

To: Members of the IACMI Infrastructure & Construction (I&C) Working Group  
From: John Unser  
Subject: Summary of I&C Working Group meeting held 4/27/22

The seventh meeting of the Infrastructure & Construction (I&C) working group was held on April 27, 2022. This meeting was held virtually using Microsoft Teams and attracted 38 attendees. John Unser and Joe Fox co-facilitated the meeting, which lasted two hours.

This summary is accompanied by a pdf file that contains all the slides shown during the meeting. Slide 2 shows the agenda and the slide numbers for each topic. The entire slide deck can also be accessed in the folder for the I&C working group on Microsoft Teams.

Here is a link to the recording of the meeting:

[https://www.dropbox.com/s/mjpaifq3x2y2qpy/JanuaryInfrastructureConstructionWG\\_0.mp4?dl=0](https://www.dropbox.com/s/mjpaifq3x2y2qpy/JanuaryInfrastructureConstructionWG_0.mp4?dl=0)

Joe Fox opened the meeting by reviewing the objectives of the working group and tying them to the agenda (slides 3-6). He gave a detailed update on the \$1.2B infrastructure bill (Infrastructure Investment & Jobs Act or IIJA) that was based on a recent ASCE webinar (slides 6-14). Several grant programs will be coming soon. Joe stressed that Benefit Cost Analysis (BCA) is a very important element of grant proposals and suggested that this might be an area that IACMI can support.

John Unser talked about the first meeting of the funding committee (slides 15-20). Nine members of the working group have volunteered to serve on the sub-committee, which is chaired by John. The subcommittee will keep an eye on Grants.gov to keep track of opportunities. John has submitted an idea for IACMI to the Every Day Counts (EDC) program entitled "Fiber-Reinforced Polymer Composites for Rural Bridges". When opportunities come up, they will be distributed to the entire I&C Working Group.

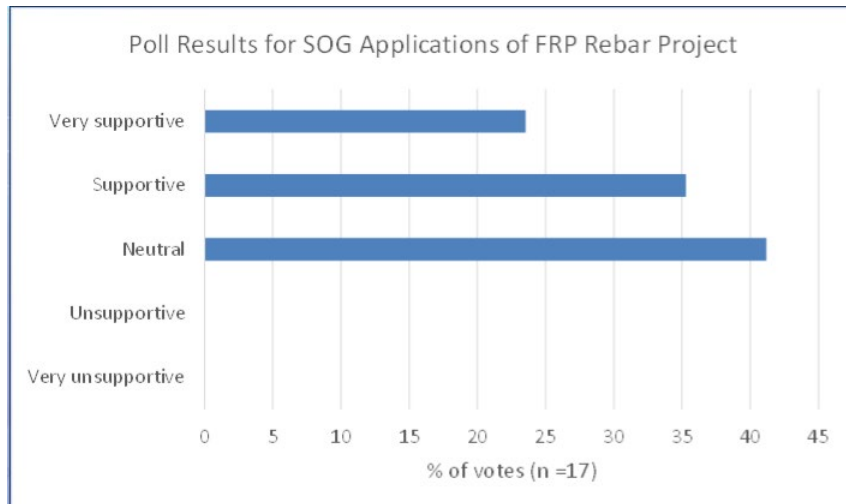
One potential opportunity for funding in the Infrastructure Bill (IIJA) was authorization for the DOT to create 10 regional Centers of Excellence for Resilience & Adaption. Joe presented what he had researched (slides 21-27). The one briefing Joe found stated that the Centers would focus R&D on new materials, data, tools; workforce development and training; and new infrastructure design. Funding would be \$10M annually for fiscal years FY2022 through FY2031. The funding committee will continue to research this opportunity.

The next portion of the meeting (slides 28-67) was devoted to discussion of R&D projects:

- 1) *Use of Trimer's fire-resistant resin for I&C applications:* Trimer Technologies and Orenco are teaming up on a project to fabricate and test infused samples made with Trimer resin in FR tests such as E1354, E84 and E119. An Idea Paper was submitted for Resource Pool funding and will be reviewed at the next IACMI Board meeting (slides 30-33)
- 2) *Use of recycled wind blades in I&C applications:* This project has overlap with both the Wind Energy working group and the Recycling/Circular Economy working group. At this meeting, Steve Nolet gave an update on the work TPI has been doing with the DuC board technology from RiversEdge (slides 34-41).

