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## BACKGROUND

Dr. Başak Bektaş is an assistant professor in Civil Engineering at Minnesota State University, Mankato. Previously, she was a program director at the Iowa State University (ISU) Institute for Transportation (InTrans). Her interdisciplinary background includes a master's degree in industrial engineering with a focus on systems management. Dr. Bektaş's research experience is on infrastructure asset management with a focus on bridges, pavement and pavement markings, bridge preservation, performance measurement, asset performance modeling, risk and reliability analysis, engineering economic analysis, and transportation safety. Dr. Bektaş has served as the PI on projects that addressed asset management and preservation with the Federal Highway Administration, U.S. DOT, National Cooperative Highway Research Program, Iowa Department of Transportation, Iowa Highway Research Board, Minnesota Department of Transportation and Wisconsin Department of Transportation. She chairs Transportation Research Board AHD35 Bridge Management Committee and IRF Asset Management Committee. She is a founding member of AHD37 Bridge Preservation Committee, a member of AASHTOWare Bridge Management Software Technical Review Team and Federal Highway Administration Bridge Preservation Expert Task Group. Dr. Bektaş is experienced in applying statistical methods and data mining to a variety of transportation problems.

## EDUCATION

- PhD, Transportation Engineering, Iowa State University, Ames, IA, 2011
- MS, Industrial Engineering, Middle East Technical University, Turkey, 2006
- BS, Civil Engineering, Middle East Technical University, Turkey, 2002

## PROFESSIONAL EXPERIENCE

- Assistant Professor, University of Minnesota at Mankato, 2019–present
- Associate Scientist, Center for Transportation Research and Education, Iowa State University, Ames, IA, 2012–2019
- Predoctoral/Postdoctoral Research Associate, Center for Transportation Research and Education, Iowa State University, Ames, IA, 2010–2012
- Graduate Research Assistant, Center for Transportation Research and Education, Iowa State University, Ames, IA, 2006–2010

## RELEVANT RESEARCH PROJECTS

- Bektaş, B. A. (PI). *Advancing the Development and Deployment of BIM-Infrastructure*, Federal Highway Administration (FHWA), 2018–2019. The objective of this project is to develop and deliver

work for the Office of Infrastructure on “Advancing Building Information Modeling (BIM) for Infrastructure.” A series of definition and marketing materials will be developed. The scope also includes organization of a national workshop with broad and diverse attendance of 20 to 30 stakeholders in order to develop a national strategic roadmap for BIM deployment.

- Bektas B. A. (PI). *AASHTOWare BrM Bridge Management System Implementation and Operation*, Iowa DOT, 2011–2019. Research to develop, implement, and operate an integrated bridge asset management system for the state of Iowa with the objective to enable the Iowa DOT to make objective, cost-effective, and timely decisions regarding bridge maintenance, rehabilitation, and replacement. Recent tasks include development of reliability-based bridge deterioration models, development of bridge action costs, and modeling scour risk.
- Bektas B. A. (Researcher). *Development of Next Generation Pavement Performance Measures and Asset Management Methodologies*, FHWA, Subcontractor to ApTech, 2017–2021. The FHWA initiated a two-phased research effort to explore different approaches to developing the next generation pavement performance measures and cross-asset analysis methodologies to better align investment decisions to enhanced long-term performance.
- Bektas B. A. (Researcher). *Life-Cycle Planning for Pavement and Bridge Assets*, FHWA, Subcontractor to ICF, 2017–2019. This new FHWA initiative, *Life-Cycle Planning for Pavement and Bridge Assets*, builds on the information provided in the LCP guidance by providing more detailed information on developing an LCP process for both pavements and bridges. If authorized by FHWA, the project will also extend to a second phase to include a pilot application of the expanded processes and a webinar to communicate the lessons learned to a large number of asset management practitioners.
- Bektas B. A. (Researcher). *Identification of Effective Next Generation Pavement Performance Measures and Asset Management Methodologies to Support MAP-21 Performance Management Requirements*, FHWA, Subcontractor to ApTech, 2015–2016. The primary objectives of this project were two-fold: (1) identify or conceptually develop more strategic pavement performance measures, and their means of collection, in order to strengthen performance management and better link investments to long-term performance, and (2) identify or conceptually develop methodologies to enable full implementation of a comprehensive asset management plan, including trade-off analysis from a common ground among disparate assets that are traditionally individually assessed and managed.
- Bektas, B. A. (PI). *Protocols for Concrete Bridge Deck Protections and Treatments*, WisDOT, 2017–2019. The main objective of this research project is to develop a cost-effective lifecycle treatment plan for preservation of Wisconsin bridge decks. The research team will identify a comprehensive list of strategies through the review of current practice and DOT policies, provide data-driven estimates of performance of treatments and optimum timing with respect to condition and age analyzing historic bridge condition data from WisDOT and other state DOTs, and develop a lifecycle treatment plan based on the research finding and engineering economics principles.
- Bektas, B. A. (PI). National Academies, National Cooperative Highway Research Program (NCHRP) 20-07/Task 397: *Characteristics of Decommissioned Bridges*, 2017–2018. The objective of this research project was to determine the driving causes of bridge decommissioning for state highway owned bridges in the United States. Characteristic drivers of bridge replacements were identified by analyzing NBI data, data from agency surveys, and investigation of bridge project records.

- Bektas, B. A. (Co-PI), Smadi, O. (PI). *Technical Analysis to Support the Bridge Condition Performance Measure*, Task Order with Applied Pavement Technology, Inc., FHWA, 2014–2016. Analysis of NBI data to show the impacts of proposed NPRM bridge performance measures of Good, Fair, and Poor condition on the national network, and the impact of the expanded National Highway System on bridge population and bridge performance metrics.
- Bektas B. A. (PI). *Risk-Based Bridge Management: A Methodology to Assess and Incorporate Risk in Decision-Making*, MTC/USDOT, 2014–2017. Research to define and model regionally relevant bridge hazards, and develop a methodology for risk-based prioritization of bridge maintenance, rehabilitation, and replacement projects for sustainable bridge networks.
- Bektas B. A. (PI). *Next Generation Bridge Management Tools and Inspection*, Minnesota DOT, 2013–2016. Research to incorporate the new national bridge element inspection methodology into MnDOT's bridge inspections, migrate historical data, and customize their bridge management tools that are used for developing annual bridge program to fit the new inspection methodology.