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Mineta Transportation Institute Releases a Methodology to Help Improve Transportation Construction Project Performance

Researchers deliver a time/cost performance simulation model to assist project planners during the incentive/disincentive contracting process to determine possible performance outcomes

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San Jose, Calif., July 28, 2010 – The [Mineta Transportation Institute](http://www.mti.sjsu.edu) (MTI) has just released [*Improving Transportation Construction Project Performance: Development of a Model to Support the Decision-Making Process for Incentive/Disincentive Construction Projects*](#). The research results demonstrate a methodology for developing an incentive/disincentive (I/D) project time-and-cost performance prediction model. Jae H. Pyeon, PhD and Taeho Park, PhD were principal investigators.

This model will assist project planners and managers by providing a complete picture during the I/D contracting decision-making process of possible performance outcomes with probabilities based on historical data. The study was performed by collecting transportation construction project data from the Florida Department of Transportation. The researchers then evaluated the data using time and cost performance indices. Then they performed statistical data analysis to identify important factors that influence construction project time performance.

“User-friendly visual interfaces were developed to perform the simulation and report results using Visual Basic Application programming,” said Dr Pyeon. “The developed model was validated using additional cases of transportation construction projects. Based on statistical analysis, this research found that several project factors influence I/D contracting performance.”

The important factors that had significant impacts on project performance, he said, were the effects of contract type, project type, district, project size, project length, maximum incentive amount, and daily I/D amount. The developed model applied to I/D contracting projects will be a useful tool to assist project planners and managers during the decision-making process. It also will promote the efficient use of I/D contracting, which in turn will benefit travelers by reducing the longer travel time that comes from construction delays. With additional project data, the developed model can be updated easily. The more data used for the model, the better the expected prediction accuracy.

The full report includes charts, formulas, maps, and policy implications. It may be downloaded at no charge from <http://www.transweb.sjsu.edu/MTIportal/research/publications/summary/0907new.html> Or go to www.transweb.sjsu.edu, click “Research,” then “Publications” and scroll down to the report.

ABOUT THE RESEARCHERS

Jae-Ho Pyeon, PhD, is an assistant professor in the Department of Civil and Environmental Engineering at San José State University. He received his master's and doctor's degrees in civil engineering from the University of Florida. He teaches and conducts research in the construction engineering and management, and he teaches graduate courses in construction management and information technology and undergraduate courses in project management, civil engineering law, scheduling, and construction methods and equipment.

Tae-ho Park, PhD, is a professor at San José State University. He teaches several operations-related courses, including operations management, supply chain management, total quality management, and materials management. Dr. Park received B.S. and M.S. degrees in industrial engineering from Seoul National University, Korea, and his Ph.D. in industrial engineering from University of Wisconsin-Madison. He has performed several academic and industry consulting projects in operations management, total quality management, risk management, and logistics.

ABOUT THE MINETA TRANSPORTATION INSTITUTE

The [Mineta Transportation Institute](#) (MTI) was established by Congress in 1991 as part of the Intermodal Surface Transportation Efficiency Act (ISTEA) and was reauthorized under TEA-21 and again under SAFETEA-LU. The institute is funded by Congress through the US Department of Transportation's (DOT) Research and Innovative Technology Administration, by the California Legislature through the Department of Transportation (Caltrans), and by other public and private grants and donations, including grants from the US Department of Homeland Security. DOT selected MTI as a National Center of Excellence following competitions in 2002 and 2006. The internationally respected members of the MTI Board of Trustees represent all major surface transportation modes. MTI's focus on policy and management resulted from the Board's assessment of the transportation industry's unmet needs. That led directly to choosing the San José State University College of Business as the Institute's home. MTI conducts research, education, and information and technology transfer, focusing on multimodal surface transportation policy and management issues. Visit www.transweb.sjsu.edu