Eric's proposed naming categories with the addition of *Composite*.
- Second: Don Pyde
- Result: Unanimously approved

M180 Classification Discussion

Durkos raised the need to distinguish M180 Class A and Class B, rather than referencing 10-gauge and 12-gauge terminology.

- Radice (Highway Safety) clarified that 10- and 12-gauge references are industry nicknames; M180 specifications differ.
- Furgal (Nucor) added that steel mills reference thickness in millimeters or inches, not gauge.
- Consensus acknowledged the importance of using proper Class A / Class B terminology.

Drawing Format Requirements

Discussion regarding TF13 drawing format requirements included flexibility in accepting non-PDF formats from testing houses, now that documents are digitally submitted. This relates to the drawing summary included with FHWA approval letters.

Website Updates & Issues - Heimbecker

- Addressed issues with the website contact form and recent spam corrections.

- Manufacturer logos: many were low-resolution; manufacturers may submit higher-quality versions to Eric.
- Removed several outdated line tags.
- New post improvements:
  - Sidebar fixed
  - Page widths adjusted for improved layout

Subcommittee #2 – Eicher

Tolerance: Post Bolt Hole Distance from Top of Post

- Opened discussion to determine whether test houses or DOTs had input on the lack of specified tolerances.
- Lohrey. asked whether ASTM provides guidance on acceptable tolerances.
  - Radice noted ASTM tolerances generally apply to steel manufacturing, not fabrication.
- Valtir stated their fabrication tolerance standard:
  - ≤ 3 inches: ±1/8 inch
  - > 3 inches: ±1/4 inch
- Price noted tolerances should be evaluated prior to installation, as plastic blockouts often compensate for minor dimensional issues.
- Gaudry (online) commented that AASHTO provides guidance on what is considered reasonable for field installation.
- Shrum explained that tight tolerances can create installation challenges and may push installers to drill holes in the rail, which is undesirable.
- Due to lack of consensus, Eicher tabled the discussion.

Splice Bolt Holes in Transitions

- Discussion on slotted bolt holes in transition sections:
  - Slots are currently oriented differently depending on manufacturer.
  - Three manufacturers produce these components, each supplying them differently.
- Radice stated that vertical slots perform better in field installations.
- Cummings noted they have always manufactured the slots vertically, not horizontally.
- Shrum commented that misaligned slots often require field drilling to achieve proper fit.
- Recommendation:
  - Contact manufacturers to standardize this component with vertical slots.
  - Update the drawings to reflect this change.

Subcommittee #3 – Ghioldi

System Reviews and Workload

- Currently reviewing 139 systems in the guide.
- Efforts are underway to involve additional reviewers.
- Target review pace:

  - 4 rails every 6 months
- Only 7 systems remain to be reviewed.
- Anticipated completion of current reviews by next month.
- Main workload for this group is expected to wind down in 2026, and the group is seeking additional projects.

Bridge Rail Systems and MASH Evaluation

- Durkos noted that TTI has been evaluating NCHRP 350 bridge rail systems for MASH compliance for certain states.
- Question raised as to whether Subcommittee #3 should update these systems in the guide.
- Lohrey noted:
  - DOTs developing new bridge rails often do not request FHWA letters.
  - As a result, those systems are not currently included in the guide.
- This topic was identified as a potential next major project, particularly determining whether systems meet MASH criteria.

Documentation Approach

- Gaudry recommended:
  - Clearly stating the test level to which each system was originally tested, and
  - Separately noting whether the system has been evaluated for MASH compliance.
- Lohrey confirmed:
  - The guide includes a section where evaluations can be documented, including MASH evaluations or other engineering analyses.

Subcommittee #5 – Kirchgesner

MASH Systems in the Guide

- Reviewed systems currently identified as MASH-compliant in the guide.
- Discussed challenges in representing families of MASH systems, particularly where MASH allows multiple configuration options.
- Noted that radar systems, lights, and other devices mounted on luminaires are common and require consistent treatment in the guide.
- Reviewed examples of sign systems with added flashers.
- Explained variations in installation practices, particularly how signs are treated differently when placed behind guardrail.

NCHRP Project Updates

- Provided brief updates on the following projects:
  - **NCHRP 03-119(01):** Expected to be posted soon
  - **NCHRP 22-43** (with **17-105 added):** Transitioned to **NCHRP 11-23**
  - **NCHRP 22-55**
  - **NCHRP 22-65**

Pooled Fund Project Updates – Jollo

- Provided additional detail on pooled fund efforts.
- Expressed appreciation to Lohrey. for chairing the committee and welcomed Greg.
- Updates included:
  - Evaluation of square tube slip base
    - Drawings are nearing completion.
  - Evaluation of multi-post large sign support with slip base and slip hinge
    - Focus on design consistency across systems.
- Emphasized that tested systems must account for a broad family of structural configurations.

Guide Demonstration

- Demonstrated the guide webpage, including example search functionality and filtering.