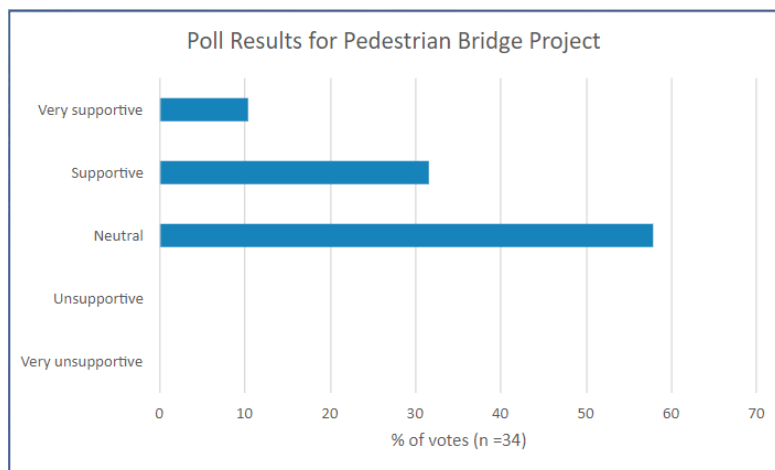
Two new projects were presented.

- 3) *Design Guide for FRP-Reinforced SOGs* – Rick Prince the idea of a design guide for FRP reinforced pavements and slabs-on-grade [SOG] (slides 45-53). These applications, which include floors, sidewalks, tarmacs, taxiways, streets, pool decks, etc., have been largely neglected. Some FRP bar manufacturers (Neuvokas "GatorBar," Owens-Corning "Pink" bars, MST-Bar, and Galen Composite) have dabbled in reinforcing SOGs using FRPs, but there does not appear to be uniform design guidance for SOGs. This project would help develop the design guide. An opinion poll was taken indicating that this project was the fourth-ranked Idea presented so far. See the poll results below.



Project Weighting	% Votes	Weighting	Weighting
Very unsupportive (-5)	0	-5	0
Unsupportive (-2)	0	-2	0
Neutral (0)	41	0	0
Supportive (+2)	35	2	70
Very supportive (+5)	24	5	120
		<b>190</b>	<b>Total Weighting</b>

4) *IACMI Demonstration Project: Adding Bike and Walkway Spaces to Existing and Future Bridges* Dr. Dayakar Penumadu presented a proposal to expand the use of composite materials to add bike and walkways to bridges (slides 54-65). The U.S. Department of Transportation has issued guidance on their bridge improvement program in the Bipartisan Infrastructure Law. Under the law, anytime a state replaces or rehabilitates any highway bridge deck, they must include biking and walking access. The goal of the project would be to develop and publicize cost-competitive examples of modular solutions using FRP. An opinion poll was taken indicating that this project was the seventh-ranked idea presented so far. See the poll results below.



Project Weighting	% Votes	Weighting	Weighting
Very unsupportive (-5)	0	-5	0
Unsupportive (-2)	0	-2	0
Neutral (0)	58	0	0
Supportive (+2)	32	2	64
Very supportive (+5)	11	5	55
		<b>119</b>	<b>Total Weighting</b>

Joe Stilwell from Maine DOT summarized the National Transportation Product Evaluation Program (NTPEP). NTPEP is a partnership between the AASHTO member agencies and industry to provide production evaluation and manufacturing facility audits. Mr. Stilwell is the Committee Chair. He discussed the NTPEP SP01 Program Standard Practice and the Audit Process developed for GFRP rebar manufacturers. (slides 68-93).

On the education front, Joe Fox presented a summary (slides 94-111) of the recent American Society of Civil Engineers (ASCE) webinar that featured three members of the working group. It was entitled "*An Introduction to Designing with FRP Composites for Civil and Environmental Engineers*" and was presented by Prof. Dayakar Penumadu (UTK), Prof. Francisco De Caso (U Miami) and Prof. Bill Davids (U Maine). The entire presentation can be accessed in the Microsoft Teams folder for the I&C working group. There was some discussion about presenting to other organizations such as FHWA and State DOTs.

The next working meeting will coincide with the IACMI Members Meeting in Utah in late June. The I&C meeting is scheduled for Tuesday, June 28<sup>th</sup> from 10:00 to 11:30 MDT. The Members Meeting will continue on Wednesday and Thursday. Joe suggested three ideas for the next meeting: 1) portions of the ASCE webinar presentation on Design 2) a discussion of how I&C fits into the plans for potential renewal of IACMI by the DOE and 3) a discussion of how IACMI could use its expertise in technoeconomic analysis to conduct Benefit Cost Analysis for I&C projects (slides 66-67, 112-116).

The **action items** are summarized on slide 120 and are copied here:

- Distribute information from today's meeting
  - Slides, recording, meeting summary
- Plan the working group meeting for the annual meeting
  - Tuesday, June 28 10:00 to 11:30 MDT
  - Send ideas for potential R&D projects to John Unser & Joe Fox
- Funding sub-committee
  - Monitor grants.gov for NOFOs from the DOT
  - Learn more about the Centers of Excellence for Resilience & Adaptation
- Schedule project-planning meetings as needed
- Recruit downstream members of the working group
  - Civil engineers, design engineers, structural engineers, architects, construction, OEMs...

Comments/questions/suggestions can be directed to Joe Fox ([foxconsulting147@gmail.com](mailto:foxconsulting147@gmail.com)) or John Unser ([john@compositeapplicationsgroup.com](mailto:john@compositeapplicationsgroup.com)).