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SJSU Research Center  
210 N. Fourth St., 4th Fl.  
San José, CA 95112

Tel // 408.924.7560  
Fax // 408.924.7565

[www.transweb.sjsu.edu](http://www.transweb.sjsu.edu)

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## Contacts:

Donna Maurillo, MTI

831-234-4009

[donna.maurillo@sjsu.edu](mailto:donna.maurillo@sjsu.edu)

Riki Rafner, Rafner Communications

415-385-5052

[riki.rafner@gmail.com](mailto:riki.rafner@gmail.com)

## Mineta Transportation Institute Issues a Research Report on Reliability Centered Maintenance (RCM) in Heavy Rail Transit Stock

*Dr. Felix Martin tested the qualitative outcome of RCM on availability, reliability and safety of rolling stock. The results may help transit leaders with strategic decisions.*

**San Jose, Calif., December 14, 2010** – The Mineta Transportation Institute (MTI) has issued [\*Reliability Centered Maintenance: A Case Study of Railway Transit Maintenance to Achieve Optimal Performance\*](#). The research report, available at no charge on the Institute's web site ([www.transweb.sjsu.edu](http://www.transweb.sjsu.edu)), is a case study of a single heavy rail transit agency in North America that embedded a Reliability Centered Maintenance (RCM) process. The study also examined the impact of RCM on availability, reliability, and safety of rolling stock. The data may help rail transit leaders determine future strategic directions that would improve this industry. Despite the RCM record in other fields, it has been used infrequently in heavy rail transit agencies.

“The general problem addressed in this study relates to a number of rolling stock failures – ranging from five to 15 or more – in heavy rail transit, and the organizational need to cope with them,” said Dr. Felix A. Martin, Jr., the report's author. “These agencies have service delays almost daily – often greater than 5 minutes and frequently during peak revenue hours. Operational failures not only impact the customers' satisfaction level and increase maintenance costs, but also deter patrons from relying on public transportation. And that leads to a revenue loss for the transit agency.”

For the first portion of this qualitative case study, Dr. Martin collected data from managers and non-managers through an open-ended, in-depth personal interview. The second portion of the study explored how the RCM process affected rolling stock for availability, reliability, and safety. This portion used data derived from project documents and reports to answer questions about the phenomena. Exploring and identifying the patterns and obstacles is important, Dr. Martin said, because organizational leaders in other heavy rail transit systems may use this knowledge to help embed the process more smoothly, efficiently, and effectively to obtain the desired results.

Based on data analysis, seven themes emerged regarding obstacles the maintenance employees experienced while RCM was implemented. First, there were problems with the predicted implementation time. The second theme focused on effective communication methods. Other themes included the influence of organizational culture on RCM implementation; the effect of RCM processes on employees; the most challenging aspects of implementing RCM; the most significant obstacles of implementing RCM; and the impact of RCM on rolling stock.

The analysis revealed mixed results regarding the impact. Some participants indicated an increase in safety and reliability, whereas others indicated a decrease. However, participants did indicate that there had been a significant increase in rolling stock availability since pre-RCM.

The full report may be downloaded at no charge from [http://www.transweb.sjsu.edu/MTIportal/research/publications/summary/2913\\_10-06.html](http://www.transweb.sjsu.edu/MTIportal/research/publications/summary/2913_10-06.html). Or visit [www.transweb.sjsu.edu](http://www.transweb.sjsu.edu), click “Research,” then “Publications” and scroll down to the report.

### **ABOUT THE AUTHOR**

For more than 20 years, Felix A. Marten, Jr., DBA has been employed with San Francisco Bay Area Rapid Transit District (BART). He has served in many positions with the BART district, including computer specialist, train control engineer, supervising engineer, manager of operations liaisons, and in his current position as assistant superintendent of systems maintenance, where he oversees maintenance of several divisions of the District. Dr. Marten has taught classes in business; operations management; physics; intermediate algebra; operating systems; analog, digital, and industrial electronics; and PC troubleshooting. He also headed the Cisco Networking Academy Program.

### **ABOUT THE MINETA TRANSPORTATION INSTITUTE**

The [Mineta Transportation Institute](http://www.mineta.org) (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](http://www.transweb.sjsu.edu)

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