

Katherine Madson, PhD, PE (FL)	
Assistant Professor, Department of Civil, Construction and Environmental Engineering Iowa State University 450 Town Engineering Building 813 Bissell Rd. Ames, IA 50010	(515) 294-1133 kmadson@iastate.edu IOWA STATE UNIVERSITY Institute for Transportation

BACKGROUND

Dr. Katherine Madson is a faculty affiliate with the Construction Management and Technology (CMAT) Program within ISU’s Institute for Transportation (InTrans) and is an assistant professor in the Department of Civil, Construction, and Environmental Engineering at Iowa State University. Dr. Madson’s research is at the intersection of front-end planning and decision-making under uncertainty. The general objective of her research, which is typically performed through case studies and surveys, is to ensure that, during the front-end planning process, assets are strategically designed, constructed, and operated in such a way to reach the end of the intended life and are not retired early due to poor planning, realized uncertainty, or general lack of resilience. This includes both the development of Excel-based tools to improve the decision-making process and the strategic implementation of stakeholder engagement. She has particular interest in developing activities that focus on Justice, Equity, Diversity, and Inclusion (JEDI) during the planning process for projects.

EDUCATION

- PhD, Construction Management, University of Florida, Gainesville, FL, 2020
- MEng, Civil Engineering, University of Florida, Gainesville, FL, 2018
- BS, Civil Engineering, University of Florida, Gainesville, FL, 2013

PROFESSIONAL EXPERIENCE

- Assistant Professor, Department of Civil, Construction, and Environmental Engineering, Iowa State University, Ames, IA, July 2020–Present
- Site Engineer I/II, Great Lakes Dredge and Docks Company, 2014–2016

SELECTED RESEARCH PROJECTS

- Iowa State University Miller Grant Faculty Fellowship: *Integrating Industry-Defined Non-Technical Skills into the Curriculum*, 2022–2023
- NSF CIVIC-PG: Track B: *Improving Integration of Ukrainian Refugees in the US through Equitable Housing Services*, 2022–2023
- NCHRP Synthesis 52-05: *Implement of Subsurface Utility Engineering for Highway Design and Construction*, 2020–2021
- Ohio DOT: *Design of Micro-Surfacing and Chip Sealing Mixes with RAP for Local Roadway Applications (ORIL)*, 2020–2021

SELECTED PUBLICATIONS

- Oni, B., K. Madson, and C. MacKenzie. 2022. Comparison of Asset Management Approaches to Optimize Navigable Waterway Infrastructure. *International Conference on Construction Engineering and Project Management*, pp. 3–10. Korea Institute of Construction Engineering and Management.
- **Madson, K.**, and J. Lather. 2022. A Framework for Evaluating Societal Impacts Caused by Disruptions to Inland Waterways. In *Proceedings of Construction Research Congress 2022*, pp. 38–47. American Society of Civil Engineers. <https://doi.org/10.1061/9780784483954.005>.
- Oni, B., and **K. Madson**. 2022. Improved Project Planning Strategies for Transportation Assets: The Necessity of Early Stakeholder Involvement. In *Proceedings of Construction Research Congress 2022*, pp. 845–854. American Society of Civil Engineers. <https://doi.org/10.1061/9780784483978.086>.
- Stedile Zolin, J. V., and **K. Madson**. 2022. State-of-the-Practice of Big Data in Decision-Making Processes within the Construction Industry. In *Proceedings of Construction Research Congress 2022*, pp. 49–56. American Society of Civil Engineers. <https://doi.org/10.1061/9780784483961.006>.
- Miner, N., A. Karabulut-Ilgü, J. Shane, and **K. Madson**. 2021. Engineers as Effective Team Players: Evaluating Teamwork Skills in a Flipped Project Management for Civil Engineers Course. *Proc., 2021 ASEE Virtual Annual Conference*.
- **Madson, K.**, B. Franz, K. Molenaar, and G. Kremer. 2020. Strategic Development of Flexible Manufacturing Facilities. *Journal of Engineering, Construction and Architectural Management*.
- **Madson, K.**, and B. Franz. 2019. Real Options Approach for Flexible Building Delivery. *Proc., 2020 Construction Research Congress*.
- **Madson, K.**, and B. Franz. 2019. Scenario-Based Flexible Manufacturing Facility Designs: Understanding Lifecycle Value. *Proc., EPOC 2019*.
- Gregory, S., A. Bastias, K. Molenaar, **K. Madson**, B. Franz, L. Potter, and G. Kremer. 2019. Assessing the Influence of Manufacturing Flexibility on Facility Construction Costs. *Proc., 2019 IISE Annual Conference*.
- Potter, L., S. Raje, J. Oftedal, G. Kremer, A. Bastias, K. Molenaar, **K. Madson**, and B. Franz. 2019. Developing a TRIZ-based Design for Flexibility Tool for Manufacturing Facilities. *Proc., 2019 IISE Annual Conference*.
- **Maslak, K.** and B. Franz. 2018. Exploring the Growth of Public-Private Partnerships by Examining Enabling Legislation. *Proc., 2018 Construction Research Congress, New Orleans, LA*.
- **Maslak K.**, B. Franz, K. Molenaar and G. Kremer. 2018. State-of-the-Practice in the Design and Construction of Flexible Facilities. *Proc., 2018 Construction Research Congress, New Orleans, LA*.
- Franz, B., R. Leicht, and **K. Maslak**. 2018. Framework for Assessing Resilience in the Communication Networks of AEC Teams. *Engineering Project Organization Journal*, Vol. 8, No. 1.

PROFESSIONAL AFFILIATIONS, HONORS, AND SERVICE

- Transportation Research Board (TRB) Committee AW020 – Inland Waterways (member)
- American Society for Civil Engineers, Construction Research Congress, Technical Committee Co-Chair, 2022–2024
- American Society for Civil Engineers, Construction Research Congress, 2022, Track Co-Chair: Project and Organizational Management and Planning, 2021–2022