

From: [Tyler R. Lindsay](#)
To: [BRSSE](#); [BRSD](#); [BRLLD](#); [BRSLE](#); [BRPM](#)
Subject: Development Section Bulletin No. 19-01-DSB-LEAP Bridge Concrete Negative Moment Error
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<< DEVELOPMENT SECTION BULLETIN >>

No. 19-01-DSB-LEAP Bridge Concrete Negative Moment Error

Contact: Tyler Lindsay

Effective: Immediately for all jobs

Duration: Review as software is updated

Instruction:

When designing for negative moment of continuous span structures using LEAP Bridge Concrete software, user must run the Design Truck + Design Lane and Double Truck + Design Lane cases separately to determine max force effects within the reinforced design output. User should use the maximum moment reported at the pier for design.

Reason for Bulletin:

It has come to our attention that at the centerline pier location, LEAP Bridge Concrete software is only reporting the Double Truck load case under the reinforced design output regardless whether or not the Design Truck produces a larger effect. This may only be limited to shorter span structures.

Background:

AASHTO Article 3.6.1.3.1 specifies which live loading should be used to produce max force effects. The effect should be the largest of the Design Tandem + Design Lane, Design Truck + Design Lane and for negative moment locations or reactions at interior piers only, 90% of the Double Truck + 90% of the Design Lane. On longer span bridges, it will be common for the Double Truck case to control, however, short span bridges where one of the trucks is potentially positioned off the bridge or not within the adjacent span, Double Truck may produce a smaller effect than the Design Truck by itself once the 90% factor is applied. LEAP seems to be interpreting the AASHTO Article to mean that only the Double Truck case is to be used for negative moments at the pier regardless if the Design Truck produces larger moments. However, the program does not apply this same methodology to reactions at the pier which is contradictory to itself. It is MoDOT's position that AASHTO never intended the Double Truck case to be the only source of negative moment if another case would produce a larger effect.

Action:

Bentley has been notified of this error in hopes a resolution will be developed for future versions of LEAP.

Sincerely,

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