TRB Committee AFF60
Tunnels and Underground Structures

Agenda for 2012 Meeting

Tuesday
January 15, 2013

1:30 PM – 5:30 PM
Marriott – Balcony B

Committee Scope (official approved scope):
This committee is concerned with all factors pertinent to the design and construction of underground transportation structures and their components, including planning and performance, and with efforts to relate this knowledge to design and construction procedures and criteria.

Highlights (in italics) of Future Goals from Latest Triennial Strategic Plan (TSP) Report (1/31/10):

Current and emerging critical and cross-cutting technical concerns of practitioners and researchers covered by the scope of this committee include:

- Maintaining condition, inspection, reliability and performance of existing transportation tunnels
- Evaluating causes and spread of transportation tunnel fires, ventilation, fire protection, and human behavioral response to transportation tunnel fires
- Developing tunnel procedures and manuals on transportation tunnel design guidelines, innovative construction methods, and conventional and innovative procurement methods
- Incorporating findings from recent international and domestic transportation tunnel scans
- Updating AASHTO Technical Manual for Design and Construction of Road Tunnels
- Identifying best practices for risk management for transportation tunnel projects and other transportation projects
- Identifying new and emerging technologies in transportation tunnel construction such as tunnel boring machines, tunnel linings and associated reinforcement materials, instrumentation, and waterproofing
- Improving transportation tunnel safety and security
- Evaluating the cost and risk benefits of transportation tunnels and underground construction
- Continuing education of transportation tunnel practitioners
• Improving communication with committee members and friends through the use of our new website.

For cross-cutting concerns noted above, the committee will reach out to and coordinate with other TRB Committees on such topics as inspection, procurement, human behavior and risk management.

Short Term Goals
The committee plans to address these concerns in the short-term (next three years) by selecting these topics for:

• Sessions and workshops at the annual committee meetings
• Developing new RNS
• Suggesting these topics for Syntheses
• Presentations at the annual committee meeting

The committee currently has the following subcommittees which will focus on several of these concerns:

• NATM
• Risk Management
• Communications
• Tunnel Inspection

Additionally, the committee has and will continue to maintain regular communication and coordination with the AASHTO T-20 Tunnels Committee throughout the year. This coordination has resulted in RNS that are more tailored to the needs of state DOTs. The committee also has liaisons to the ITA Committee on Underground Space (ITACUS) - Ray Sterling is Vice Chairman - and the Associated Research Centers for Urban Underground Space (ACUUS) – Ray Sterling is President.

Long Term Plans
Long-term plans will be focused in general on transportation tunnel design, construction, and operational issues. More specifically, we anticipate that we will continue to focus on the concerns noted above as well. For all of these there are technological, management and educational aspects that we plan to address. The committee will consider:

• Topics selected for preparation of Circulars, State-of-the-Art reports, etc with target dates for publication
• Potential for sponsoring or cosponsoring conferences with target dates
• Participation in development of Structures Section’s strategic plan on how to address concerns of practitioners
• Identification of emerging areas and their impact on transportation, and thoughts on creation of subcommittees, task forces to address such concerns
• Plans on outreach regarding dissemination of information well beyond the TRB audience, e.g. national and international conferences.
• Cross-cutting goals to increase the interaction among committees, societies, and organizations, e.g., State DOTs
Agenda

1. Introductions

2. Chairman’s Opening Remarks – Brian Zelenko/ Parsons Brinckerhoff

3. T-20 Activities – Louis Ruzzi/Pennsylvania Dept. of Transportation (20 mins)
   - Research
   - Joint Committee Discussion

4. Approval of Committee Meeting Minutes
   a. 2012 AFF60 Meeting Minutes – Recorded and prepared by Jeremy Hung/ Parsons Brinckerhoff
   b. 2013 minutes due Feb. 28th

5. General Items - Announcements
   a. TRB Staff – Stephen Maher
   b. Structures Section Chair - Mark Reno

6. Technology Transfer
   a. Annual meeting sessions/Sunday workshops being sponsored/cosponsored
      i. Workshop – no workshops
   b. Paper/Non-Paper Sessions (Please refer to Conference Program for Meeting Room location)
      - “Application of Large Tunnel Boring Machines for Transportation Tunnels, Part 1” – Session 215, 8:00 AM – 9:45 AM - Monday (January 14, 2013)
      - “Application of Large Tunnel Boring Machines for Transportation Tunnels, Part 2” – Session 678, 7:30 AM – 9:30 PM - Tuesday (January 15, 2013)
      - “Geotechnical Asset Management – Cross Cutting Disciplines and Technologies” – Session 364 – 3:45 PM – 5:30 PM – Monday (January 14, 2013) – AFF60 is a co-sponsor of this session
   c. Number of papers submitted/reviewed – 5 papers (up from 3 in 2012)

