ICMPA Workshop on Resilient Pavements

Scope:

Pavement resilience is becoming an increasing critical consideration for highway and transportation engineers. It is time to incorporate resilience into the pavement design and decision-making processes. A recent report summarizing feedback from state agency design engineers and industry stakeholders on pavement design identified resilience as a factor to be incorporated into the design process (FHWA Summary Report).

Furthermore, indications from the recent Bipartisan Infrastructure Law (BIL) and supporting Congressional committee reports demonstrate a growing expectation that resilience be directly incorporated into pavement design, construction, and maintenance processes in the very near future. Meanwhile, pavement asset managers have already been asked to incorporate risk to natural threats in their state Transportation Asset Management Plans (TAMP).

TAMP requirements were amended by the Bipartisan Infrastructure Law (BIL) (§ 11105) to require that States take into consideration extreme weather and resilience within their lifecycle cost and risk management analysis. These BIL amendments took effect on October 1, 2021 (§ 10003). As a result, State DOTs are required to consider extreme weather and resilience as part of the lifecycle cost and risk management analyses within a State TAMP (23 U.S.C. 119(e)(4)(D)). State DOTs should be aware of this new requirement and working to update their processes and TAMPs accordingly.

Description:

This workshop will bring together stakeholders from different disciplines to discuss and identify strategies for designing, preserving, and maintaining more resilient pavements. The workshop will bring representatives with not only different knowledge levels, but also different experiences related to pavement resilience. The workshop will be integrated with short presentations and breakout sessions to share lessons learned and spur discussion. Invited speakers will set the stage

for the breakout discussions and are expected to include agency representatives, academia, and industry.

- Expected Outcomes:

The workshop envisions to create a platform within the pavement community worldwide that would continue these discussions on this complex issue at a multi-disciplinary level, gather inputs from stakeholders, and cut across the silos that exist in pavement programs in various agencies. Outcomes of the workshop will be to provide a better understanding of the current definitions of resilience and vulnerabilities as it relates to pavements, identify strategies to incorporate resilience into pavement design, maintenance and asset management, and highlight current knowledge gaps and research needs.

- Agenda:
    - Workshop Length: 3 hours
    - Organizers & Moderators: Amir Golalipour & Austin Jarrell

❖ **Part 1 (90 minutes)**
    - Focus: Instruction to Pavement Resilience
    - Presentations (20 minutes each):
        - General resilience concepts, asset management, and life cycle planning
            - Speaker: **Tashia Clemons, FHWA**
        - FHWA infrastructure/pavement resilience project and activities update
            - Speaker: **Amir Golalipour, FHWA**
        - Academia ongoing resilience research projects
            - Speakers:
                - **Ben Bowers, Auburn University**
                - NOAA project
                - **Tara Cavalline, UNC Charlotte**
                - FDOT projects

- **Part 2 (90 minutes):**
  - Focus: Case studies & Challenges
  - Presentations (20 minutes each):
    - International Case Study:
      - Speaker: **Zsolt Boros, Slovak Republic**:
        "Resilient Concrete Road Case Study from the Slovak Republic"
    - U.S. Case Study:
      - Speaker: **University of Illinois at Urbana-Champaign-**
        "TBD"

  - Focus: Talk about stressors, highlight their experiences, and identify gap & needs
    - Four breakout groups based on climate stressors:
      - Inland Flooding (Bryce as the lead)
      - Coastal Flooding (Tara as the lead)
      - Temperature Change in Intensity and Frequency (Austin as the lead)
      - Wildfires (Amir as the lead)
    - Report the breakout group discussion summary and identify the major existing solutions and/or research needs.