Subcommittee #5 Discussion

- Chris (Caltrans) reported upcoming testing of:
  - 4x4 and 6x6 wood posts
- Discussion included:
  - Determining which configurations to test.
  - Scott (ODOT) asked whether laminated beams would be included (not initially).
  - Caltrans allows 3–4 wood species and is evaluating available materials.
  - Scott (ODOT) noted access to large quantities of #1 pine versus #2 Southern Yellow Pine, and shared results from initial testing.
- Chris (Caltrans) noted the wide range of testing options and expressed hope that new NCHRP work would support decision-making.

Luminaire Testing Discussion

- Scott (ODOT) asked whether additional luminaires would be tested.
- Chris (Caltrans) confirmed plans to test the 15 FPS flashing beacon.
- Scott noted agencies are seeking guidance on what systems should be tested, but consensus has not yet been reached.
- Anecdotal observations suggest slip bases for luminaire supports often perform well and can sometimes be reset after electrical repairs.
- Chris reported that Caltrans previously tested the 15 FPS, but it did not perform as expected.
  - Proposed design changes are underway.
  - Acceptance from Caltrans structures staff has not yet been obtained.

Subcommittee #6 – Work Zone Hardware - Seguine

Status Update

- Limited recent activity related to **Work Zone hardware**.
- Minimal progress since the last update.

FHWA Letters Discussion

- Recent FHWA publication activity is encouraging.
- Approval delays remain significant (1.5–2 years).
- Emphasized the need for products to have FHWA letters to be included in the guide.
- Presented a state-by-state map indicating which states require FHWA letters for approval, based on Moovop's experience.

Self-Certification Discussion

- Referenced the Safe Roads Survey and concerns about the lack of a centralized certification authority.
- Key points:
  - The term "Self-Certification" is ambiguous and potentially misleading.
  - Multiple layers of review already exist before crash-tested products reach the market.
  - Proposed adopting alternative terminology, as self-certification is already occurring in practice.
- Seguin noted this issue influenced their product development and testing strategy, leading them to design systems with additional margin beyond minimum MASH limits.

General Comments

- Wise (NGT) commented that compliance is sufficient as long as the system meets MASH.
- Shrum agreed, stating MASH represents a minimum performance standard.
- Lechtenberg emphasized that the specific values matter less than ensuring the test laboratory is credible.
- Hubble agreed, highlighting the importance of a credible third-party review.
- Gaudry. shared that internal guidance is needed for product approval protocols.
- Seguin relayed that a former FHWA executive stated:
  - FHWA letters are unique to this industry.
  - FHWA should consider exiting the letter-issuance role.
  - There is no centralized certification body for labs, raising questions about the need for FHWA to serve that function.
- Wise (NGT) raised concerns regarding liability exposure, noting that self-certification could exacerbate liability risks.
- Durkos provided historical context on how MASH evolved toward becoming a specification.
- Gaudry noted that sovereign immunity varies by state, impacting liability exposure.

Summary:

- Discussion was productive and highlighted significant policy and process considerations.

Subcommittee #7 – Lechtenberg & Kovar

Report Template Development

- Objectives:
  - Include MASH compliance clearly
  - Improve ease of reading and comprehension
  - Ensure Section 508 compliance

  - Incorporate recent FHWA and State requests
  - Review submitted reports and integrate best practices
  - Address compliance with future MASH specifications
    - Disclaimer: Future specs are not yet finalized
- **Next Steps:**
  - Distribute draft template to labs on 10/14
  - Request comments by 11/14
  - Review and revise as needed

Soil Property Inter-Laboratory Comparison (ILC)

- Originated from NCHRP 22-51:
  - *Impacts of soil stiffness on crash testing and roadside safety*
- Requested data from laboratories, including:
  - Soil sieve analysis
  - Emphasis on No. 200 sieve (material passing/retained)
- Data request issued 10/14
- Submittals due 10/29
- Clarified that previous MASH test soils are acceptable for inclusion.

Upcoming ILCs

- Tentative schedule includes:
  - Calspan: Occupant compartment deformation measurements
  - MwRSF: Lab interpretation results
  - SafeTechnologies: OIV, RDA, THIV, ASI, roll, pitch, yaw
  - Additional ILCs to follow
- Discussion on conducting an ILC for 2270P CG:
  - Would require shipping a truck between labs.
  - Lechtenberg emphasized the need for lab buy-in to share freight costs.

Website Update – Accredited Labs List

- Plan to publish a list of laboratories accredited to conduct MASH testing:
  - Lab name and location
  - Accrediting body
  - ISO 17025 certificate number
  - ILC participation (to be updated after each ILC)
  - Contact person
- Lechtenberg noted uncertainty about whether all listed labs are currently accredited.

Discussion:

- Durkos asked how foreign labs would be contacted.
- Proposed:
  - Adding information to the next newsletter
  - Posting directly to the TF13 website
  - Including links to accrediting bodies so certificates can be verified
- Labs would be responsible for providing links; TF13 would not chase documentation.

- Lechtenberg stated the current list could go live as soon as updated information is received.

Action Item:

- All labs submit updated information to Lechtenberg by 11/14.

