UTC Project Information	
Project Title	MPC-536 – Development of Age and State Dependent Stochastic Model for Improved Bridge Deterioration Prediction
University	Colorado State University
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Research and Innovative Technology Administration $53,000 Colorado State University $53,000
Total Project Cost	$106,000
Agency ID or Contract Number	69A3551747108
Start and End Dates	November 2, 2017 to July 31, 2024
Brief Description of Research Project	Reliable and accurate assessment and prediction of the condition deterioration of bridges is critical for effective bridge preservation, which can help extend the service life of bridges. Bridge inspection serves as an important task in assessing the current condition of bridges. The inspection data over time can also help establish condition deterioration models to predict bridge conditions in the future. The deterioration models combined with the information on the current condition can help guide inspection, maintenance, repair, and rehabilitation planning, and can also be incorporated for risk and life-cycle analysis. Therefore, it is very important to develop deterioration models that can better predict the condition deterioration of bridges and bridge elements.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	The developed deterioration models can be incorporated in existing bridge management systems to guide risk-informed cost-effective maintenance and inspection decision making for better preservation of bridges. The model's adaptability allows it to be updated with new inspection and environmental data, making it a valuable tool for long-term bridge management. Its use will help prioritize bridge inspection and repairs based on more accurate condition assessments, improving safety and reducing costs associated with emergency repairs.
Impacts/Benefits of Implementation (actual, not anticipated)	This research will improve the safety and longevity of bridges by providing transportation agencies with a more accurate tool for predicting deterioration. Because the developed deterioration models account for the difference in the condition, environment and deterioration rate of different bridges, these models can provide more

	accurate deterioration and condition prediction for individual bridges. Therefore, these deterioration models can be used to provide inspection and maintenance plans tailored for each bridge to not only ensure preservation of bridges but also reduce unnecessary inspections and reduce cost.
Web Links • Reports • Project Website	• MPC Final Report – Development of Age and State Dependent Stochastic Model for Improved Bridge Deterioration Prediction