

Structural Engineering

Hannah Cheng



2018 TRB 97th Annual Meeting,
January 7-11, 2018, Washington, DC

NJDOT Annual Transportation Research Board Roundtable Discussion

- Bridges and Structures

- Xiaohua “Hannah” Cheng, Ph.D., P.E.

Bureau of Structural Engineering, NJDOT



TRB AFF00 Structures Section

- AFF10 – General Structures (--- Member)
- AFF20 – Steel Bridges * (* Friend)
- AFF30 - Concrete Bridges
- AFF40 – Testing & Evaluation of Trsprtn Structures *
- AFF50 - Seismic Design and Performance of Bridges
- AFF60 – Tunnels and Underground Structures
- AFF70 – Culverts and Hydraulic Structures
- AFF80 – Structural Fiber Reinforced Plastics
- AFH40 – Construction of Bridges & Structures
- AFH70 – Fabrication & Inspection of Metal Structures
- AFS30 – Foundations of Bridges & Other Structures
- AHD35 – Bridge Management



Committee/Subcommittee Meetings Attended

- **AFF10 – General Structures *** (* Fully Attended)
 - Truck weight & size; MASH Implementation; TSP; etc.
 - AFF10(1) – Traffic Structures (former Chair) *
 - AFF10(2) – Bridge Aesthetics
- **AFF50 – Seismic Design and Performance of Bridges ***
 - Performance-based design; ABC connections; Aftershock Inspection; etc.
 - AFF50(1) – Geoseismic
- **AFH70 – Fabrication and Inspection of Metal Structures**
- **AFF00/AASHTO SCOBS/FHWA Structures Collaboration ***
 - AASHTO updates; FHWA R&D updates; NCHRP updates/funding; Discussion
- AFF20 – Steel Bridges
- AFF40 - Testing & Evaluation of Transportation Structures
- AHD35(1) - Safety and Security of Bridges and Structures
 - Resilience as a system (not only bridges) for all natural and man-made hazards

Workshops Attended

- Workshop 166 – “Truck Size and Weight: What You Need to Know”
 - Truck industry increased gross vehicle weight (GVW) & size;
 - Proposal to Congress for increase in legal load;
 - Bridge performance and condition/deterioration;
 - National and State Research (NJDOT & Rutgers)
 - Permit issuance & Permit Design Load
- Workshop 164 – “Bridging the Gap Between Non-Destructive Evaluation and Structural Health Monitoring”
 - NDE/NDT – QC/QA; Performance verification; Element inspection
 - SHM - Performance; Response; Safety
 - FHWA/NBIS – Performance-based management; -> Data-driven approach

Sessions Attended

- Session 751 – “*Seismic Bridge Performance in Recent Earthquake*” (Japan, Oklahoma)
- Session 810 – “*Additional Bridge Assessment, Bridge Rating, and Bridge Design*”
- Session 811 – “*Advances in Steel Bridges*”
- Sessions 846 & 868 – “*Recent Innovations in Bridge Construction*”: Part 1 & Part 2

Benefits to NJDOT Bridge Design & Construction

- Problem statement
- Problem solving
- Upfront in new tech, new material, new methodology
- Information/idea exchange between Agencies
- Quick implementation
 - Design Manual for Bridges & Structures
 - Construction Standard Specifications
 - Standard Drawings and Details
 - Field solutions

Questions & Comments?



THANKS YOU!

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Thank you!