Additional Comments

- Lechtenberg - reviewed recent lab renewal audits:
  - Focus areas varied by lab:
    - Paperwork review
    - Equipment calibration
    - Material calibration
- SW Research: Audit scheduled for March
- Caltrans: Prior audit focused on calibration and supplier documentation
- MwRSF: Reorganized lab/site designations based on audit feedback
- SW Research: Listed main office due to large testing site footprint

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VDOT – Guardrail Terminal Inspection Program - Barrett

Program Overview

- Implemented a boots-on-the-ground inspection of every guardrail (GR) terminal in the VDOT system.
- **System Background:**
  - Third-largest roadway network in the U.S.
  - ~60,000 miles of roadway
  - ~7,400 miles of guardrail
  - ~150,000 end terminals
  - 7,500 miles of guardrail is roughly equivalent to the distance from Virginia to Afghanistan.

Inventory and Program Development

- Developed a virtual inventory using video logs.
  - Digitized all GR terminals.
  - Enabled serialization of each terminal.
- Identified systemic issues:
  - Mixed-and-matched components
  - Rusted or compromised terminals
  - Unapproved systems
- Evaluated four inspection approaches.
  - Selected a targeted, limited on-site inspection program.

Inspection Execution

- Required driving **every** mile of the 60,000-mile network.
  - Completed over a three-year period.
- Due to system complexity:
  - Developed a Field Identification Manual and Terminal Matrix.

- Inspections conducted:
  - Without TMAs or lane closures
  - Using paired crews
- Data quality emphasized:
  - Robust QA/QC procedures
  - Developed a dynamic mobile data-collection app
  - Supplemented with:
    - Paper pocket guides
    - Comprehensive identification guides
- Inspectors:
  - Required to complete inspections within a 15-minute window
  - Allowed limited roadside exposure without protective vehicles

Safety and Performance

- Created a separate worker safety guidance program specifically for this effort.
- Results:
  - ~25,000 labor hours on the roadway
  - Zero safety incidents
- Deferral rate:
  - Only 4% of terminals deferred due to unsafe inspection conditions
- Productivity and cost:
  - 144,000 inspections completed in 24 months
  - Program nearing completion
  - Cost approximately $50 per terminal
    - Includes two-person crews

Challenges and Training

- Primary challenge:
  - Training staff to properly identify products and configurations
- Developed:
  - Live inspection dashboard to track progress and findings

Findings and Next Steps

- Key outcomes:
  - Identified widespread mix-and-match installations
  - Corrected issues such as incorrect bolt usage
- Next steps:
  - Briefings with executive leadership
  - Replace 100% of mixed-and-matched terminals
  - Finalize and summarize inspection reporting
- Future outreach:
  - Plans to share best practices with other DOTs
    - IA, ND, MD, WI
  - All materials shared except the mobile application

Discussion and Q&A

- **Durkos** asked about initial challenges in launching the program.
  - Barrett stated leadership needed confidence to speak publicly.
  - Original estimate: 3 years / $15M
  - Actual performance: 2 years / ~50% of projected cost
  - Strategy:
    - Started with primary roadways to address highest-risk locations first in case funding was reduced.
- **Seguin** asked whether this inspection model is being applied to other asset classes.
  - Barrett confirmed inclusion of:
    - Impact attenuators (basic data)
    - Signs and signals
  - Anticipated this program will serve as a model for other asset inspections.
- **Edgar (online)** asked about in-service performance evaluation.
  - Barrett confirmed VDOT has collected terminal hit data for 10 years.
  - Initially photo-based only.
  - Now supported by a dedicated field data collection app.
  - Acknowledged inconsistent compliance across districts and ongoing efforts to improve uniformity.
- **Tony** asked about long-term planning (2–5 years out).
  - Barrett noted:
    - ~$5M annually earmarked for terminals
    - Funds approximately 450 terminal replacements per year
    - Focus remains on eliminating mix-and-match installations
    - Considering rotating one district per year, creating a 10-year inspection cycle
    - Ongoing challenge: keeping pace with new products and approvals
- **McDonald** asked whether the 4% mix-and-match rate met expectations.
  - Barrett explained:
    - When excluding damaged terminals, the rate drops to ~2% of inventory
    - Data is not publicly available
    - Expressed surprise at the number of pre–NCHRP 350 terminals still in service
- **Schrum** asked whether long-unimpacted terminals should trigger reconsideration of barrier warrants.
  - Barrett agreed, citing examples of guardrail likely 50 years old and never hit.
  - Stated reevaluating warrant need is a valid discussion.
- **Durkos** asked about severely rusted terminals.
  - Barrett stated the issue was referred to the University of Virginia research team.
  - Preliminary findings suggest herbicide exposure (e.g., Round Up) may have contributed.
    - Product guidance warns against storage in galvanized containers.
    - Approximately 100 SKT terminals were affected.

Publication Note

- Durkos asked about publishing the presentation.
- Barrett indicated he would review and likely make minor edits prior to release

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Calspan – Recent Activities - Atahan

Recent Testing Conducted

- Asynt composite barrier on concrete
- Safety base sign support structure
- NYDOT systems
- Tesla Model 3 testing
- Margaritelli barrier system

Asynt Composite Barrier

- Lightweight composite barrier system, approximately 192 ft long
- Primary question was the number of anchors required
- System was simulated prior to testing to determine anchor requirements
- Pickup truck test conducted on 3/11
- Observed dynamic deflection of approximately 5.7 inches

Calspan noted that approximately 75% of customers perform simulation work prior to physical testing.