Thanks to all AFF60 Members and Friends who served as reviewers:
- Brian Leshko/HDR
- Bruce Walton/U.S. Army Corps of Engineers
- Chet Allen/Gannett Fleming
- Fulvio Tonon/Univ. of Texas - Austin
- Gregg Sherry/Brierley Associates
d. Number of papers presented in podium/poster sessions – 0

e. Number of papers published from podium/poster sessions – 0

f. Circulars/state-of-the-art reports – 0

g. Workshops/conferences sponsored/cosponsored other than at Annual Meeting - 0

h. Committee meeting presentations (10 mins/each except as noted)

1. Sasago Tunnel Collapse – Japan (TBD)
2. New York City Tunnel Flooding due to Hurricane Sandy (TBD)
3. “Non-Destructive Evaluation of Concrete Linings at Hanging Lake Tunnel”, Glenwood Canyon, CO – Joshua White, Texas A&M University (20 mins)
4. “Quality Management and Assessment of Shotcrete Liners with Sonic Methods” – Hoda Azari, University of Texas, El Paso (20 mins)
5. “A Physical Model Study on the Ground Settlement Caused by Tunneling in Sand” – Fei Wang, Southeast University, China (20 mins)
6. Update on Tunnel risk assessment methodology the US Army Corps of Engineers (USACE) has developed for the TSA effort to conduct structural and operational vulnerability assessments on bridges and tunnels – Bruce Walton/ USACE Protective Design Center

6. Research Need Statements - Fulvio Tonon/ University of Texas– Austin (waiting for update from Fulvio – the Research agenda noted below is from the 2012 meeting as a placeholder)

   a. RNS currently posted on TRB’s RNS Database
- Development of AASHTO LRFD Guide Specifications for Rehabilitation and Strengthening of Existing Highway and Rail Transit Tunnels
- Design Fires in Tunnels
- Development of AASHTO LRFD Guide Specifications for Life Safety in Tunnels by Designing for Proper Human Behavior

b. New research needs statements (*To be added to RNS Database*)
c. RNS submitted for funding
d. Synthesis topics
e. Tunnel-related studies underway:

- NCHRP Project 20-05, Synthesis Topic 41-05 Design Fires in Road Tunnels – Jacobs Engineering – completed
- NCHRP 12-89 Recommended AASHTO LRFD Tunnel Design and Construction Specifications – Parsons Brinckerhoff – underway, Completion Date: 6/21/2014
- SHRP2 R06(G) – High-Speed Nondestructive Testing Methods for Mapping Voids, Debonding, Delaminations, Moisture, and Other Defects Behind or Within Tunnel Linings. – TTI, UT, Roadscanner, BAM – extended to Summer 2012
- NCHRP 18-16: Self-Consolidating Concrete for Cast-in-Place Concrete Bridges and Tunnels (Advertised only for Bridges, no information available on current status)

7. Other Committee Business
   a. Subcommittee reports
      i. Communications Subcommittee – Jamal Rostami/Penn State University
         a. [http://www.personal.psu.edu/jur17/AFF-060/](http://www.personal.psu.edu/jur17/AFF-060/)
      ii. Tunnel Inspection – Brian Leshko/HDR
      iii. Risk Management – Vincent Tirolo/Skanska
   c. Activities or accomplishments since last meeting
      i. Committee Rotation – Brian Zelenko
         a. Approximately 1/3 of committee members
         b. Three year appointment began in April, 2012
   d. Future plans and assignments
i. Sessions for 2014 Meeting

ii. Triennial Strategic Plan Report – Amanda Morgan/Jacobs Assoc.
   a. Last report submitted 1/31/2010
   b. Updated report to be submitted 1/31/2014 (this was deferred one year)

e. Recommendations, motions, requests for Group or Staff action
   i. Review/Edit Committee Scope

f. Conferences, workshops, other activities of interest to members
   i. UCA/SME Activities
      - George Fox Conference – January 22, 2013 – New York City
      - RETC – June 23 – 26, 2013 Washington, DC

g. Technical Activities Division [http://www.trb.org/TechnicalActivities]

h. Closure