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EDITORIAL

The HL-93, a combination of the HS20 truck and lane loads along with the AASHTO LRFD live load factors were calibrated using 1975 truck data from the Ontario Ministry of Transportation to project a 75-year live-load occurrence. Because truck traffic volume and weights have increased and truck configurations have become more complex, the 1975 Ontario data do not represent present US traffic loadings. Updating bridge live load models needs representative samples of unbiased truck weight data that meet accepted quality standards. A method that has been developed over the last three decades to capture truck loads in an undetected manner and obtain a true unbiased representation of actual highway loads, is known as the Weigh-In-Motion, or WIM technology. The implementation of WIM systems in recent years has led to improving the quality and quantity of traffic data, which can be used to update the bridge design loads. NCHRP Project 12-76, was performed to develop a set of protocols and methodologies for using available recent WIM data collected at different US sites and recommend a step-by-step procedure that can be followed to obtain live load models for LRFD bridge design. The protocols are geared to address the collection, processing and use of national WIM data to develop and calibrate vehicular loads for LRFD superstructure design, fatigue design, deck design and design for overload permits. In 'Collecting and using Weigh-in-Motion data in LRFD bridge design', Sivakumar and Ghosn summarize the recommended protocols that were implemented using recent traffic data from 26 WIM sites in five states across the United States. The states and WIM sites were chosen to capture a variety of geographic locations and functional classes, ranging from urban interstates, rural interstates and state routes.

During the 1960s, two major suspension bridges were constructed in the UK. With a span of 1006 m, the Forth Road Bridge was a traditional design, whereas the M48 Severn Bridge at 988 m span was a highly innovative design using a steel box deck for stiffening. After nearly 40 years of heavy use, both bridges revealed unexpected results of degradation and a loss of strength following internal inspections of cables. A review of how these problems were addressed and solved around the world was undertaken and the owners of the two bridges adopted cable dehumidification to slow down the suspension cable degradation. In their paper, 'Extending the life of the main cables of two major UK suspension bridges through dehumidification', Cocksedge and Bulmer present a review of the dehumidification technology, its installation, efficiency, and control systems.

Bridge Information Modeling (BrIM) was introduced to bridge enterprise stakeholders not only in design and construction but also in operations and management. These stakeholders are increasingly realizing that a well thought out leveraging of bridge data for multiple purposes through the entire bridge lifecycle is increasingly important. Toward this end, this paper surveys the genesis and development of BrIM supported by NSBA, NCHRP, AASHTO, and FHWA. This includes aspects that distinguish it from its close cousin, Building Information Modeling (BIM). Principal questions, issues, and challenges that have been raised by various stakeholders about BrIM are summarized by Shirole *et al.* in 'BrIM for project delivery and the life-cycle: state of the art' to help clarify the way forward to increased industry acceptance and deployment of BrIM-enabled workflow.

Exterior girders undergo direct torsional effects applied by deck forming brackets during construction. During this phase while these members are not composite, these effects are counteracted by internal lateral forces developed primarily in the flanges that modify the major-axis bending stresses produced by vertical loads. In curved and skewed bridges, additional lateral flange bending is introduced due to the eccentricity of the loads with respect to the supports and differential displacements. In 'Evaluation of flange bending stresses in non-composite steel I-girder bridges during construction', Galindez and Barth propose approximate equations based on a parametric study to estimate the lateral flange bending in continuous straight, skewed and curved bridges during the deck placement. The proposed equations were found to be less conservative than AASHTO

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approximate equations. For curved bridges, the major-axis bending was also approximated in terms of the curvature. The results showed that the variable that most affect the limit states for constructibility is the curvature, followed by the cross-frame spacing to a lesser degree. Conversely, for the girders evaluated in this work through the range of parameters studied, the limit states were not found to be sensitive to skew angle.

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