Sign Support Testing

- Tested a TL-3 breakaway safety base sign support system

NYDOT Testing

- Box beam systems tested on:
  - Soil foundation
  - Concrete deck installations
- Included terminals, pedestrian breakaway features, and steel-to-steel connections
- Testing initiated once simulations predicted appropriate CIP (Critical Impact Point)
- Conducted a TL-2 breakaway test with pedestrian break feature
- Additional NYDOT barrier testing included a box truck impact on a bridge rail

Vehicle-Specific Testing

- Tesla Model 3 tested into a Gibraltar cable barrier system
  - System met MASH TL-3 criteria

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Margaritelli Barrier

- Margaritelli "Beaver" barrier tested with transition to MGS
- Test conducted on 3/21
- System met MASH criteria
- Question posed to the group regarding which side of the system should be tested
  - Consensus: test from the more flexible system to the more rigid system

Upcoming Work

- Calspan plans to run a **TL-5 system test next year**

Pooled Fund Program Update & TTI Research Updates - Kovar (Presentation not submitted)

Overview

- Recap of recent Pooled Fund meetings
- Updates on:
  - Multi-directional large sign supports
  - Tall portable sign supports
  - Merritt Parkway steel-backed timber guardrail system

Pooled Fund – New Prioritized Problem Statements

- Guide rail blockouts shortened to 10 inches: blockout with ¼-post spacing at TL-3
- Flared guardrail system – Phase 3
- Short radius guidance
- Short thrie-beam approach transition to rigid barrier with curb
- MASH testing of PSST with metal sign
- MASH guardrail on slope

Emerging Vehicle Pooled Fund – Annual Meeting

- Participation included:
  - 14 states and provinces
  - Agencies and private organizations
- Reviewed 20 new problem statements
- Selected top three priorities:
  1. Tesla Model 3 finite element analysis (FEA) model development
  2. MGS retrofit solutions
  3. Measurement of impact loads from EV impacts

Multi-Directional Base for Steel Beam (Non-Proprietary) Large Sign Supports

- Goal: Develop a multi-directional system, ideally with retrofit capability
- Ted Whitmore (WVDOT) contributed to the project
- Work plan included:
  - Literature review
  - Design and development
  - MASH testing matrix
  - Documentation

Testing Results

- MASH Test 3-60 & 3-61: Passed
- MASH Test 3-62: Failed (post penetrated roof of vehicle)

Design Iterations

- Modified fuse plate (weakened without affecting wind-loading capacity)
- Follow-up test failed
- Raised sign height by 1 ft:
  - Improved performance, but post still contacted roof
- Raised sign an additional foot:
  - Roof penetration still occurred

Outcome

- Pooled Fund desired continuation; however, work must proceed under a new project number
- Project to be renewed with revised scope and design changes

Portable Sign Supports for Rigid Signs with Variable Mounting Heights

- Sponsor: PennDOT
- Objective: Raise signs above channelizer height

Testing Results

- MASH Test 3-71: Met criteria
- MASH Test 3-72: Failed due to 90-degree penetration into vehicle

Design Modifications

- Strengthened lower supports to prevent local penetration
- Pickup truck test passed
- Small car retest failed due to occupant compartment penetration
- Modified to a squatter design:
  - Failed again due to occupant compartment penetration

Outcome

- Project terminated
- New problem statement planned focusing on:
  - Sign height modifications
  - Frame redesign

Merritt Parkway Steel-Backed Timber Guide Rail

- Initial testing showed excessive ride-down accelerations:
  - 25.5 g vs. MASH limit of 20 g

Evaluated Concepts

1. Added rub rail
2. Reduced post size
3. Added steel plate on traffic side
4. Increased splice plate thickness to 1 inch (most promising)

System Details

- 10 ft post spacing
- 4-inch curb
- 30-inch top rail height
- 1-inch splice plate

Issues & Resolution

- Rail penetrated occupant compartment
- Redesigned by relocating splice to mid-span at posts
- MASH Tests 3-10 and 3-11:
  - Both passed with no snagging
  - Met MASH criteria

Additional Configuration

- No curb configuration with added rub rail
- Both Tests 3-10 and 3-11 performed well

AKL13 Update - Kovar (Presentation was given remotely – no copy)

TRB Structural Changes

- All TRB committee's were sunset:
  - 160 committees were sunset
  - 100 newly established
- Members selected by senior officers
- New committee name:

  - *Standing Committee on Roadside Safety Evaluation and Countermeasures*
- Membership updates:
  - New members needed
  - Former members encouraged to re-enlist via mytrb.org
  - Membership "clocks" reset for all members

Organizational Changes

- No longer any subcommittees
- Former focus areas included:
  - Computational mechanics
  - In-service performance evaluation
  - International topics
- Potential formation of three new working groups:
  - One possible focus: vehicle suspension
- Discontinuation of paper awards (e.g., Stonex, Best Paper)
- Committee remained largely intact due to strong performance and research success

Midyear Meeting

- Joint meeting held with AASHTO TCRS
- Successfully prioritized research needs for TCRS

Upcoming Activities

- Developing NCHRP problem statements with TCRS
- Paper submission timeline:
  - Opens: June 1
  - Closes: August 1
  - Reviews: Mid-August through September
  - Decisions issued: October 1–30
- 2026 TRB Annual Meeting:
  - January 11–15, 2026

Meeting Format Changes

- Thursday AM: Computational Mechanics workshop
- No subcommittee meetings
- One 2-hour committee meeting
- Two lectern sessions
- No committee-specific poster session
- Four design sessions (cross-committee collaboration)
- Young Professionals session and Safe Systems Approach session

TRB Communications

- All prior distribution lists have been removed
- TRB will establish a new communication platform
- Question raised (Lohrey) regarding public visibility of members and availability of AKD20 site:

- Old site remains temporarily accessible
- Will eventually be taken down once new platform is live

Executive Session

Topics Raised by John

TF13 Email Distribution List

- Need to improve and refine the TF13 email list to ensure appropriate State DOT contacts are included.
- Recommendation: scrub existing lists to increase meaningful DOT participation.
- Action: John suggested that Mauer reach out directly to David Reese to help improve DOT engagement.

Technical / Standards Discussion

Survey– Transition Manufacturers

- Discussion on surveying manufacturers to understand preferred slot orientations and transition design direction.

M180 Reference – Gauge vs. Class Designation

- Discussion on referencing 10-gauge and 12-gauge versus Class A & Class B in M180.
- Proposal to place quotation marks around “10 ga” and “12 ga” to avoid confusion.
- Final decision: no immediate change; topic will remain open to see how it evolves.

TF13 Drawings – Transition Panel Slots

- Issue identified where some manufacturers are producing vertical slots, while the TF13 drawing specifies horizontal slots.
- Action: George will conduct fact-finding with manufacturers and report back.

Post Tolerances on Drawings

- Discussion regarding tolerance dimensions for posts (top-down spacing).
- Question raised whether this is a widespread field issue.
- George noted it has occurred in the field but may be a one-off.
- Action: Consider submitting this as an NCHRP problem statement for further evaluation.

GMU Tour

- General feedback on the GMU tour was positive.

- Discussion on balancing GM tour content versus foil-related technical topics.

Subcommittee #5

- Remaining open positions were discussed.
- Need to finalize participation.

Design Guide

- Discussion on augmenting the design guide to better document:
  - Hardware details
  - Sources for recommended components and practices

Meeting Logistics

- Recommendation to move the Day 1 meeting start time earlier, rather than beginning at 7:00 PM.

Participation & Travel Constraints

- Carl noted he can justify attendance at meetings due to his role as a subcommittee chair.
  - Out-of-state travel requires involvement from his Director's Office.
  - Remote participation has helped maintain involvement.
  - PDHs provide significant benefit.
- Scott Jollo noted similar travel challenges within his organization.
- Recommendation: maintain multiple points of contact within agencies to ensure continuity and participation.

Thursday Morning October 16th

Durkos – Relevant Highway Safety Topics

M180 – Status and Potential Next Steps

- Background: M180 has existed since the 1960s.
- During the 2023 update effort, researchers proposed revisions they believed better reflected appropriate material thickness.
- The AASHTO Committee on Materials and Pavements (COMP) is the body responsible for final decisions.
- Manufacturers have remained aligned ("in lockstep") in their responses.
- A "gentleman's agreement" from an earlier meeting in Orlando anticipated issuance of M180-25 in 2026.
- Since that meeting, progress has become less certain and momentum has slowed.

State DOT Perspective

- Matt Barrett (VDOT) responded to a question regarding material quality during replacements.
- VDOT's specification allows for either material option.

- However, VDOT will require assurances/guarantees from proprietary manufacturers that supplied materials will perform acceptably.

ATSSA Guardrail Committee / Standards Activities

State DOT Submittal Process

- Discussion focused on the need for a simplified, standardized product submittal form for State DOT standards.
- A previous effort led by ATSSA did not advance as planned.
- That effort has now been re-established within ASTM in the ASTM F14 Committee.
    - A working group is being formed in hopes of developing a formal ASTM standard.
    - The group will assess feasibility and next steps.

ATSSA Publications

- **W-Beam Guardrail Identification and Repair Guidelines**
    - Anticipated release: 2025
    - Publication will be free.

ATSSA Update - Perry

Organization Overview

- ATSSA currently includes:
    - ~1,500 members
    - 28 chapters
    - Representation in 45 states plus Washington, DC
    - 10 committees and 6 councils
- New ATSSA staff introductions:
    - Nagham El-Zine – Innovation & CAV
    - Jim Rhine – Signs & Traffic Signals

M180 Coordination

- ATSSA compiled all manufacturer comments related to M180.
- Served as a conduit between manufacturers and AASHTO leadership.

New Product Rollout Program

- Typically introduces 8–10 new products annually (spring rollout).
- Each product is featured with approximately one page of information.
- During the annual meeting:
    - DOT tours are conducted to view new products on the show floor.
    - A video overview of the New Product Rollout process was presented.
- Key dates and details:

- Application deadline: November 1
- Awards presented to the top four products
- Expected attendance at upcoming show: ~5,000 participants

FHWA Eligibility Letter Process

- FHWA staffing has been reduced by approximately **50%**.
- ATSSA plans to meet with FHWA to discuss impacts on eligibility review timelines.
- Typical product timeline:
  - ~6.5 years from concept to "new product"
  - ~2.6 additional years to navigate State DOT APL/QPL processes
  - ~2 years on average to obtain a new FHWA eligibility letter

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AASHTO TRCS Update - Durkos

- Presentation largely unchanged from the spring meeting.
- Primary difference is schedule adjustments, with extensions to some delivery timelines.
- Action: Reference details from Spring Meeting Notes for content specifics.

Subcommittee 9 Update - Poynor

Communications

- **Bi-annual Newsletter**
  - Overview provided on development and coordination process.
  - Noted that this is the first time TF13 has all committees and subcommittees fully staffed.

LinkedIn Presence

- Launch of new TF13 LinkedIn group:
  - https://www.linkedin.com/groups/15307047/
  - https://lnkd.in/emQTSfCW

Outreach & Engagement

- Discussion on expanding DOT engagement following email list updates.
- Potential outreach methods:
  - Cross-posting in other newsletters
  - Direct engagement with additional State DOTs
  - Outreach to surrounding states for future meeting participation

Ideas Discussed

- Greg K.:
  - Suggested presence at future ATSSA shows using a QR code.

  - Possible display and recognition of TF13 membership.
- Additional ideas:
  - Request agenda time during relevant committee meetings.
  - Explore participation in AASHTO meetings and shows (Richard Butler).
- Hubble- provided additional comments during the discussion (details not captured).

AASHTO Technical Committee on Roadside Safety - Turner

Gave a background on Transportation Research Board – and how the cycle and process of getting the research problem statement into research phase.

- **NCHRP 17-11(03):** "Development of Clear Recovery Area Guidelines" https://nap.nationalacademies.org/read/27593

 NCHRP 22-29B: "Evaluating the Performance of Longitudinal Barriers on Curved, Superelevated Off-Ramps" https://nap.nationalacademies.org/read/28589

 NCHRP 22-37: "Development of a MASH Barrier to Shield Pedestrians, Bicyclists, and Other Vulnerable Users from Motor Vehicles" https://nap.nationalacademies.org/catalog/27896

 NCHRP 22-38: "Development of MASH TL-3 Deflection Reduction Guidance for 31-inch Guardrail" https://nap.nationalacademies.org/read/27772

 NCHRP 22-39: "Guardrail Performance at Various Offsets from Curb MASH TL-3 Applications" https://nap.nationalacademies.org/read/27463

- **NCHRP 22-40** Material Requirements for High-Tension Cable Barriers (2025) https://nap.nationalacademies.org/read/29173

 NCHRP 22-41: "Proposed Modification to AASHTO LRFD Bridge Design Specifications, Section 13—Railing" https://nap.nationalacademies.org/read/27893

 NCHRP 22-43: "Implementation of MASH for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices" (also known in some documents as "Proposed AASHTO Guidelines for Implementation of Crashworthy Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices") https://doi.org/10.17226/27869

New Relevant Projects:

- NCHRP 03-119(01): Application of MASH Test Criteria to Breakaway Sign and Luminaire Supports and Crashworthy Work-Zone Traffic Control Devices
- NCHRP 07-33: Evaluate the Benefits of Increasing Clear Zone at Higher Speed/Traffic Volume/Crash Locations
- NCHRP 15-79: Development of Guidance for Non-Standard Roadside Hardware Installations
- NCHRP 17-105: MASH Crashworthiness of Luminaire Poles (Final; combined with Project 22-43)
- NCHRP 22-32A: Development of Methods to Evaluate Side Impacts – Phase II
- NCHRP 22-42A: Impact Performance Assessment of Barrier Performance at High Speeds

- NCHRP 22-50**:** Crashworthiness of Roadside Hardware on Curbed Roadways
- NCHRP 22-51: Impact of Soil Stiffness on the Performance of Crash Testing and Roadside Safety
- NCHRP 22-52: Development of a Crashworthy Tangent End Treatment for Low-Speed and Curbed Roadways
- NCHRP 22-53: Delineation of Linear Roadside Hardware Systems and Roadside Obstacles
- NCHRP 22-54: MASH Hardware Evaluation with New Proposed Test Vehicles
- NCHRP 22-55: Implementation of MASH Surrogate Test Vehicles for Sign Supports, Breakaway Poles, and Work Zone Traffic Control Devices
- NCHRP 22-56: Development of Non-proprietary Prefabricated Solutions for Concrete Barrier Systems for Accelerated Bridge Construction
- NCHRP 22-57: Procedures for Development of MASH Full-Scale Test Matrices for Additional Roadside Safety Devices
- NCHRP 22-58: National In-Service Performance Evaluation Guidelines for Defining Acceptable Roadside Safety Hardware
- NCHRP 22-59: Safety Risks of Occupant Compartment Damage During Crashes
- NCHRP 22-60**:** Guidelines for Crash Testing Roadside Safety Hardware for Motorcycles
- NCHRP 22-61: Crashworthiness of Roadside Hardware Impacted by Battery Electric Vehicles
- NCHRP 22-62: Tool for Estimating the Deflection of Temporary Traffic Barriers with Reduced Impact Angles
- NCHRP 22-63: Verification and Validation Guidelines to Use Computer Simulation as an Alternative to Full-scale Crash Testing
- NCHRP 22-64: Method for Using ISPE's in Crash Testing Protocols
- NCHRP 22-65: Examination of Current U.S. and EU Crash Test Evaluation Criteria for Sign and Luminaire Support Structures and Work Zone Devices
- NCHRP 22-66: Determining Critical Impact Points and Angles for Assessing Roadside Safety Hardware [apps.trb.org] apps.trb.org
- NCHRP 22-67: Investigation and Validation of V-Ditch Travers-ability Related to Crash Testing Cable Barrier Systems [apps.trb.org] apps.trb.org

FY 2026 Projects:

- NCHRP 17-141: Design and Safety Considerations of Installing Center Line Barrier on Existing Undivided Roads
- In Development
- NCHRP 22-68: Impact of Common Vehicle Safety Technologies on Future MASH Testing and Evaluation Criteria
- In Development
- NCHRP 22-69: Risk Analysis of Objects Placed Within the Working Width of Barrier Systems

Durkos asked – how many problem statements have been submitted from our roadside group- Reply – for this year she hasn't seen anything yet. She doesn't typically see them until Nov.

Design and Performance Arresting Barriers - Kempen

Research & Publications

- Referenced Synthesis Report 621.
- Noted that David Reives (CDOT) also authored a related paper on the topic.

Runaway Truck Escape Ramp Types

Most Common Configuration

- **Aggregate/gravel gravity ramps** remain the most commonly used design.

Primary Runaway Truck Arrestor Methods

- Four primary methods were discussed:
    1. **Gravity (uphill ramps)**
    2. **Aggregate (uphill)**
    3. **Aggregate (level)**
    4. **Mechanical systems**

Engineering Challenges & Design Considerations

Aggregate-Based Systems

- Require minimizing facets or transitions to prevent material from binding.
- Key challenges include:
    - Identifying suitable locations with adequate topography
    - Providing sufficient roadway and right-of-way space

Gravity Systems

- Primary limitation is the available ramp length, which directly affects performance and stopping capability.

Mechanical Systems

- Key advantage: reduced real estate requirements compared to gravity or aggregate ramps.
- Mechanical systems can be deployed where terrain or right-of-way is constrained.

Performance Comparison

- Comparison of G-loads between mechanical and gravity systems showed:
    - Mechanical systems provide more consistent deceleration profiles
    - Mechanical systems may offer performance benefits relative to cost in certain applications

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Midwest Update Summary - Lechtenberg

HI DOT Natchez Trace Bridge Rail

- Bridge-rail system: 36″ rail height, 18.25″ top width, 24″ base width, with a 1.5″ curb-rail.
- In the initial 3-11 test (pickup truck), the system redirected the vehicle, but occupant compartment intrusion (OCI) measured ~12″ — exceeding the 9″ limit per Manual for Assessing Safety Hardware (MASH). According to the notes, the truck's deformation pressed the wheel into the cab.
- To address this, the vertical-face barrier (instead of a sloped barrier) was adopted and the internal rebar arrangement modified.
- Subsequent 3-11 re-test: performance improved — OCI and other metrics reportedly within acceptable limits (OCI reduced to 9″ or less, presumably).
- Follow-up 3-10 test (small car) was also run: the vehicle passed without penetration, though some a-pillar deformation was noted (no intrusion).
- A modified "approach transition" shape was developed and used — i.e., the concrete geometry was changed from previous configurations.

Implication / Key Point: The retrofit of the rail geometry and reinforcement allowed the barrier to meet MASH TL-3 criteria under both 3-11 and 3-10 tests. This suggests that the modified "Natchez Trace Bridge Rail" configuration might now be acceptable under current crash standards (assuming proper modifications)

ILDOT Steel Railing — Type "SMX"

- The group evaluated how to improve the "SM" version to bring it into compliance with MASH. Changes included increasing stud lengths (from 4″ to 6) and adding hook bars.
- After modification:
  - 3-11 test (pickup truck): barrier rolled ~50°, but remained upright (no rollover), implying acceptable redirection behavior.
  - 3-10 test (small car): reportedly passed all MASH criteria.
- Final report is under preparation and expected to be published "soon."

HI Buried-in-Backslope (HI BIB or HBIB) System

- Barrier height: 31 (rail height relative to roadway).
- Initial testing (small car, MASH 3-32) failed — the vehicle snagged under the rail.
- Modified design lowered rail height, re-tested 3-32: reduced snagging.
- Additional tests for reverse-direction impacts at flared sections: 3-33, 3-34, 3-35.
- Focus of final tests: impact near the transition area where the rub-rail starts (near rigid/block anchor).
- 3-37a test (pickup truck at rigid-anchor block area) passed MASH criteria.
- However, 3-37a test at a single-flare trailing end failed (snagging + rollover).
- Conclusion (per notes): Only two-flared configuration (both approach and trailing ends flared) works. Single-flare is allowed only at the approach; trailing end must be double-flared for safety.

Implication / Key Point: The buried-in-backslope (BIB) configuration has limited acceptable geometry; double-flare transitions are required for safe use under MASH. Single-flare trailing ends pose unacceptable risks.

Calspan – EV Crash Testing & Simulation Updates

- Conducted further evaluation of a failed EV roadside hardware test.
- Working with customers to revise and improve simulation models to better accommodate EVs, specifically the Tesla Model 3.

- Presented geometric overlays comparing EVs to traditional vehicle interactions with:
  - Square tube
  - W-beam
  - Thrie-beam systems
- Extended analysis to cable barrier systems, evaluating performance and compatibility.
- Compared frontal loads between EVs and internal combustion engine (ICE) vehicles during end-cap tests.
- Developed a Tesla vehicle model based on end-cap testing and refined it using MwRSF test data.
- Modeled a Gibraltar 4-cable barrier system.
  - Encountered windshield damage and underride issues.
  - Modified the system accordingly.
  - Conducted a full-scale test that was successful.
- Simulation results closely matched full-scale test performance.
  - Vehicle damage patterns were similar between simulation and testing.
- Bottom line: The modeling approach is working; continued refinement is underway to improve predictive capability.

Q&A / Discussion

- Question: Are EV results comparable to ICE vehicles?
  - Answer: No; the EV model is still under development.
- Online question: Post spacing used?
- Future work: Planning to test the Tesla Model Y with the New York Cable System.
- Fadi noted that the lower cable passed beneath the vehicle and asked whether it aligned with the vehicle's center of gravity (CG).
- Dick Albin asked whether an EV pickup truck would be tested.
  - Response: Possibly, but not yet confirmed.

CCSA/George Mason University (GW) Project Updates - Tahan

Active & Recent Projects

- **NCHRP 03-119** – Completed this year; report pending publication.
- **NCHRP 22-43** – Supported MwRSF; completed last year and published.
- **NCHRP 17-105** – Ongoing.
- **NCHRP 22-55** – Focused on MASH surrogate vehicles.
- **NCHRP 22-52** – Just starting Phase 2.
- **NCHRP 22-59** – Just started Phase 1.
- **NCHRP 22-63** – Developing validation & verification (V&V) guidelines for using simulation as an alternative to full-scale crash testing; interim report recently submitted.

Vehicle Models in Development

- 2023 VW ID.4 BEV
- 2023 VW Tiguan
- Limousine platforms:
  - Mercedes Sprinter
  - Cadillac Escalade

Collaboration with MwRSF – NCHRP 22-55

- Joint effort to develop calibrated and validated bogies and simulations for:
  - 1100C
  - 2270P
- Model development focuses on critical performance criteria:
  - Windshield
  - Roof
- Goal is to establish predictive performance capability.
- Vehicles involved:
  - 2022 Subaru Ascent
  - 2022 Dodge Ram
  - Noted significant differences between earlier Ram models and the 2022 model year.
- MwRSF developed the exoskeleton; GW developed the energy-absorbing structures.
- Validation used TTI 1-3/4" STSP.
- Temporary PSTP base was strengthened to pass a 0-degree impact.
- Also evaluated:
  - 4 lb post lap splice
  - Differences between 2018 and 2022 Dodge Ram performance with 4 lb posts
- Questions raised:
  - Whether diagonal base support braces were welded.
  - Rationale for conducting a 90-degree test (no clear justification provided).

Task Force 13 – Administrative Updates & Planning

Email List

- Discussed taking a more active role in maintaining and expanding the Task Force 13 email distribution list.

Upcoming Meetings & Key Dates

- **TRB Annual Meeting** – Washington, DC | *January 11–14*
- **ATSSA Annual Convention** – Houston, TX | *February 20–24*
- **Spring Meeting / Pooled Fund** – Lincoln, NE | *April 14–15*
- **Task Force 13 Meeting** – Lincoln, NE | *April 15–17*
- **ATSSA Midyear Meeting** – Grand Rapids, MI | *August 25–28*

Executive Summary / Key Decisions

- **Email List Management**
  - Ongoing effort to improve communication and outreach.
- **Transition Element Review**
  - Eicher will investigate manufacturers of the transition element.
- **M180 Discussion**

  - Reviewed potential impacts on current drawings.
  - Pros and cons were discussed.
  - Conclusion: No changes will be made to current drawings.
    - The back page clearly delineates Class A and Class B, which was deemed sufficient.
- **Location Discussion**
  - General discussion on current and future meeting locations.
- **Leadership Update**
  - Formal motion to appoint Kirchgesner as SC #5 Co-Chair, replacing Lohrey.
  - Motion seconded by E. Smith.
  - Motion passed.
- **Drawing Tolerances**
  - Reviewed whether tolerances on drawings were problematic.
  - Conclusion: No issues identified; no corrective action required.
- **Large Truck Safety**
  - Large truck impacts and safety performance were a primary focus of the meeting.

Action Items / To-Do List

- Begin planning Fall meeting (next year) format:
  - Consider field trip–based meeting versus traditional meeting format.
  - Evaluate hosting near a destination or notable project site.
- **Potential Target Locations**
  - Nashville, TN
  - Gulf Shores, AL
  - Jackson Hole, WY
  - Colorado Springs, CO
  - Portland, ME
  - Portsmouth, NH
  - Smithville, WV
  - Cities with nearby State DOT headquarters
  - Consider cruise-based venue as an alternative option